Preparing you for an

outstanding educational experience

Undergraduate Bulletin
2020-2021

RIT

Rochester Institute of Technology 2020–21 Academic Calendar

† The Add/Drop period is the first seven class days of the fall, spring, and full summer terms, excluding Sundays and holidays.

* Tentative spring semester and summer term schedule. RIT reserves the right to update the spring and summer schedule.

Fall Semester (2201)

August 19
Day, evening, and online classes begin
First day of Add/Drop period †

August 22
Saturday classes begin

August 26
Last day of Add/Drop period †

August 27
First day to drop from classes with a grade of "W"

September 7
Labor Day
University open (Classes in session)

November 3
Last day to drop from classes with a grade of "W"

November 24
Last day, evening, and online classes

November 25
No classes
University closes at 2 p.m.

November 26 - 27
Thanksgiving Holiday (no classes)
University closed

November 30
Reading Day

Dec. 1, 2, 3, 4, 7, 8
Final exams

December 11
Final grades due

Spring Semester* (2205)

January 11
Day, evening, and online classes begin
First day of Add/Drop period †

January 16
Saturday classes begin

January 18
Martin Luther King Jr. Day (no classes)
University open

January 19
Last day of Add/Drop period †

January 20
First day to drop from classes with a grade of "W"

March 8 - 14
Spring Break (no classes)
University open

March 13
No Saturday classes

March 15
Day, evening, and online classes resume

March 20
Saturday classes resume

April 23
Last day to drop from classes with a grade of "W" †

April 24
Last Saturday classes

April 26
Last day, evening, and online classes

April 27
Reading Day

April 28, 29, 30, May 3, 4, 5
Final exams

May 7
Final grades due
Convocation and Commencement ceremonies

May 8
Commencement ceremonies

May 7 - 12
Break between Spring Semester and Summer Term

12-week Summer Term* (2208)

May 13
Day, evening, and online classes begin
First day of Add/Drop period †

May 15
Saturday classes begin

May 20
Last day to Add/Drop classes †

May 21
First day to drop from classes with a grade of "W"

May 31
Memorial Day (no classes)
University closed

July 5
Independence Day observed
University closed

July 16
Last day to drop from classes with a grade of "W"

July 31
Last Saturday classes

August 4
Last day, evening, and online classes

August 5
Reading Day

August 6, 9, 10
Final exams

August 12
Final grades due

August 12 - 23
Break between Summer Term and Fall Semester

6-week Summer Term I (2208)

May 13
Day, evening, and online classes begin
First day of Add/Drop period †

May 15
Saturday classes begin

May 17
Last day to Add/Drop classes †

May 18
First day to drop from classes with a grade of "W"

May 31
Memorial Day (no classes)
University closed

June 14
Last day to drop from classes with a grade of "W"

June 19
Last Saturday classes

June 23
Last day of classes

June 24, 25
Final exams

June 28
Final grades due

6-week Summer Term II (2208)

June 28
Day, evening, and online classes begin
First day of Add/Drop period †

June 30
Last day to Add/Drop classes †

July 1
First day to drop from classes with a grade of "W"

July 5
Independence Day observed (no classes)
University closed

July 27
Last day to drop from classes with a grade of "W"

August 4
Last day, evening, and online classes

August 5
Reading Day

August 6, 9, 10
Final exams

August 12
Final grades due

August 12 - 23
Break between Summer Term and Fall Semester

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Rochester Institute of Technology

About This Bulletin

This *Undergraduate Bulletin* does not constitute a contract between the university and its students on either a collective or individual basis. It represents RIT's best academic, social, and financial planning at the time of publication. Course and curriculum changes, modifications of tuition, fees, dormitory, meal, and other charges, plus unforeseen changes in other aspects of RIT life, sometimes occur after the *Undergraduate Bulletin* has been printed but before the changes can be incorporated in a later edition of the same publication. Because of this, Rochester Institute of Technology does not assume a contractual obligation with its students for the contents of this *Undergraduate Bulletin*. RIT does not discriminate. RIT promotes and values diversity within its workforce and provides equal opportunity to all qualified individuals regardless of race, color, creed, age, marital status, sex, gender, religion, sexual orientation, gender identity, gender expression, national origin, veteran status, or disability.

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Rochester Institute of Technology
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rit.edu
Undergraduate Bulletin 2020–21

An Introduction to Rochester Institute of Technology

Respected internationally as a world leader in career-oriented, technological education, Rochester Institute of Technology has been setting an innovative pace since 1829, when Colonel Nathaniel Rochester became the first president of the Rochester Athenaeum. In 1891, the Athenaeum merged with Mechanics Institute, which had been founded by a group of businessmen to instruct in "drawing and such other branches of studies as are most important for industrial pursuits." In 1944, recognizing the increasingly specialized professional nature of its programs, the university adopted the name it holds today.

A private, coeducational university in upstate New York, RIT offers academic programs that combine outstanding teaching, a strong foundation in the liberal arts and sciences, modern classroom facilities, and work experience gained through the university's cooperative education program, internships, and other opportunities.

Few universities provide RIT's variety of career-oriented studies. Our 10 colleges and degree-granting entities offer outstanding programs in business, engineering, art and design, science and mathematics, the liberal arts, photography, computing, hospitality management, and many other areas.

More than 200 programs—including such distinctive offerings as microelectronic and software engineering, imaging science, film and animation, biotechnology and molecular bioscience, physician assistant, new media, international business, telecommunications, and the programs of RIT's School for American Crafts and National Technical Institute for the Deaf (NTID)—draw students from all 50 states and more than 100 countries.

As a major university, RIT offers academic opportunities that extend far beyond science and technology, including more liberal arts courses and faculty than are found at most liberal arts colleges. With a strong foundation in the humanities and social sciences, RIT graduates understand both technological developments and the larger philosophical and ethical issues presented by technology.

Approximately 15,750 undergraduate students and 3,100 graduate students attend RIT. More than 135,000 alumni can be found around the globe.

RIT is a top 100 national research university. We offer the following degrees: doctoral (Ph.D.) programs in astrophysical sciences and technology, color science, computing and information sciences, imaging science, engineering, mathematical modeling, microsystems engineering, and sustainability; master's degree programs: master of architecture (M.Arch.), master of business administration (MBA), master of engineering (ME), master of fine arts (MFA), master of science (MS), and master of science for teachers (MST); bachelor's degree programs: bachelor of fine arts (BFA) and bachelor of science (BS); and associate degree programs: AS, AOS, AAS.

RIT's cooperative education program is the fourth-oldest and one of the largest in the world. We place more than 4,300 students in co-op work positions with approximately 2,200 employers every year. In addition, more than 600 companies visit RIT to conduct employment interviews on campus.

The world in which RIT graduates live and work is composed of people from many backgrounds, lifestyles, and cultures. Therefore, RIT encourages the appreciation of diversity through a variety of liberal arts courses, campus events, and special programs, including the annual International Banquet, Black History Month, Martin Luther King Jr. celebration, and Hispanic Heritage Week.

RIT has been recognized by *U.S. News & World Report* magazine as one of the nation's leading comprehensive universities and one of America's Best College Values. Many college guidebooks have ranked RIT among the nation's top schools, including "Kaplan's Unbiased Guide to the 320 Most Interesting Colleges" and *The Princeton Review's Best 379 Colleges*.

Accreditation

Rochester Institute of Technology is accredited by the Middle States Commission on Higher Education, 3624 Market Street, Philadelphia, PA 19014, (267) 284-5000. The Middle States Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation..

In addition to institutional accreditation, many of RIT's academic programs have been granted accreditation by appropriate professional accreditation bodies. Where applicable, specific mention of accreditation is included in program descriptions. Students wishing to review documents describing accreditation should contact the Office of the Senior Vice President for Academic Affairs.

Academic Programs of Study (HEGIS chart)

Undergraduate Programs of Study		Degree and HEGIS Code						
		Cert.	Diploma	AOS	AS	AAS	BFA	BS
Art, Design, and Architecture								
3D Digital Design	Art and Design						1009	
3D Graphics Technology	National Technical Institute for the Deaf					5012.00		
Design and Imaging Technology	National Technical Institute for the Deaf			5012		5012		
Digital Humanities and Social Sciences	Liberal Arts							5649.00
Furniture Design	Art and Design			5317.00				
Graphic Design	Art and Design						1009	
Illustration	Art and Design						1002	
Industrial Design	Art and Design						1009	
Interior Design	Art and Design						1009	
Media Arts and Technology	Engineering Technology							0605
Medical Illustration	Art and Design						1299	
New Media Design	Art and Design						0605	
Studio Arts	Art and Design						1002.00	
Business, Management, and Leadership								
Accounting Technology	National Technical Institute for the Deaf					5002		
Administrative Support Technology	National Technical Institute for the Deaf					5005		
Business Administration	National Technical Institute for the Deaf					5001.00		
Business Administration: Accounting*	Business							0502
Business Administration: Finance	Business							0504
Business Administration: International Business	Business							0513
Business Administration: Management	Business							0506
Business Administration: Marketing	Business							0509
Business	National Technical Institute for the Deaf				5001			
Business Technology	National Technical Institute for the Deaf			5004				
Dietetics and Nutrition	Health Sciences and Technology							1306.00
Economics	Liberal Arts							2204
Health Systems Administration‡	Health Sciences and Technology	5299.00						
Hospitality and Tourism Management	Business							0510.10
Management Information Systems (MIS)	Business							0599
Organizational Change and Leadership‡	School of Individualized Study	5004.00						
Supply Chain Management	Business							0509.00
Communications and Digital Media								
3D Graphics Technology	National Technical Institute for the Deaf					5012.00		
Advertising and Public Relations	Liberal Arts							0604
ASL-English Interpretation	National Technical Institute for the Deaf							1199
Communication	Liberal Arts							0601
Digital Humanities and Social Sciences	Liberal Arts							5649.00
Graphic Design	Art and Design						1009	
Journalism	Liberal Arts							0604
Media Arts and Technology	Engineering Technology							0605
New Media Design	Art and Design						0605	
New Media Interactive Development	Computing and Information Sciences							0699
Computing and Information Sciences								
3D Digital Design	Art and Design						1009	
3D Graphics Technology	National Technical Institute for the Deaf					5012.00		
Applied Computer Technology	National Technical Institute for the Deaf			5101	0799	5101		
Bioinformatics and Computational Biology*	Science							0499
Computational Mathematics*	Science							1703
Computer Engineering*	Engineering							0999
Computer Engineering Technology*	Engineering Technology							0925
Computer Science*	Computing and Information Sciences							0701
Computing and Information Technologies	Computing and Information Sciences							0702
Computing Security*	Computing and Information Sciences							0799
Digital Humanities and Social Sciences	Liberal Arts							5649.00
Game Design and Development*	Computing and Information Sciences							0799
Human-Centered Computing	Computing and Information Sciences							4605.00
Imaging Science	Science							1999.20
Management Information Systems (MIS)	Business							0599
Media Arts and Technology	Engineering Technology							0605
Mobile Application Development	National Technical Institute for the Deaf					5101		
New Media Design	Art and Design						0605	
New Media Interactive Development	Computing and Information Sciences							0699
Software Engineering*	Computing and Information Sciences							0999
Web and Mobile Computing	Computing and Information Sciences							0699
Engineering and Engineering Technology								
Applied Mechanical Technology	National Technical Institute for the Deaf					5315		
Architectural and Civil Drafting Technology	National Technical Institute for the Deaf			5303		5303		
Biomedical Engineering*	Engineering							0905

* Accelerated duel degree (BS/MS) option available.
† Evening option available.
‡ Online option available.

Undergraduate Programs of Study		Degree and HEGIS Code						
		Cert.	Diploma	AOS	AS	AAS	BFA	BS
Chemical Engineering*	Engineering							0906
Civil Engineering Technology	Engineering Technology							0925
Civil Technology	National Technical Institute for the Deaf					5309		
Computer Engineering*	Engineering							0999
Computer Engineering Technology*	Engineering Technology							0925
Electrical Engineering*	Engineering							0909
Electrical Engineering Technology	Engineering Technology							0925
Electrical Mechanical Engineering Technology*	Engineering Technology							0925
Imaging Science	Science							1999.20
Industrial Engineering*	Engineering							0913
Integrated Electronics	Engineering	5311.00						
Mechanical Engineering*	Engineering							0910
Mechanical Engineering Technology*	Engineering Technology							0925
Mechatronics Engineering‡	Engineering							
Microelectronic Engineering*	Engineering							0999
Packaging Science	Engineering Technology							4999
Precision Manufacturing Technology	National Technical Institute for the Deaf			5312				
Robotics and Manufacturing Engineering Technology*	Engineering Technology							0925
Software Engineering*	Computing and Information Sciences							0999
Environmental Studies and Sustainability								
Civil Engineering Technology	Engineering Technology							0925
Electrical Engineering*	Engineering							0909
Environmental Science*	Science							0420
Environmental Sustainability, Health and Safety*	Engineering Technology							0420
Mechanical Engineering*	Engineering							0910
Packaging Science	Engineering Technology							4999
Game Design and Development								
3D Digital Design	Art and Design						1009	
Digital Humanities and Social Sciences	Liberal Arts							5649.00
Game Design and Development*	Computing and Information Sciences							0799
New Media Interactive Development	Computing and Information Sciences							0699
Web and Mobile Computing	Computing and Information Sciences							0699
Health Professions and Medical Sciences								
Biochemistry	Science							0414
Bioinformatics and Computational Biology*	Science							0499
Biology*	Science							0401
Biomedical Sciences	Health Sciences and Technology							0499
Biotechnology and Molecular Bioscience	Science							0499
Diagnostic Medical Sonography (Ultrasound)	Health Sciences and Technology							1299
Dietetics and Nutrition	Health Sciences and Technology							1306.00
Echocardiography (Cardiac Ultrasound)	Health Sciences and Technology							
Exercise Science	Health Sciences and Technology							1299.30
General Science	National Technical Institute for the Deaf				5604.00			
Health Systems Administration‡	Health Sciences and Technology	5299.00						
Medical Illustration	Art and Design						1299	
Nutritional Sciences	Health Sciences and Technology							1306.00
Physician Assistant†	Health Sciences and Technology							1299.10
Humanities, Social Sciences, and Education								
Applied Arts and Sciences‡	School of Individualized Study					5699		4999
Applied Liberal Arts	National Technical Institute for the Deaf				5699			
Applied Modern Language and Culture	Liberal Arts							1101.00
ASL-English Interpretation	National Technical Institute for the Deaf							1199
Criminal Justice*	Liberal Arts							2105
Deaf Cultural Studies-American Sign Language	National Technical Institute for the Deaf	5506.00						
Digital Humanities and Social Sciences	Liberal Arts							5649.00
Economics	Liberal Arts							2204
Human-Centered Computing	Computing and Information Sciences							4605.00
International and Global Studies*	Liberal Arts							2210
Museum Studies	Liberal Arts							1099
Performing Arts	National Technical Institute for the Deaf	5610.00						
Philosophy	Liberal Arts							1509
Political Science	Liberal Arts							2207
Psychology	Liberal Arts							2001
Public Policy*	Liberal Arts							2102
Sociology and Anthropology	Liberal Arts							2214
Photography, Film, and Animation								
Film and Animation	Art and Design						1010	
Imaging Science	Science							1999.20
Motion Picture Science	Art and Design							1010

* Accelerated duel degree (BS/MS) option available.
† Evening option available.
‡ Online option available.

Undergraduate Programs of Study		Degree and HEGIS Code						
		Cert.	Diploma	AOS	AS	AAS	BFA	BS
Photographic and Imaging Arts	Art and Design						1011	
Photographic Sciences	Art and Design							1217
Science and Math								
Applied Mathematics*	Science							1703
Applied Statistics and Actuarial Science*	Science							1702
Biochemistry	Science							0414
Bioinformatics and Computational Biology*	Science							0499
Biology*	Science							0401
Biomedical Engineering*	Engineering							0905
Biomedical Sciences	Health Sciences and Technology							0499
Biotechnology and Molecular Bioscience	Science							0499
Chemistry*	Science							1905
Computational Mathematics*	Science							1703
Diagnostic Medical Sonography (Ultrasound)	Health Sciences and Technology							1299
General Science	National Technical Institute for the Deaf				5604.00			
Imaging Science	Science							1999.20
Laboratory Science Technology	National Technical Institute for the Deaf			5407		5407		
Motion Picture Science	Art and Design							1010
Photographic Sciences	Art and Design							1217
Physician Assistant†	Health Sciences and Technology							1299.10
Physics*	Science							1902
Undeclared and Individualized Study								
Applied Arts and Sciences‡	School of Individualized Study					5699		4999

* Accelerated duel degree (BS/MS) option available.
† Evening option available.
‡ Online option available.

Colleges of RIT

RIT enrolls more than 19,000 full-time and part-time students in 10 colleges and schools on our main campus in Henrietta, N.Y. An additional 2,400 students are enrolled at RIT's global campuses in China, Croatia, Dubai, and Kosovo.

RIT's Colleges and Schools

- College of Art and Design
- Saunders College of Business
- Golisano College of Computing and Information Sciences
- Kate Gleason College of Engineering
- College of Engineering Technology
- College of Health Sciences and Technology
- School of Individualized Study
- College of Liberal Arts
- National Technical Institute for the Deaf
- College of Science

College of Art and Design

Todd Jokl, Dean
www.rit.edu/artdesign/

Programs of study

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Art Exploration, Undeclared	8
Design Exploration, Undeclared	8
Film and Animation, BFA	8
Furniture Design, AOS	11
Graphic Design, BFA	11
Illustration, BFA	13
Industrial Design, BFA	14
Interior Design, BFA	15
Medical Illustration, BFA	16
Motion Picture Science, BS	18
New Media Design, BFA	19
Photographic and Imaging Arts, BFA	20
Photographic Arts and Sciences Exploration, Undeclared	23
Photographic Sciences, BS	24
Studio Arts, BFA	25

The College of Art and Design includes the schools of American Crafts, Art, Design, Film and Animation, and Photographic Arts and Sciences.

Please visit the college's website–**www.rit.edu/artdesign**–for in depth information on academics, faculty, facilities, research initiatives, advising services, and more.

Admission requirements

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the individual program descriptions and the Undergraduate Admission section of this bulletin. Admission to most majors in the college requires a combination of academic performance and creative visual skills that are evaluated via a portfolio review.

Portfolio requirements: The BFA programs in the schools of American Crafts, Art, Design, and Film and Animation require a portfolio. For the most up-to-date information on portfolio requirements, including requirements by program and submission information, please visit https://www.rit.edu/artdesign/portfolio-requirements.

National Portfolio Days

All schools in the college participate in open house programs hosted by RIT's Office of Undergraduate Admissions and selected National Portfolio Days. These events allow for the presentation and review of original work and, for the exceptional portfolio, a means for on-site acceptance of the portfolio. For more details on National Portfolio Days, please visit nationalportfolioday.org.

Financial aid and scholarships

Please refer to the Financial Aid and Scholarships section of this bulletin for information regarding financial aid, scholarships, loans, and grants.

Accreditation

The National Association of Schools of Art and Design (NASAD) accredits the BFA programs in the schools of American Crafts, Art, Design, Film and Animation, and Photographic Arts and Sciences. The School of Design's interior design program is accredited by the Council for Interior Design Education Accreditation.

3D Digital Design, BFA

www.rit.edu/study/3d-digital-design-bfa

Shaun Foster, Associate Professor
585-475-7124, scffaa@rit.edu

Program overview

3D digital designers use their passion to create virtual elements featured in everything from games and movies to visualizations and augmented reality. Vehicles, avatars, lighting, and environments are all designed to imagine something new, visualize an idea, or simulate a process. As you progress through the program you will discover new applications for your skills in creating with this advanced software. On your first day in the program, you begin learning and using the same software that professionals use in related fields. As a program in a university setting, ample opportunity exists to collaborate with engineers, musicians, scientists, animators, and medical professionals which means that you will have opportunities to put your 3D design abilities to use while you are at RIT and when you graduate.

From day one, students in the 3D digital design major use professional 3D software in game design, virtual reality, medical and scientific simulations, data visualization, models for architects and engineers, movies, motion or broadcast graphics, instructional media, and more. In addition to the 3D software, students use motion and facial capture, projection mapping, and 3D printing. Traditional design skills are augmented with principles of time, motion, lighting, rendering, and compositing to create inspiring projects. Alumni work in top companies around the country and the world applying the skills they have learned to design solutions to all kinds of problems.

Curriculum

3D Digital Design, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
DDDD-101	Introduction to Modeling and Motion	3
DDDD-102	Introduction to Visual Design	3
DDDD-103	Imaging For 3D	3
FDTN-131	3D Design I	3
FDTN-141	4D Design	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
Choose one of the following:		3
FDTN-132	3D Design II	
FDTN-232	3D Design II Workshop: Topic	
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A or B	
Second Year		
DDDD-201	Modeling and Motion Strategies	3
DDDD-202	Layers and Effects	3
DDDD-203	Scripting	3
DDDD-206	Collaboration Project	3
DDDD-207	Lighting, Materials, and Rendering	3
DDDD-208	Anatomical Figure Drawing	3
FDTN-121	2D Design I	3
	General Education – Ethical Perspective	3
	General Education – Social Perspective	3
	Programming Elective	3
Third Year		
DDDD-301	Professional Practice (WI-PR)	3
DDDD-302	General Education Elective: History of Digital Graphics (WI-GE)	3
DDDD-306	Project Planning and Production	3
	3DDD Professional Electives	6
	Open Electives	6
	General Education – Immersion 1, 2	6
	Art History Elective†	3
Fourth Year		
DDDD-400	Senior Capstone	3
	3DDD Professional Electives	15
	Open Electives	9
	General Education – Immersion 3	3
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Art History electives are non-studio courses searchable in SIS with the Art History attribute of ARTH.

Electives

3DDD Professional Electives

COURSE	
DDDD-516	Advanced Studio
DDDD-517	Experimental Workshop
DDDD-521	Character Design and Rigging
DDDD-522	Environment Design
DDDD-523	Hard Surface Design
DDDD-526	Physical Interface Design
DDDD-527	Real Time Design
DDDD-528	Simulating Natural Phenomena

Programming Electives

COURSE	
CMPR-271	Computational Problem Solving for Engineers
CSCI-140	Computer Science for AP Students
CSCI-141	Computer Science I
IGME-101	New Media Interactive Design and Algorithmic Problem Solving I
IGME-105	Game Development and Algorithmic Problem Solving I
ISCH-110	Principles of Computing
ISTE-100	Computational Problem Solving in Network Domain I
ISTE-120	Computational Problem Solving in the Information Domain I

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Studio art experience and a portfolio of original artwork are required for all programs in the schools of Art and Design. A portfolio must be submitted. View Portfolio Requirements for more information.

Transfer Admission

Transfer course recommendations without associate degree

Courses in studio art, art history, and liberal arts. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program. View Portfolio Requirements for more information.

Appropriate associate degree programs for transfer

Related programs or studio art experience in desired disciplines. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program. View Portfolio Requirements for more information. Summer courses can lead to third-year status in most programs.

Art Exploration, Undeclared

www.rit.edu/study/art-exploration
Glen Hintz, Associate Professor
585-475-2126, grhfad@rit.edu

Program overview

If you want to pursue studio arts but are unsure which major or program option in the best matches your interests, the art exploration option is for you. The School of Art offers majors in illustration, medical illustration, and studio arts (where you can choose an option in ceramics, expanded forms, furniture design, glass, metals and jewelry design, printmaking, painting, or sculpture). In your first year, you will work closely with your academic advisor to select courses that best align with your career aspirations..

Admission requirements

Freshmen Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Studio art experience and a portfolio of original artwork are required for all programs in the School of Art.
- A portfolio must be submitted. View Portfolio Requirements for more information.

Design Exploration, Undeclared

www.rit.edu/study/design-exploration
Peter Byrne, Professor
585-475-6107, pjbfaa@rit.edu

Program overview

The design exploration option is for students who are passionate about design, but are unsure which program best fits their career aspirations. The School of Design offers majors in 3D digital design, graphic design, industrial design, interior design, and new media design. In the first year, students will work closely with their academic advisor to select courses that best match their interests.

Admission requirements

Freshmen Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Studio art experience and a portfolio of original artwork are required for all programs in the Schools of Design.
- A portfolio must be submitted. View Portfolio Requirements for more information.

Film and Animation, BFA

www.rit.edu/study/film-and-animation-bfa
Brian Larson, Associate Professor
585-475-2711, bjlppr@rit.edu

Program overview

The film and animation major is for students who recognize the moving image as an expressive force uniquely important to modern life. As a bachelor of fine arts student, you have two options to choose from to pursue your craft. The animation degree path focuses on 2D, 3D, and stop motion animation spanning from conception to application to final production of short films. The film degree path focuses on production through visual and sound artistry utilizing hands-on experience with camera, editing, and sound equipment. The major ultimately develops students' production skills and promotes film and animation as creative media.

Plan of study

The curriculum emphasizes production, with students beginning their first year working in 16mm film, digital HD video, and animation. Production work continues in every semester. Students may choose one of two options: animation or production. The major prepares students to produce, creatively and practically, their own independent work and/or fulfill professional production responsibilities in any medium suitable to their interests and abilities.

Through lectures and laboratories, students develop individual skills in moving-image communications and learn the aesthetic principles governing art. Technology and technique are never taught as an end in themselves but in terms of learning to use the tools necessary to achieve a creative goal in relation to the audience.

Students produce several short films in either live-action or animation by working through all phases of production, from scripting, production planning, and budgeting to shooting, designing, animating, editing, and sound design. Students further their learning of visual and sound artistry through hands-on experience with camera and sound equipment. Film, video, and animation projects are designed by individual students. A wide variety of styles and intentions is expressed in the department's work.

Utilizing research, critical thinking, creativity, and a range of problem-solving principles, students are taught to address complex motion imaging workflow issues within the constraints of time, space, budget, and technology. Upon graduation, students enjoy a variety of career opportunities within feature film and television production.

Memberships

The school maintains memberships in a number of professional organizations, including: Animation World Network, College Art Association, Rochester Audio Visual Association, Society of Motion Picture and Television Engineers, University Film and Video Association, Siggraph, and BEA.

Summer Session

The School of Film and Animation offers a limited selection of courses during the summer term. These range from beginning courses to those requiring a substantial background. For information on summer workshops, please contact the school.

Curriculum

Film and Animation (animation option), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Global Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Elective: History of Western Art: Renaissance to Modern	3
SOFA-101	Production	3
SOFA-107	Principles of Animation	3
SOFA-121	General Education – Artistic Perspective: Animation I	3
SOFA-122	Fundamentals of Computers and Imaging Technology	3
SOFA-131	Film History and Theory I	3
YOPS-10	RIT 365: RIT Connections	0
Choose one of the following:		3
FDTN-121	2D Design I	
FDTN-131	3D Design I	
Choose one of the following:		3
SOFA-108	Drawing for Animation (2D)	
SOFA-209	Introduction to 3D Modeling (3D)	
	General Education – First-Year Writing (WI)	3
Second Year		
SOFA-205	Basic Sound Recording	3
SOFA-221	After Effects for Animators	3
SOFA-217	Animation Production Workshop I	4
SOFA-225	Performance Resources for Animation	3
SOFA-228	Animation Scriptwriting and Storyboard (WI-PR)	3
SOFA-541	History and Aesthetics of Animation (WI-PR)	3
Choose one of the following:		3
SOFA-203	2D Animation I (2D)	
SOFA-215	3D Animation I (3D)	
SOFA-522	Stop Motion Puppet Fundamentals	
Choose one of the following:		3
SOFA-224	2D Digital Animation (2D)	
SOFA-226	Advanced 3D Modeling (3D)	
Choose one of the following:		3
SOFA-216	3D Animation II (3D)	
SOFA-218	Concept and Character Design (2D)	
SOFA-533	Advanced Stop Motion Techniques	
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A or B	
Third Year		
SOFA-306	Senior Capstone Seminar	1
SOFA-317	Animation Production Workshop II	4
SOFA-518	Business and Careers in Animation	3
Choose one of the following:		3
SOFA-323	2D Animation II: Performance	
SOFA-575	3D Lighting and Rendering	
SOFA-582	Alternative Frame By Frame	
	CAD Electives‡	6
	General Education – Social Perspective	3
	General Education – Ethical Perspective	3
	General Education – Immersion 1 (WI-GE)	3
	Open Electives	6
Fourth Year		
SOFA-406	Senior Capstone I	4
SOFA-407	Senior Capstone II	4
SOFA-408	Senior Forum	1
	History and Aesthetics Elective	3
	Open Electives	6
	General Education – Immersion 2, 3	6
	CAD Elective‡	3
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Please see an advisor for a complete list of CAD electives.

Electives

History and Aesthetics Electives

COURSE	
ARTH-135	History of Western Art: Ancient to Medieval
ARTH-136	History of Western Art: Renaissance to Modern
ARTH-311	Art and Architecture of Italy: 1250-1400
ARTH-312	Art and Architecture of Italy: 1600-1750
ARTH-317	Art and Architecture in Florence and Rome: 15th Century
ARTH-318	Art and Architecture in Florence and Rome: 16th Century
ARTH-364	Art in Paris
ARTH-366	18th, 19th Century Art
ARTH-368	20th Century Art: 1900-1950
ARTH-369	20th Century Art: Since 1960
ARTH-373	Art of the Last Decade
ARTH-378	Baroque Painting in Flanders
ARTH-379	Renaissance Painting in Flanders
ARTH-392	Theory and Criticism of 20th Century Art
ARTH-457	Art and Activism
ARTH-521	The Image
ARTH-541	Art and Architecture of Ancient Rome
ARTH-544	Illuminated Manuscripts
ARTH-550	Topics in Art History
ARTH-555	Topics in Medieval Art and Architecture
ARTH-561	Latin American Art
ARTH-563	Modern Architecture
ARTH-568	Art and Technology: From the Machine Aesthetic to the Cyborg Age
ARTH-572	Art of the Americas
ARTH-573	Conceptual Art
ARTH-574	Dada and Surrealism
ARTH-576	Modernism and Its Other: Realism in the Shadow of Expressionism
ARTH-577	Displaying Gender
ARTH-578	Edvard Munch
ARTH-581	Realism and Avant-Garde in Russian Art
ARTH-583	Installation Art
ARTH-584	Scandinavian Modernism
ARTH-586	History of Things: Studies in Material Culture
ARTH-588	Symbols and Symbol Making: Psychoanalytic Perspectives on Art
GRDE-322	Women Pioneers in Design
GRDE-326	20th Century Editorial Design History
PHAR-211	Histories and Aesthetics of Photography I
PHAR-212	Histories and Aesthetics of Photography II
SOFA-511	Film Sound Theory: Music
SOFA-512	Film Sound Theory: Effects
SOFA-513	Film Sound Theory: Voice
SOFA-561	New Documentary Issues
SOFA-562	Film History
SOFA-566	Documentary Film History
SOIS-242	Comics: Image and Text in Popular Culture
SOIS-542	Art Comics

Film and Animation (production option), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Global Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Elective: History of Western Art: Renaissance to Modern	3
SOFA-101	Production	3
SOFA-105	Documentary Field Practices	4
SOFA-112	Fundamentals of Screenwriting	3
SOFA-121	General Education – Artistic Perspective: Animation I	3
SOFA-122	Fundamentals of Computers and Imaging Technology	3
SOFA-131	Film History and Theory I	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Ethical Perspective	3
Second Year		
SOFA-202	Production Processes	6
SOFA-205	Basic Sound Recording	3
SOFA-206	Directing	3
SOFA-208	Dramatic Structure (WI-PR)	3
Choose one of the following:†		4
SOFA-211	Documentary Workshop	
SOFA-212	Fiction Workshop	
SOFA-213	Radical Cinema Workshop	
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A or B	
	SOFA Craft Choice§	3
	CAD Elective‡	3
	General Education – Social Perspective	3
Third Year		
SOFA-306	Senior Capstone Seminar	1
SOFA-514	Business and Careers in Film	3
Choose one of the following:†		4
SOFA-211	Documentary Workshop	
SOFA-212	Fiction Workshop	
SOFA-213	Radical Cinema Workshop	
	History and Aesthetics Electives	6
	CAD Electives‡	6
	SOFA Craft Choice§	3
	Open Electives	6
	General Education – Immersion 1 (WI-GE)	3
Fourth Year		
SOFA-406	Senior Capstone I	4
SOFA-407	Senior Capstone II	4
SOFA-408	Senior Forum	1
	Open Electives	9
	General Education – Immersion 2, 3	6
	CAD Elective‡	3
Total Semester Credit Hours		**121**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† SOFA production workshop courses include Documentary Workshop (SOFA-211), Fiction Workshop (SOFA-212), and Radical Cinema Workshop (SOFA-213). Students must complete two production workshops over the course of three semesters, starting in the spring of the second year and ending in the spring of the third year. Once the student has completed two different workshops, courses may be repeated for credit.
‡ Please see an advisor for a complete list of CAD electives.
§ SOFA craft choice courses include Advanced Sound Recording (SOFA-521), Advanced Editing (SOFA-523), Advanced Directing (SOFA-524), Writing the Short (SOFA-526), Advanced Cinematography I (SOFA-578).

Electives

History and Aesthetics Electives

COURSE	
	Any "ARTH" undergraduate course
ANTH-430	Visual Anthropology
FNRT-372	American Film of the Studio Era
FNRT-373	American Film Since the Sixties
GRDE-322	Women Pioneers in Design
GRDE-326	20th Century Editorial Design History
PHAR-211	Histories and Aesthetics of Photography I
PHAR-212	Histories and Aesthetics of Photography II
SOFA-511	Film Sound Theory: Music
SOFA-512	Film Sound Theory: Effects
SOFA-513	Film Sound Theory: Voice
SOFA-541	History and Aesthetics of Animation
SOFA-561	New Documentary Issues
SOFA-562	Film History
SOFA-566	Documentary Film History

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Transfer Admission

Transfer course recommendations without associate degree
Courses in liberal arts, science, design, drawing, and film, video, or animation.

Appropriate associate degree programs for transfer
Transfer as a third-year student is uncommon, as comparable programs are not generally available at other colleges.

Portfolio Guidelines

Specific instructions on portfolio submission for applicants to the film and animation major are available on the college website. The review committee is looking for work that is original in concept and content. It does not necessarily need to be motion media, but should be visual or aural. Examples include films/videos, photos, drawings, paintings, sculpture, stop-motion puppets, scripts, creative writing, storyboards, and original music.

Furniture Design, AOS

www.rit.edu/study/furniture-design-aos
Andy Buck, Professor
585-475-2636, aabsac@rit.edu

Program overview

An intensive course of study combining foundations in art and design with two years of study in woodworking and furniture design. For individuals not seeking the BFA or MFA degree, the associate degree will provide you with many of the fundamentals to begin a career in woodworking and furniture design.

The AOS degree in furniture design is a highly-focused, two-year course of study. Students learn how to use and care for basic hand tools and begin to explore the technical and visual potential of wood. Over the two-year experience, increasingly sophisticated techniques and design concepts are introduced. Students complete courses in two-dimensional design, three-dimensional design, freehand drawing, technical drawing, furniture history, and crafts business practices.

Curriculum

Furniture Design, AOS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CWFD-206	Furniture Design: The Table	3
CWFD-207	Intro to Woodworking and Furniture Design: Bench Seating	3
CWFD-211	Intro to Woodworking and Furniture Design: Carving and Shaping	3
CWFD-212	Intro to Woodworking and Furniture Design: Boxes and Containers	3
FDTN-111	Drawing I	3
FDTN-131	3D Design I	3
STAR-201	Crafts Drawing Practice	3
STAR-202	Crafts CADD Drawing	3
YOPS-10	YOPS-10 RIT 365: RIT Connections	3
Choose one of the following:		3
FDTN-112	Drawing II	
FDTN-212	Drawing II Workshop: Topics	
Choose one of the following:		3
FDTN-132	3D Design II	
FDTN-232	3D Design II Workshop: Topic	
Second Year		
CWFD-301	Furniture Design Junior I	6
CWFD-302	Furniture Design Junior II	6
FDTN-121	2D Design I	3
STAR-411	Business Practices for Artists (WI-PR)	3
STAR-502	STAR Capstone	3
Choose one of the following:		3
FDTN-122	2D Design II	
FDTN-222	2D Design II Workshop: Topic	
	Art History Electives*	6
Total Semester Credit Hours		**60**

Please see Wellness Education Requirement for more information. Students completing Associate's degrees are required to complete one Wellness course.
* Art History electives are non-studio courses searchable in SIS with the Art History attribute of ARTH.

Graphic Design, BFA

www.rit.edu/study/graphic-design-bfa
Carol Fillip, Associate Professor
585-475-7914, Carol.Fillip@rit.edu

Program overview

A graphic design degree is perfect for students who eat, breathe, and sleep design, and would like to apply their talents in a hands-on way. In the graphic design major, you'll learn how to use design principles, methods, concepts, images, words, and ideas to convey distinct messages to specific audiences. You'll walk away knowing that designing is not just about how something looks, but rather the experience you create.

Graphic designers are visual problem-solvers who use a wide variety of concepts and media to inform, direct, promote, entertain, engage, and educate specific audiences. The graphic design major prepares students to integrate design principles, methods, concepts, images, words, and ideas to creatively convey visual messages meant to produce specific responses from diverse audiences.

Graphic design students are exposed to a full range of topics throughout their curriculum, including information design, web and interaction design, branding and identity design, design systems, exhibit and wayfinding design, user experience design, and professional practices. With a balance of history, theory, problem solving approaches, conceptual exploration, applied problem solving, human interaction, and the integration of technology, students gain the knowledge and skills needed to create innovative and effective design solutions for a wide range of media and audiences. Access to RIT's world-renowned Vignelli Center for Design Studies, the Cary Graphic Design Archive, and the Cary Library enables students to further enhance their learning and inquiry.

Alumni and guest speakers, along with opportunities for internships, co-ops, and freelance experiences further enhance the program. Additionally, interdisciplinary and collaborative projects within RIT and with outside organizations result in innovative and meaningful hands-on projects that encourage students to explore the social, ethical, and environmental impact of design. Graduates are well prepared to pursue positions within design firms, advertising agencies, corporations, and technology companies around the world.

Plan of Study

The graphic design major integrates major courses, studio and free electives, liberal arts, and graphic design history electives. Aspects of business, professional practices, computer-based skills, collaborative projects, and workflow are also integrated into the curriculum.

Studio electives
Students may select elective courses that enhance their studies or allow them to pursue an area of personal or professional interest. Elective credit can be earned through studio-based courses offered in the College of Art and Design.

Graphic design history electives
Students are required to select three graphic design history electives to broaden their understanding of the historical development of the visual arts.

Professional Memberships

The School of Design maintains memberships in a variety of professional organizations, including Industrial Designers Society of America, ACM Siggraph, Society for Experiential Graphic Design, American Society of Interior Designers, American Institute of Architects, ICOGRADA, American Institute of Graphic Arts, International Interior Design Association, and Rochester Advertising Federation.

Curriculum

Graphic Design, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
FDTN-111	Drawing I	3
FDTN-121	2D Design I	3
FDTN-131	3D Design I	3
Choose one of the following:		3
FDTN-112	Drawing II	
FDTN-212	Drawing II Workshop: Topics	
GRDE-106	Graphic Design Studio I	3
GRDE-107	Motion Design	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A	
Second Year		
GRDE-201	Typography I	3
GRDE-202	Graphic Design Studio II	3
GRDE-205	History of Graphic Design (WI-PR)	3
GRDE-206	Typography II	3
GRDE-207	Interactive Design I	3
GRDE-213	Design Production	3
	CAD Studio Elective†	3
	Open Elective	3
	General Education – Ethical Perspective	3
	General Education – Social Perspective	3
Third Year		
GRDE-301	Graphic Design Studio III	3
GRDE-302	Interactive Design II	3
GRDE-306	Professional Practices	3
GRDE-307	Design Systems I	3
GRDE-308	Experiential Graphic Design	3
	Art History Elective‡	3
	CAD Studio Elective†	3
	Open Elective	3
	General Education – Immersion 1 (WI), 2	6
Fourth Year		
GRDE-402	Graphic Design Capstone	3
GRDE-411	Graphic Design Studio IV	3
GRDE-421	Design Systems II	3
	Professional Electives	6
	CAD Studio Elective†	3
	Open Electives	6
	General Education – Immersion	3
	General Education – Elective	3
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† CAD Studio Elective courses are any College of Art and Design course with a studio or lab component, per catalog restrictions.
‡ Art History electives are non-studio courses searchable in SIS with the Art History attribute of ARTH.

Electives

Senior Graphic Design History Electives

COURSE	
GRDE-401	Collaborative Design
GRDE-418	Editorial Design
GRDE-422	Interactive Design III
GRDE-423	Typography III
GRDE-428	Advertising Design
GRDE-431	Packaging Systems Collaborative
GRDE-432	Packaging Systems

Graphic Design History Electives

COURSE	
GRDE-322	Women Pioneers in Design
GRDE-326	20th Century Editorial Design History

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Studio art experience and a portfolio of original artwork are required for all programs in the schools of Art and Design. A portfolio must be submitted. View Portfolio Requirements for more information.

Transfer Admission

Transfer course recommendations without associate degree

Courses in studio art, art history, and liberal arts. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program. View Portfolio Requirements for more information.

Appropriate associate degree programs for transfer

Related programs or studio art experience in desired disciplines. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program. View Portfolio Requirements for more information. Summer courses can lead to third-year status in most programs.

Illustration, BFA

www.rit.edu/study/illustration-bfa

Robert Dorsey, Professor
585-475-2640, rldfaa@rit.edu

Program overview

The illustration degree prepares students for a variety of careers within the visual communications field. The major provides an educational environment that supports the creative development of students and helps them to achieve their individual goals. Course work emphasizes traditional drawing and painting skills, the application of the latest digital media, and the use of dimensional media. Students learn conceptual skills, professional practices, and narrative story telling techniques while developing an individual style. These techniques and styles are then applied to produce illustrations suitable for advertising, publishing, editorial, and the service and gaming/entertainment industries.

Electives

Students may select electives that enhance their studies or allow them to pursue an area of personal or professional interest. Electives are available in graphic design, illustration, graphic visualization, industrial design, interior design, fine arts studio, environmental design, ceramics, glass, metals, textiles, woodworking, film making, photography, and imaging technology. To be eligible for these electives, students must complete the foundation program or have the permission of the instructor. Additional selections are offered as special topics courses.

Pre-College Portfolio Preparation Workshop

The School of Art's annual Pre-College Portfolio Preparation Workshop is a two-week visual arts class designed to prepare the portfolios of rising high school juniors and seniors for admission to college art programs. Learn more about the Pre-College Portfolio Preparation Workshop, including information on workshop dates and how to apply.

Curriculum

Illustration, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
FDTN-111	Drawing I	3
Choose one of the following:		3
FDTN-112	Drawing II	
FDTN-212	Drawing II Workshop: Topics	
FDTN-121	2D Design I	3
FDTN-131	3D Design I	3
ILLS-206	2D Composition and Color	3
ILLS-209	3D Applications: The Figure	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A	
Second Year		
ILLS-213	Illustration I	3
ILLS-214	Anatomical Illustration	3
ILLS-218	Dimensional Illustration I	3
ILLS-219	Digital Illustration I	3
	Art History Elective†	3
	CAD Studio Electives‡	6
	Illustration Professional Elective§	3
	General Education – Ethical Perspective	3
	General Education – Social Perspective	3
Third Year		
ILLS-313	Illustration II	3
	Illustration Professional Electives§	12
	CAD Studio Elective‡	3
	Art History Elective†	3
	Open Elective	3
	General Education – Immersion 1 (WI), 2	6
Fourth Year		
ILLS-413	Illustration III	3
ILLS-501	Illustration Portfolio (WI-PR)	3
	Illustration Professional Electives§	6
	CAD Studio Elective‡	3
	Open Electives	9
	General Education – Immersion	3
	General Education – Elective	3
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Art History electives are non-studio courses searchable in SIS with the Art History attribute of ARTH.
‡ CAD Studio elective courses are any College of Art and Design course with a studio or lab component, per catalog restrictions.
§ Illustration Professional Electives are ILLS-300-level or higher.

Admission requirements

Freshmen Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Studio art experience and a portfolio of original artwork are required for all programs in the schools of Art and Design.
- A portfolio must be submitted. View Portfolio Requirements for more information.

Transfer Admission

Transfer course recommendations without associate degree

Courses in studio art, art history, and liberal arts. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program. View Portfolio Requirements for more information.

Appropriate associate degree programs for transfer

Related programs or studio art experience in desired disciplines. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program. View Portfolio Requirements for more information. Summer courses can lead to third-year status in most programs.

Industrial Design, BFA

www.rit.edu/study/industrial-design-bfa

Josh Owen, Professor
jkofaa@rit.edu

Program overview

From thumbtacks to athletic wear and medical equipment to home goods – industrial designers produce products to be used by factories, businesses, and everyday people. The industrial design degree at RIT helps you develop the aesthetic sensitivity, technical competence, and the analytical thought needed to improve the user's experience. You will be able to bring your conceptual ideas to life by developing your technical 2D communications skills and 3D prototyping ability. You will also learn how to formally move your ideas and products to the marketplace.

Industrial design involves the integration of form and function as products are designed and created by combining materials, process, computer-aided design, and human factors. Blending technical instruction with studio assignments, studies also include package, exhibit, and furniture design. Aesthetic sensitivity, technical competence, and analytical thought are developed and applied to meet the challenge of designing products for human needs.

What You'll Study

The industrial design degree integrates major courses, studio and open electives, the liberal arts, and art history electives. Computer skills, design perspectives, career preparation, and exposure to the related areas of publishing, photography, engineering, and information technology are integrated into the curriculum.

Professional Organizations

The School of Design maintains memberships in a variety of professional organizations, including Industrial Designers Society of America, ACM Siggraph, Society of Environmental Graphic Designers, American Society of Interior Designers, American Institute of Architects, ICOGRADA, American Institute of Graphic Arts, and International Interior Design Association.

Curriculum

Industrial Design, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
FDTN-111	Drawing I	3
FDTN-121	2D Design I	3
FDTN-131	3D Design I	3
Choose one of the following:		3
FDTN-122	2D Design II	
FDTN-222	2D Design II Workshop: Topic	
Choose one of the following:		3
FDTN-132	3D Design II	
FDTN-232	3D Design II Workshop: Topic	
IDDE-102	Design Drawing	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A	
Second Year		
IDDE-201	Sophomore ID Studio I	3
IDDE-202	Sophomore ID Studio II	3
IDDE-206	ID Form	3
IDDE-207	ID Digital Drawing	3
IDDE-211	Human Factors Applications	3
IDDE-212	Integrated Computer-Aided Design	3
IDDE-221	History of Industrial Design	3
	General Education – Ethical Perspective	3
	General Education – Social Perspective	3
	General Education – Elective	3
Third Year		
IDDE-301	Junior ID Studio I	3
IDDE-302	Junior ID Studio II	3
IDDE-306	Materials and Processes	3
IDDE-307	Graphic Tactics	3
IDDE-311	ID Career Planning (WI-PR)	3
	Open Electives	6
	General Education – Immersion 1 (WI), 2	6
	Art History Elective§	3
Fourth Year		
IDDE-406	Professional Practice	3
IDDE-407	ID Senior Capstone I	3
IDDE-408	ID Senior Capstone II	3
IDDE-501	Senior ID Studio I	3
IDDE-502	Senior ID Studio II	3
	Open Electives	6
	General Education – Immersion 3	3
	General Education – Electives	6
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
§ Art History electives are non-studio courses searchable in SIS with the Art History attribute of ARTH.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Studio art experience and a portfolio of original artwork are required for all programs in the schools of Art and Design. A portfolio must be submitted. View Portfolio Requirements for more information.

Transfer Admission

Transfer course recommendations without associate degree

Courses in studio art, art history, and liberal arts. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program. View Portfolio Requirements for more information.

Appropriate associate degree programs for transfer

Related programs or studio art experience in desired disciplines. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program. View Portfolio Requirements for more information. Summer courses can lead to third-year status in most programs.

Interior Design, BFA

www.rit.edu/study/interior-design-bfa
Mary Golden, Assistant Professor
585-475-7893, megfaa@rit.edu

Program overview

The interior design degree believes in creating contextually appropriate, architecture-centric design solutions grounded in evidence-based design research and human behavior theory. Our goal is to inspire and prepare students to generate holistic, technically creative construction solutions that are not only resilient, adaptable, and sustainable, but purposeful and universally designed.

We are a professional interior design BFA program within a design college, in a technical university affording broader access to allied programs, technology resources, and relationships that push traditional boundaries of interior design education.

From freshman through senior year, you'll be charged with addressing real-world projects in the studio along with peers in collaborative, multidisciplinary teaming activities and in independent studies with research faculty. As a student in the program accredited by the Council for Interior Design Accreditation (CIDA), you'll begin your education with an interdisciplinary Foundations and first-year experience.

The comprehensive interior design curriculum synthesizes the technical and experiential qualities of the built environment with a consciousness for global affairs. Our professionally certified and experienced faculty team mentor you through project-based learning to enhance the human experience with consideration for the health, safety, and welfare of people. In addition to interior design studies and extensive studio electives within the college, you can select a liberal arts immersion offering concentrated areas of study in a unique interest or complementary subject matter relevant to our profession.

Our studio culture is a rigorous, student-centered learning environment with a commitment to celebrating individual capabilities and advancing the program as a collaborative collective. Our enthusiasm for seeing the world through multiples lenses is grounded by curiosity, respectful inquiry, and intellectual discourse. We believe that together we can design a more profoundly meaningful future through the interior environment.

Our Mission

The interior design degree's mission is to educate you to be a designer who contributes to their professions, communicates effectively within your discipline, has a lifelong attitude of inquiry, and makes a positive impact on society. To this end, we promote an innovative educational community that balances expression, imaginative problem solving, aesthetic understanding, professional and environmental responsibility, and creativity.

Educational Philosophy

Our comprehensive interior design major synthesizes design history, building systems, space planning, and design process with a consciousness for global affairs so that students may contribute to the profession with a deep-rooted understanding of society, culture, and the environment. By maximizing an array of academic and professional opportunities, our graduates are reshaping how we live in the world.

Program Goals

1. Explore, challenge, and enhance interior design abilities through problem-solving
2. Demonstrate knowledge of historical, stylistic, theoretical, regional, and cultural design vocabularies
3. Use materials, techniques, and processes used in the built environment with a focus on sustainable design
4. Conduct research and analyze information
5. Introduce design theory, methodology, formal design elements, typology, and necessary technical skills to communicate concepts
6. Examine business practices, regulations, standards, and codes of interior design

Invaluable Resources

Dedicated studio and lecture spaces provide you with the freedom to interact with peers and faculty, fostering teamwork and collaboration. Our active material resource center is akin to the professional office library with "go-to" and specialty products that are managed and updated regularly by manufacturer vendors. RIT's world-renowned Vignelli Center for Design Studies also serves as a vital resource for understanding the process and product of design by some of the world's most acclaimed designers.

Faculty

We have professional faculty who are active in the industry and strive to provide an atmosphere akin to the professional workplace. Our adjuncts are practicing professionals immersed in the subject matters they instruct and extend our reach into the local design community, introducing you to real projects and experiences. Our faculty team is building a studio culture of community and an interior design program focused on excellence, diversity, and pluralism.

Staying Connected

Our illustrious alumni are committed to mentoring students through internship and professional networking activities. Additionally, as an International Interior Design Association (IIDA) Campus Center, we facilitate regular interaction and events with industry professionals.

Professional memberships

The School of Design maintains memberships in a variety of professional organizations, including Industrial Designers Society of America, ACM Siggraph, Society of Environmental Graphic Designers, American Institute of Architects, ICOGRADA, American Institute of Graphic Arts, and International Interior Design Association.

Curriculum

Interior Design, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
FDTN-111	Drawing I	3
FDTN-121	2D Design I	3
FDTN-131	3D Design I	3
Choose one of the following:		3
FDTN-132	3D Design II	
FDTN-232	3D Design II Workshop: Topic	
INDE-101	Introduction to Interior Design I	3
INDE-102	Design Drawing I	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A or B	

COURSE		SEMESTER CREDIT HOURS
Second Year		
INDE-201	Introduction to Interior Design II	3
INDE-202	Design Drawing II	3
INDE-203	Digital Graphics	3
INDE-207	Color and Lighting Theory	3
INDE-212	Hospitality Design	3
INDE-222	Design Issues (WI-PR)	3
	CAD Studio Electives*	6
	General Education – Ethical Perspective	3
	General Education – Social Perspective	3
Third Year		
INDE-301	Office Design	3
INDE-302	Exhibition and Merchandising Design	3
INDE-303	Materials and Specifications	3
INDE-304	Building Systems	3
INDE-345	History of Architecture, Interiors, and Furniture I	3
INDE-346	History of Architecture, Interiors, and Furniture II	3
INDE-405	Business Practices and Career Planning	3
	Open Elective	3
	General Education – Immersion 1 (WI), 2	6
Fourth Year		
INDE-401	Multi-Story/Multi-Purpose Design	4
INDE-403	Health Care Design	3
INDE-407	Contract Documents	3
INDE-411	Interior Design Capstone I	3
INDE-412	Capstone Studio II	3
	General Education – Immersion 3	3
	Open Electives	9
	General Education – Elective	3
Total Semester Credit Hours		**121**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
* CAD Studio elective courses are any College of Art and Design course with a studio or lab component, per catalog restrictions.

Accreditation

The interior design program maintains accreditation from the Council for Interior Design Accreditation (CIDA), which includes student achievement data.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Studio art experience and a portfolio of original artwork are required for all programs in the schools of Art and Design. A portfolio must be submitted. View Portfolio Requirements for more information.

Transfer Admission

Transfer course recommendations without associate degree

Courses in studio art, art history, and liberal arts. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program. View Portfolio Requirements for more information.

Appropriate associate degree programs for transfer

Related programs or studio art experience in desired disciplines. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program. View Portfolio Requirements for more information. Summer courses can lead to third-year status in most programs.

Medical Illustration, BFA

www.rit.edu/study/medical-illustration-bfa
Glen Hintz, Associate Professor
585-475-2126, grhfad@rit.edu

Program overview

Medical illustration students visually support allied health instruction and research. During the first two years, the program focuses on drawing and traditional illustration skills. During this time students are attending human biology, anatomy, and physiology classes. Building on these courses, the third and fourth years emphasize 2D and 3D computer illustration and animation. Third and fourth-year students attend Human Gross Anatomy, which includes full head-to-toe dissection in RIT's Cadaver Lab, one of the few undergraduate cadaver labs in the nation. Additionally, students create surgical illustrations based on attending and observing surgery at area hospitals. The medical illustration degree is perfect for students who have a passion for art and science. You'll explore all aspects of health care, from the molecular level through the macroscopic and into the theoretical.

Combining art and science, medical illustrators provide visual support for the health science and medical instruction fields. From traditional carbon dust renderings to three-dimensional, animated digital imagery, medical illustration spans the fullest range of artistic media. Building on a foundation of drawing and design, students learn how to translate anatomical and surgical sketches into instructional illustrations, courtroom exhibitions, computer graphics, ads, and more.

The major combines the study of the visual arts with science, including gross anatomy. Through collaboration with area hospitals, students are able to draw from direct observation of operations in progress. Digital technology integrated into the studio environment enables students to create highly polished, sophisticated images and well-designed, interactive, educational media presentations that include motion graphics and sound.

Electives

Students may select electives that enhance their studies or allow them to pursue an area of personal or professional interest. Electives are available in graphic design, new media design, 3D digital graphics, illustration, graphic visualization, industrial design, interior design, fine arts studio, environmental design, ceramics, glass, metals, textiles, woodworking, filmmaking, and photography. To be eligible for these electives, students must complete the foundation program or have the permission of the instructor. Additional selections are offered as special topics courses.

Pre-College Portfolio Preparation Workshop

The School of Art's annual Pre-College Portfolio Preparation Workshop is a two-week visual arts class designed to prepare the portfolios of rising high school juniors and seniors for admission to college art programs. Learn more about the Pre-College Portfolio Preparation Workshop, including information on workshop dates and how to apply.

Curriculum

Medical Illustration, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
FDTN-111	Drawing I	3
FDTN-112	Drawing II	3
FDTN-121	2D Design I	3
FDTN-131	3D Design I	3
ILLS-206	2D Composition and Color	3
ILLS-209	3D Applications: The Figure	3
MEDG-101	General Education – Natural Science Inquiry Perspective: Human Biology I	3
MEDG-102	General Education – Elective: Human Biology II	3
MEDG-103	General Education – Natural Science Inquiry Perspective: Human Biology Laboratory I	1
MEDG-104	General Education – Elective: Human Biology Laboratory II	1
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Ethical Perspective	3
Second Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
FDTN-141	4D Design	3
ILLM-507	Computer Applications in Medical Illustration	3
ILLS-214	Anatomical Illustration	3
MEDS-250	Human Anatomy and Physiology I	4
MEDS-251	Human Anatomy and Physiology II	4
	Illustration Professional Elective‡	3
	Open Elective	3
	General Education – Social Perspective	3
Third Year		
ILLM-501	Human Gross Anatomy	6
ILLM-502	Illustrating Human Anatomy	3
ILLM-503	3D Modeling of Organic Forms	3
ILLM-506	3D Animation of Organic Forms	3
ILLM-508	Scientific Visualization	3
	CAD Studio Elective§	3
	General Education – Immersion 1 (WI), 2	6
	Art History Elective†	3
Fourth Year		
ILLM-512	Surgical Illustration	3
ILLM-515	Contemporary Media I	3
ILLM-516	Contemporary Media II	3
ILLM-517	Portfolio and Business Practices (WI-PR)	3
	CAD Studio Electives§	3
	Art History Elective†	3
	General Education – Immersion 3	3
	Open Electives	9
Total Semester Credit Hours		**124**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Art History electives are non-studio courses searchable in SIS with the Art History attribute of ARTH.
‡ Illustration Professional Electives include the following: Illustration I (ILLS-213), Digital Illustration I (ILLS-219), and Zoological and Botanical Illustration (ILLS-563).
§ CAD Studio Electives are any College of Art and Design course with a studio or lab component, per catalog restrictions.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Studio art experience and a portfolio of original artwork are required for all programs in the schools of Art and Design. View the Portfolio Requirements for more information.
- Medical illustration requires biology.

Transfer Admission

Transfer course recommendations without associate degree

Courses in studio art, art history, and liberal arts. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program. View Portfolio Requirements for more information.

Appropriate associate degree programs for transfer

Related programs or studio art experience in desired disciplines. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program. View Portfolio Requirements for more information. Summer courses can lead to third-year status in most programs.

Motion Picture Science, BS

www.rit.edu/study/motion-picture-science-bs
Ricardo Figueroa, Associate Professor
rrfppr@rit.edu

Program overview

What's the last great movie or TV show you saw that made a lasting impression on you? The most ingenious minds behind the most captivating shows and movies apply their knowledge of science and engineering, and use their passion for storytelling to make film, television, and animation possible.

The BS in motion picture science provides a science- and engineering-based education in the fundamental imaging technologies used for the motion picture industry. By combining a core curriculum in practical filmmaking from the College of Art and Design and course work from the imaging science major from the College of Science, the motion picture science degree prepares students in the art and science of feature film, television, and animation production. Topics include film and digital image capture, film scanning, digital image manipulation, color science, visual effects, and digital and traditional projection. New facilities provide students with hands-on experience on the same equipment being used in major motion picture production today.

Utilizing research, critical thinking, creativity, and a range of problem-solving principles, students are taught to address complex motion imaging workflow issues within the constraints of time, space, budget, and technology. Graduates enjoy a variety of career opportunities, from feature film and television post-production to imaging equipment design and essential motion imaging technology research and development.

Professional Student Organizations

The School of Film and Animation maintains memberships in a number of professional organizations: Animation World Network, College Art Association, Rochester Audio Visual Association, Society of Motion Picture and Television Engineers, University Film and Video Association, Siggraph, and BEA.

Curriculum

Motion Picture Science, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
IMGS-181	General Education – Elective: Innovative Freshmen Experience I	3
IMGS-221	General Education – Elective: Vision & Psychophysics	3
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Natural Science Inquiry Perspective: University Physics I	4
SOFA-101	Production	3
SOFA-103	General Education – Elective: Introduction to Imaging and Video Systems	3
SOFA-205	Basic Sound Recording	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
Second Year		
IMGS-180	Introduction to Computing and Control	3
IMGS-211	Probability and Statistics for Imaging	3
IMGS-261	General Education – Elective: Linear and Fourier Methods for Imaging	4
IMGS-351	General Education – Elective: Fundamentals of Color Science	3
PHYS-212	General Education – Scientific Principles Perspective: University Physics II	4
SOFA-121	General Education – Elective: Animation I	3
SOFA-202	Production Processes	6
SOFA-517	IT Fundamentals for Digital Media	3
	General Education – Ethical Perspective	3
Third Year		
IMGS-251	Radiometry	3
IMGS-321	General Education – Elective: Geometric Optics	3
IMGS-361	Image Processing and Computer Vision I	3
IMGS-362	Image Processing and Computer Vision II	3
Choose one of the following:		3
SOFA-209	Introduction to 3D Modeling	
SOFA-531	Digital Effects & Compositing	
SOFA-311	Image Capture and Production Technology	3
SOFA-312	Digital Post Production Technology (WI-PR)	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
	General Education – Immersion 1	3
Fourth Year		
SOFA-313	Film Projection and Digital Cinema	3
SOFA-401	Senior Project I	3
SOFA-402	Senior Project II	3
	General Education – Social Perspective	3
	General Education – Immersion 2 (WI-GE), 3	6
	Open Electives	12
Total Semester Credit Hours		**122**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
Motion picture science requires 3 years of math; pre-calculus and physics are recommended.

Transfer Admission

Transfer course recommendations without associate degree
Courses in liberal arts, science, design, drawing, and film, video, or animation.

Appropriate associate degree programs for transfer
Transfer as a third-year student is uncommon, as comparable programs are not generally available at other colleges.

New Media Design, BFA

www.rit.edu/study/new-media-design-bfa

Adam Smith, Associate Professor
585-475-4552, aesfaa@rit.edu

Program overview

Millions of people interact with digital devices every day. This digital design degree lets you explore the many aspects of digital design, giving you the skills needed to create ingenious work. Our student-centered curriculum, skilled faculty, and up-to-date facilities prepare you for a dynamic career in this field.

The new media design major is for students who are fascinated by visual design, user experience design, interactivity, motion graphics, and technology. Students learn the skills required to meet the demands of new media, web design, and mobile app marketplaces. Courses, projects, and explorations allow students to create user-centered solutions that leverage new opportunities in visual design, communication, and user experiences across a full spectrum of digital products and interfaces.

A balance of visual design foundations, information design, user interface design, user experience design, 3D modeling, motion graphics, usability research, and programming create the skilled background needed to design cutting edge interactive solutions from mobile to fully immersive digital environments. Collaborations with students from RIT's new media interactive development major (housed in the B. Thomas Golisano College of Computing and Information Sciences), as well as other majors and corporate clients, provide teamwork experience and leverage the designer-programmer-client relationship. Students are well-positioned for careers in visual, interactive, and user experience design for digital advertising, marketing, mobile, web application, entertainment, and corporate design.

Professional Memberships

The School of Design maintains memberships in a variety of professional organizations, including Industrial Designers Society of America, ACM Siggraph, Society of Environmental Graphic Designers, American Society of Interior Designers, American Institute of Architects, ICOGRADA, American Institute of Graphic Arts, and International Interior Design Association.

Curriculum

New Media Design, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NMDE-103	New Media Design Interactive I	3
FDTN-111	Drawing I	3
Choose one of the following:		3
FDTN-112	Drawing II	
FDTN-212	Drawing II Workshop: Topics	
FDTN-121	2D Design I	3
FDTN-141	4D Design	3
NMDE-111	New Media Design Digital Survey I	3
NMDE-112	New Media Design Digital Survey II	3
YOPS-10	RIT 365: RIT Connections	0
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A or B	
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
Second Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
IGME-101	New Media Interactive Design and Algorithmic Problem Solving I	4
IGME-102	New Media Interactive Design and Algorithmic Problem Solving II	4
NMDE-201	New Media Design Elements II	3
NMDE-202	New Media Design 3D	3
NMDE-203	New Media Design Interactive II	3
NMDE-204	New Media Design Animation	3
	CAD Studio Elective‡	3
	General Education – Social Perspective	3
Third Year		
NMDE-305	New Media Design Motion Graphics	3
NMDE-302	New Media Design Graphical User Interface	3
NMDE-301	New Media Design Elements III (WI-PR)	3
NMDE-303	New Media Design Interactive III	3
	Art History Electives†	6
	Open Electives	6
	General Education – Immersion 1	3
	Professional Elective§	3
Fourth Year		
NMDE-401	New Media Design Capstone I	3
NMDE-404	New Media Design Interactive IV	3
NMDE-411	New Media Design Capstone II	3
NMDE-406	New Media Design Experimental	3
	General Education – Immersion 2, 3	6
	General Education – Elective	3
	Open Electives	9
Total Semester Credit Hours		**122**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Art History electives are non-studio courses searchable in SIS with the Art History attribute of ARTH.
‡ CAD Studio Elective courses are any College of Art and Design course with a studio or lab component, per catalog restrictions.
§ Professional Elective courses are any course offered by the following disciplines: GRDE, IGME, ISTE, IDDE, DDDD, SOFA, or photography (PHAP, PHAR, PHFA, PHPJ, PHVM, PHPS).

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Studio art experience and a portfolio of original artwork are required for all programs in the schools of Art and Design. A portfolio must be submitted. View Portfolio Requirements for more information.

Transfer Admission

Transfer course recommendations without associate degree

Courses in studio art, art history, and liberal arts. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program. View Portfolio Requirements for more information.

Appropriate associate degree programs for transfer

Related programs or studio art experience in desired disciplines. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program. View Portfolio Requirements for more information. Summer courses can lead to third-year status in most programs.

Photographic and Imaging Arts, BFA

www.rit.edu/study/photographic-and-imaging-arts-bfa
Therese Mulligan, Professor
585-475-2762, mtmpph@rit.edu

Program overview

The photographic and imaging arts major—with options in advertising photography, fine art photography, photojournalism, and visual media—has a rigorous curriculum designed with individual achievement in mind. It features an immersive and hands-on perspective geared towards creativity and innovation. Enrollment in photography classes begins on day one of the first year. Theoretical and experimental components lead to the development of broad-based skills required of professionals in today's ever-changing image culture, art world, and industries. With access to more than 150 unique photography, video, multimedia, web-based, and publication courses, students are challenged using real-world problems to produce successful real-world results.

Photographic and imaging arts majors participate in an educational community that includes required course work in general studies and operates in an environment with both undergraduate and graduate students. It is a community where students have the opportunity to work and study with our highly respected and accomplished faculty in state-of-the-art facilities. The School of Photographic Arts and Sciences also offers a wide array of visiting professionals, events, and talks, including the Charles Arnold Lecture Series and the RIT Big Shot, along with non-credit bearing summer workshops. Students undecided on which photography major best meets their career aspirations and interests may apply to the undeclared photography option.

Options

Advertising photography
The advertising photography option prepares students for diverse and rewarding careers in the field of visual communications. While encouraging and nurturing students' individual image-making practice, students learn to create photographs and moving media for a wide range of commercial use in today's fast changing media environment.

The option provides flexibility and specialization within the course curriculum, providing students with a broad overview of the field. Advanced courses allow students to explore a variety of commercial specializations from traditional still life and portraiture, to interdisciplinary courses that model real world team collaborations with graphic designers, new media artists, industrial designers, and computer scientists. This flexibility also enables students to take elective courses from other departments across the university, in majors as diverse as graphic design, visual culture, philosophy, or fine art, in order to enrich their personal visual expression. Within the curriculum, advertising photography students study the inner workings and business aspects of the photographic and imaging industries. In an ever-growing global market, the school encourages and offers many study abroad opportunities for students.

The faculty consists of both full- and part-time professors—all of whom continue their personal photo arts practice and have extensive commercial experience as professional photographers. Students work collaboratively to conceive and execute camera-based work that is both cutting-edge and strategic. Along with conventional print-based imagery, students may also work in moving media, emerging and interactive technologies that have real-world application in the commercial industry. Students build a strong professional portfolio throughout their time in the program. For more information on the advertising photography option, including samples of student work and alumni profiles, visit Advertising Photography Option–Photographic and Imaging Arts BFA.

Fine art photography
The fine art photography option prepares students for careers as visual artists, educators, editorial photographers, or freelance artists. Graduates are employed in a number of professional fine-art related institutions such as museums, archives, studios, and commercial galleries. The primary goal is to nurture the artist's personal aesthetic vision through photographic expression. Studying the theoretical and practical skills needed to create thought-provoking and meaningful images develops technical, conceptual, and aesthetic abilities, and furthers students' goals as contemporary image-makers.

The interdisciplinary curriculum enables students to explore other related fields in the fine arts, including painting, drawing, sculpture, graphic design, video, film, animation, printmaking and printing, computer graphics, and web publishing. Foundation and specialized courses include digital imaging workflow, alternative processes, new media, history and aesthetics of photography, and exhibition display.

Students have the opportunity to enroll in independent projects, educational internships, or co-ops in galleries, workshops, or other art and imaging centers. Students may choose to spend a year abroad earning credit in an applicable field of their choosing. For more information on the fine art photography option, including samples of student work and alumni profiles, visit Fine Art Photography Option–Photographic and Imaging Arts BFA.

Photojournalism
Photojournalism teaches students to produce non-fiction visual reporting that tells the stories of people, social issues and events for diverse and modern media outlets including digital and print. Students learn to create and publish both still photographic reporting as well as moving and interactive media that document our diverse culture, evoking both the momentous and the everyday circumstances of contemporary life and society. The photojournalism option allows flexibility and individual specialization where students can find their primary interest. Students take required courses in photojournalism fundamentals, picture editing, and multimedia, including sound, video gathering, and video editing.

Students then may choose to take extra courses in an area in which they want further specialization, including picture editing, still photojournalism field-work, or multimedia storytelling. Students contribute to the creation of special publications centered on community activity and awareness, and provide staff support to RIT's student-run magazine, The Reporter. Students also have the opportunity to travel to Washington, D.C., and New York to meet with potential employers that represent the wide spectrum where photojournalists currently work. For more information on the photojournalism option, including samples of student work and alumni profiles, visit Photojournalism Option–Photographic and Imaging Arts BFA.

Visual Media
The visual media option allows students to integrate the graphic communications professions of photography, media design, and business. Most visual media students earn a minor in business. This option prepares students for a career as a visual media specialist or other professional positions that have a demand for photographically skilled professionals who can work effectively with graphic designers, print media specialists, multimedia and social media professionals.

The visual media curriculum emphasizes photographic proficiency, in both photographic and digital imaging techniques, and has two specialized focuses on media design and business (management and/or marketing). Students also may utilize electives to broaden their interests.

This option is ideal for students who wish to experience various aspects of the graphics industry. Students are strongly encouraged to spend time in internships to strengthen their education and to gain hands-on

experience. Upon graduation, students are diversely skilled visual media professionals who are ready to enter an exciting career in photography, media design, business management, marketing (including art directing and project management), social media, or advertising. For more information on the visual media option, including samples of student work and alumni profiles, visit Visual Media Option–Photographic and Imaging Arts BFA.

Curriculum

Photographic and Imaging Arts (advertising photography option), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
FDTN-111	Drawing I	3
PHAR-101	Photographic Arts I	4
PHAR-102	Photographic Arts II	4
PHPS-106	Photographic Technology I	3
PHPS-107	Photographic Technology II	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Ethical Perspective	3
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A or B	
Second Year		
FDTN-121	2D Design I	3
FDTN-141	4D Design	3
PHAR-202	Elements of Advertising Photography	3
PHAR-211	Histories and Aesthetics of Photography I	3
PHAR-212	Histories and Aesthetics of Photography II	3
Choose one of the following:		3
PHAR-201	Elements of Fine Art Photography	
PHAR-203	Elements of Photojournalism	
PHAR-204	Elements of Visual Media	
	General Education – Social Perspective	3
	Open Electives	6
	General Education – Elective	3
Third Year		
PHAP-301	Advertising Photography I	3
PHAP-302	Advertising Photography II	3
	Advertising Photography Specialization Courses†	6
	Advertising Photography Professional Electives‡	6
	CAD Elective§	3
	General Education – Immersion 1 (WI-GE), 2	6
	Open Elective	3
Fourth Year		
PHAP-403	Portfolio Development (WI-PR)	3
Choose one of the following:		3
FINC-120	Personal Financial Management	
MGMT-150	Business 1T: An Introduction to Business	
MGMT-215	Organizational Behavior	
MKTG-230	Principles of Marketing	
MKTG-370	Advertising and Promotion Management	
MKTG-489	Seminar in Marketing	
PHAP-321	Industry Practices for Professional Photographers	
	Imaging Core Course**	3
	Advertising Photography Specialization Course†	3
	CAD Electives§	9
	Open Elective	3
	General Education – Immersion 3	3
	Advertising Photography Professional Elective‡	3
Total Semester Credit Hours		**122**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Please consult an adviser for a complete list of courses that fulfill the advertising specialization requirement.
‡ Please consult an adviser for a complete list of courses that fulfill the professional elective requirement.
§ CAD elective refers to any course in the College Art and Design.
** Please consult an advisor for a complete list of imaging core courses.

Photographic and Imaging Arts (fine art photography option), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Artistic Perspective: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
FDTN-111	Drawing I	3
PHAR-101	Photographic Arts I	4
PHAR-102	Photographic Arts II	4
PHPS-106	Photographic Technology I	3
PHPS-107	Photographic Technology II	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Ethical Perspective	3
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A or B	
Second Year		
FDTN-121	2D Design I	3
FDTN-141	4D Design	3
PHAR-201	Elements of Fine Art Photography	3
PHAR-211	Histories and Aesthetics of Photography I	3
PHAR-212	Histories and Aesthetics of Photography II	3
Choose one of the following:		3
PHAR-202	Elements of Advertising Photography	
PHAR-203	Elements of Photojournalism	
PHAR-204	Elements of Visual Media	
	General Education – Social Perspective	3
	Open Electives	6
	General Education - Elective	3
Third Year		
PHFA-301	Fine Art Core I	3
PHFA-302	Fine Art Core II	3
PHFA-401	Professional Development for Artists (WI-PR)	3
	Fine Art Photography Specialization Courses†	6
	Fine Art Photography Professional Elective‡	3
	CAD Elective§	3
	General Education – Immersion 1 (WI-GE), 2	6
	Open Elective	3
Fourth Year		
PHFA-402	Fine Art Photo Portfolio I	3
PHFA-403	Fine Art Photography Portfolio II	3
	Fine Art Photography Professional Electives‡	6
	Fine Art Photography Specialization Course†	3
	CAD Electives§	9
	Open Elective	3
	General Education – Immersion 3	3
Total Semester Credit Hours		**122**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Please consult an adviser for a complete list of courses that fulfill the fine art photo specialization requirement.
‡ Professional Electives are Art History courses which are coded in SIS with the Art History attribute, ARTH.
§ CAD elective refers to any course in the College Art and Design.
** Please consult an advisor for a complete list of imaging core courses.

Photographic and Imaging Arts (photojournalism option), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
FDTN-111	Drawing I	3
PHAR-101	Photographic Arts I	4
PHAR-102	Photographic Arts II	4
PHPS-106	Photographic Technology I	3
PHPS-107	Photographic Technology II	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Ethical Perspective	3
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A or B	
Second Year		
FDTN-121	2D Design I	3
FDTN-141	4D Design	3
PHAR-203	Elements of Photojournalism	3
PHAR-211	Histories and Aesthetics of Photography I	3
PHAR-212	Histories and Aesthetics of Photography II	3
Choose one of the following:		3
PHAR-201	Elements of Fine Art Photography	
PHAR-202	Elements of Advertising Photography	
PHAR-204	Elements of Visual Media	
	General Education – Social Perspective	3
	Open Electives	6
	General Education – Elective	3
Third Year		
PHPJ-301	Foundations of Photojournalism (WI-PR)	3
PHPJ-302	Photojournalism I	3
PHPJ-307	Ethics and Law	3
PHPJ-315	Non-Fiction Multimedia	3
	Photojournalism Professional Electives‡	6
	CAD Elective§	3
	General Education – Immersion 1, 2	6
	Open Elective	3
Fourth Year		
PHPJ-401	Senior Project (WI-PR)	3
PHPJ-402	Photojournalism Portfolio and Professional Development	3
	CAD Electives§	9
	Open Elective	3
	General Education – Immersion 3	3
	Photojournalism Professional Electives‡	9
Total Semester Credit Hours		**122**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Please consult an adviser for a complete list of courses that fulfill the photojournalism specialization requirement.
‡ Please consult an adviser for a complete list of courses that fulfill the professional elective requirement.
§ CAD elective refers to any course in the College of Art and Design.
** Please consult an advisor for a complete list of imaging core courses.

Photographic and Imaging Arts (visual media option), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
FDTN-111	Drawing I	3
PHAR-101	Photographic Arts I	4
PHAR-102	Photographic Arts II	4
PHPS-106	Photographic Technology I	3
PHPS-107	Photographic Technology II	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Ethical Perspective	3
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A or B	
Second Year		
FDTN-121	2D Design I	3
FDTN-141	4D Design	3
PHAR-204	Elements of Visual Media	3
PHAR-211	Histories and Aesthetics of Photography I	3
PHAR-212	Histories and Aesthetics of Photography II	3
Choose one of the following:		3
PHAR-201	Elements of Fine Art Photography	
PHAR-202	Elements of Advertising Photography	
PHAR-203	Elements of Photojournalism	
	General Education – Social Perspective	3
	Open Electives	6
	General Education – Elective	3
Third Year		
	Visual Media Imaging Core Courses	6
	Visual Media Specialization Courses†	6
	Visual Media Professional Electives‡	6
	CAD Elective§	3
	General Education – Immersion 1 (WI-GE), 2	6
	Open Elective	3
Fourth Year		
PHVM-301	Visual Media Career Research	3
PHVM-401	Visual Media Capstone (WI-PR)	3
	Visual Media Imaging Core Course	3
	Visual Media Specialization Course†	3
	Visual Media Professional Elective‡	3
	CAD Electives§	9
	Open Elective	3
	General Education – Immersion 3	3
Total Semester Credit Hours		**122**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Please consult an advisor for a complete list of courses that fulfill the visual media specialization requirement.
‡ Please consult an advisor for a complete list of courses that fulfill the professional elective requirement.
§ CAD elective refers to any course in the College of Art and Design.
** Please consult an advisor for a complete list of imaging core courses.

Accreditation

All four options of the BFA program in photographic and imaging arts, as well as the MFA program in photography and related media, are accredited by the National Association of Schools of Art and Design (NASAD).

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Transfer Admission

Transfer course recommendations without associate degree
Courses in liberal arts, photography, design, and art history. Portfolio required for photo credit. View Portfolio Requirements for more information.

Appropriate associate degree programs for transfer
Applied Photography. Portfolio required for photo credit. View Portfolio Requirements for more information.

Photographic Arts and Sciences Exploration, Undeclared

www.rit.edu/study/photographic-arts-and-sciences-exploration
Therese Mulligan, Director, School of Photographic Arts and Sciences
585-475-2762, mtmpph@rit.edu

Program overview

For students interested in photography but unsure which major best meets their career aspirations, the photographic arts and sciences exploration option provides you with an overview of the two photography majors and their options. Students will learn about the curriculum, course work, and career paths associated with the BFA in photographic and imaging arts (with options in advertising photography, fine art photography, photojournalism, or visual media) and the BS in photographic sciences. This exploration option allows you to take up to four semesters to learn about each major while you complete general education and liberal arts courses.

Curriculum

Photography undeclared, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
Choose one of the following:		8
PHPS-101, 102	Photography I, II (BS)	
PHAR-101, 102	Photo Arts I, II (BFA)	
PHPS-106	Photographic Technology I	3
PHPS-107	Photographic Technology II	3
ENGL-150	Writing Seminar	3
ACSC-010	Year One	0
	LAS Perspective 1 (ethical)	3
	LAS Perspective 5 (natural science inquiry)	3
	LAS Perspective 6 (scientific principles)	3
	LAS Perspective 7 (mathematical)	3
Choose one of the following:		3
ARTH-135	LAS Perspective 2 (artistic): History of Western Art: Ancient to Medieval	
	LAS Perspective 5 (natural science inquiry)	
	LAS Perspective 7A (mathematical)	
Choose one of the following:		3
ARTH-136	LAS Perspective 3 (global): History of Western Art: Renaissance to Modern	
	LAS Perspective 7B (mathematical)	
	LAS Perspective 6 (scientific principles)	
Choose one of the following:		3
FDTN-111	Drawing I (BFA)	
	LAS Perspective 2 (artistic) (BS)	
Total Semester Credit Hours		**32**

Please see General Education Curriculum-Liberal Arts and Sciences (LAS) in the Graduation Requirements section of this bulletin for more information.

Photographic Sciences, BS

www.rit.edu/study/photographic-sciences-bs
Christye Sisson, Professor
585-475-4228, cpspph@rit.edu

Program overview

In the photographic sciences major, photography is used to advance science and imaging is used to collect scientific data. Students integrate complementary studies that may include imaging science, information technology, computer science, optics, and biology to solve imaging problems and advance photographic technology.

Plan of study

The photographic sciences major offers an immersive and flexible curriculum that prepares students for a wide variety of photographic and imaging careers spanning the broad fields of science, technology, and medicine. The major provides strong foundational experiences in applied technical photography and explores contemporary imaging technologies, professional practices, and problem-solving. Classroom experiences are focused on preparing students for a wide range of employment opportunities in science or industry. Cooperative education is required and enables students to gain valuable career experience in their field of primary interest.

During the first two years, students are immersed in technical applications of scientific photography courses while also pursuing courses in laboratory sciences, such as physics or biology, chosen to complement their career goals. General education requirements encourage students to integrate complementary studies in subjects such as imaging science, information technology, or developmental biology to best prepare for exciting and evolving opportunities. It is common for graduates to pursue advanced degrees including optics, imaging science, and medicine. Recent employers include imaging companies, universities and research centers, camera companies, forensic laboratories, and government agencies. NASA, Apple, Mayo Clinic, Carl Zeiss Microscopy, Harvard University, the National Geospatial Intelligence Agency, and Canon have all hired graduates of this major.

The foundational courses teach students how tools and methods are used to solve imaging problems and advance photographic technology. Students are able to create a flexible curriculum drawing on required and elective courses from the program. Guided by faculty, industry professionals, and required cooperative education, students are prepared for diverse careers in technical imaging and applied photography.

Career opportunities

An employment survey of graduates indicates that 95 percent are employed within three months of graduation. Graduates are employed as ophthalmic photographers, forensic photographers, surgical photographers, photomicrographers, medical photographers, latent finger print examiners, core imaging facility managers, technical support engineers, imaging specialists, imaging engineers, public relations photographers, research associates, dermatology photographers, research photographers, and image quality engineer.

Photographic Sciences Student Association

The Photographic Sciences Student Association promotes professional and social interaction among students and professionals from the imaging and photographic technology industries. The association regularly invites alumni in professional imaging fields to present lectures and demonstrations.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the photographic sciences program are required to complete one co-op experience. These experiences are generally completed between the second and third academic years. The Office of Career Services and Cooperative Education assists students in identifying and applying to co-op placements. Some recent co-op placements, as well as permanent job placements, include Harvard University, the Mayo Clinic, Smithsonian, Georgetown University, Case Western Reserve University, NASA, Imatest, Carl Zeiss Microscopy, FBI, Nikon Scientific Instruments, Apple Inc., and NVIDIA.

Curriculum

Photographic Sciences, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
PHAR-101	Photographic Arts I	4
PHPS-102	Photography II	4
PHPS-106	Photographic Technology I	3
PHPS-107	Photographic Technology II	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
	General Education – Mathematical Perspective A**	3
	General Education – Mathematical Perspective B**	3
	General Education – First-Year Writing (WI)	3
Second Year		
FDTN-141	4D Design	3
PHPS-201	Scientific Photography I	3
PHPS-202	Scientific Photography II	3
PHPS-207	General Education – Elective: Vision, Perception and Imaging (WI-GE)	3
PHPS-211	Photographic Optics	3
PHPS-217	Media Production & Technology	3
PHPS-499	Photographic Sciences Co-op (summer)	0
	General Education – Elective	3
	General Education – Social Perspective	3
	General Education – Natural Science Inquiry Perspective	4
	General Education – Scientific Principles Perspective	4
Third Year		
PHPS-331	Programming for Photographic Sciences	3
PHPS-332	Digital Image Processing	3
	Professional Electives	6
	General Education – Electives	7
	General Education – Immersion 1, 2	6
	Open Electives	6
Fourth Year		
PHPS-401	Photographic Sciences Capstone I (WI-PR)	3
PHPS-403	Photographic Sciences Capstone II	3
	General Education – Immersion 3	3
	General Education – Electives	9
	Open Electives	6
	Professional Electives§	6
Total Semester Credit Hours		**125**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
§ Please see an advisor for a complete list of photographic sciences electives.
** Please see an advisor for math and science course recommendations.

Admission requirements

Freshman Admission
For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
Biology is required for the biomedical photographic communications option of photographic sciences.

Transfer Admission
Transfer course recommendations without associate degree
Courses in liberal arts, photography, design, and art history. Portfolio required for photo credit. View Portfolio Requirements for more information.

Appropriate associate degree programs for transfer
Applied Photography. Portfolio required for photo credit. View Portfolio Requirements for more information.

Studio Arts, BFA

www.rit.edu/study/studio-arts-bfa
Glen Hintz, Associate Professor
585-475-2126, grhfad@rit.edu

Program overview

The studio arts major offers options in ceramics, expanded forms, furniture design, glass, metals and jewelry design, painting, printmaking, and sculpture. The close alignment of curricular content and scheduling among these eight options fosters a sense of community through shared experiences and facilitated interaction. Through this integration, students acquire the conceptual and technical skills required to succeed as creative professionals.

The curriculum engages students in comprehensive inquiry that expands and supports their subject matter, ideation through sketches and models, articulation of a rationale for the application of media and process, and finally the refinement of work through editing and critique. Students are also exposed to a wide scope of visual arts and study their cultural relevance through visiting artists, trips to museums, and attendance at professional conferences. During the senior year, students exhibit their final body of work in a gallery. Guidance and experiential projects focusing on presentation of work, self-promotion, business practice, and issues of professional engagement within the field help students thrive as creative professionals after graduation.

Upon completion of the program, students may choose to continue their education at the graduate level or begin careers by setting up independent studios and exhibiting their work. They also find employment in the fields of art therapy, art criticism, art restoration, gallery and museum management, set and display design, and marketing and advertising; in auction houses for their knowledge of contemporary and historical art and material culture; or as educators. Faculty members are active artists who exhibit widely and are committed to diverse approaches to art-making. They serve as inspiring role-models for studio arts majors and offer them support and networking opportunities as they emerge as professionals.

Options
Students choose an option in one of the following areas:

Ceramics–The ceramics option provides a dynamic environment where intellectual discourse and craftsmanship thrives. Students focus on intellectual development, technical skill, and practical knowledge. The curriculum supports a range of fundamental topics within ceramics, such as sculpture, pottery, mold-making, glazing, firing, and material science and personal aesthetic development with individual critiques and group discussions. Students selecting this option are equipped with the professional and practical skills necessary to operate a studio business.

Expanded forms–Artists have always challenged the definition of art. These challenges have pushed art into new realms of expression and the public into new ways of seeing. The expanded forms option, like the wider art world, extends beyond the traditional forms of painting, printmaking, and sculpture. Artists have expanded the possibilities for expression. Object making goes hand-in-hand with performance, installation, computer art, and multi-media displays. Students are encouraged to explore the full spectrum of experimental and non-traditional artistic expression.

Furniture design–The furniture design option engages students in the pursuit of their creative interests while providing a comprehensive technical background in contemporary woodworking. The option focuses on technical expertise, freeing students to investigate a full range of creative expression and professional interests. A carefully sequenced curriculum

begins with a firm foundation in the use and maintenance of hand tools, proceeding on to more advanced tools and topics in construction and design.

Glass–Through a rigorous and diversified curriculum, the glass option cultivates artists who are as versatile in their making as they are in their thinking. Studio instruction in glassblowing, flame-working, hot and kiln casting, cold-working, kiln-forming, glass imaging processes, and three-dimensional digital technologies help inform each student's creative potential with glass. An emphasis on research, idea development, material exploration, execution, and presentation equip students with the skills needed to succeed as professionals.

Metals and jewelry design–The metals and jewelry design option focuses on design, aesthetics, as well as material and process mastery. Self-discovery is at the heart of student assignments, projects, and group discussions. This option develops student's creative potential through a broad introduction to materials and production techniques before moving on to advanced techniques in various metals.

Painting–Students selecting this option engage in contemporary visual art practice through a personal exploration of painting techniques. The comprehensive curriculum covers traditional methodologies as well as contemporary visual art practices. Rigorous studio practice and critical discourse encourage the development of a strong personal language that allow for effective individual expression.

Printmaking–Printmaking focuses on concepts and techniques. Organized to offer a flexible experience, this option targets the development of problem solving and skill building within the context of printmaking. The curriculum addresses a wide variety of media, tools, and both traditional and technological techniques, as well as theoretical concepts to facilitate skill development and experimentation processes.

Sculpture–The sculpture option engages students in the exploration of three-dimensional art-making. Traditional sculptural processes are introduced, such as bronze casting, stone carving, steel fabrication, and mold-making, within a curriculum that focuses on both formal and conceptual development. Working with a broad variety of materials, ideas, and practices, students are prepared to engage in the dialogue of contemporary sculpture. Over the course of the major, students develop the technical, visual, and intellectual skills required to develop a sophisticated body of work.

Pre-College Portfolio Preparation Workshop

The School of Art's annual Pre-College Portfolio Preparation Workshop is a two-week visual arts class designed to prepare the portfolios of rising high school juniors and seniors for admission to college art programs.

Curriculum

Studio Arts (ceramics option), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
FDTN-111	Drawing I	3
FDTN-121	2D Design I	3
FDTN-131	3D Design I	3
Choose one of the following:		3
FDTN-112	Drawing II	
FDTN-212	Drawing II Workshop: Topics	
Choose one of the following:		3
FDTN-132	3D Design II	
FDTN-232	3D Design II Workshop: Topic	
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Social Perspective	3
	CAD Studio Elective†	3
Second Year		
CCER-206	Ceramic Sculptural Processes	3
CCER-207	Mold Mechanisms	3
CCER-211	Thrown Vessel Forms	3
CCER-212	Thrown Sculptural Forms	3
FDTN-141	4D Design	3
STAR-202	Crafts CADD Drawing	3
	General Education – Immersion 1 (WI-GE)	3
	Art History Elective‡	3
	General Education – Ethical Perspective	3
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A or B	
Third Year		
CCER-301	Ceramics Junior I	6
CCER-302	Ceramics Junior II	6
	Art History Elective‡	3
	Professional Elective§	3
	General Education – Immersion 2	3
	CAD Studio Elective†	3
	General Education – Elective	3
	Open Elective	3
Fourth Year		
CCER-501	Ceramics Senior I	6
CCER-502	Ceramics Senior II	3
STAR-411	Business Practices for Artists (WI-PR)	3
STAR-502	STAR Capstone	3
	CAD Studio Elective†	3
	General Education – Immersion 3	3
	Open Electives	9
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† CAD Studio Electives are any College of Art and Design course with a lab or studio component, per catalog restrictions.
‡ Art History electives are non-studio courses searchable in SIS with the Art History attribute of ARTH.
§ Students choose one of the following professional electives: New Venture Development (BUSI-221), CADD Applications in Studio Arts (STAR-555), or Professional Development for Artists (PHFA-401).

Studio Arts (expanded forms option), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
FDTN-111	Drawing I	3
FDTN-121	2D Design I	3
FDTN-131	3D Design I	3
Choose one of the following:		3
FDTN-112	Drawing II	
FDTN-212	Drawing II Workshop: Topics	
Choose one of the following:		3
FDTN-122	2D Design II	
FDTN-222	2D Design II Workshop: Topic	
Choose one of the following:		3
FDTN-132	3D Design II	
FDTN-232	3D Design II Workshop: Topic	
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Social Perspective	3
Second Year		
FDTN-141	4D Design	3
PAIT-201	Introduction to Painting	3
PRNT-201	Introduction to Printmaking	3
SCUL-201	Introduction to Sculpture	3
STAR-305	Figure Drawing	3
	CAD Studio Elective†	3
	Art History Elective‡	3
	General Education – Ethical Perspective	3
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A or B	
Choose one of the following:		3
PAIT-501	Painting	
SCUL-501	Sculpture	
SCUL-511	Expanded Forms	
Third Year		
SCUL-511	Expanded Forms	6
STAR-311	Ideation and Series	3
Choose one of the following:		3
PAIT-501	Painting	
PRNT-501	Printmaking	
SCUL-501	Sculpture	
	Art History Elective‡	3
	General Education – Immersion 1 (WI-GE)	3
	CAD Studio Electives†	6
	General Education – Elective	3
	Open Elective	3
Fourth Year		
SCUL-511	Expanded Forms	6
STAR-411	Business Practices for Artists (WI-PR)	3
STAR-502	STAR Capstone	3
Choose one of the following:		3
PAIT-501	Painting	
PRNT-501	Printmaking	
SCUL-501	Sculpture	
	General Education – Immersion 2, 3	6
	Open Electives	9
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† CAD Studio Electives are any College of Art and Design course with a lab or studio component, per catalog restrictions.
‡ Art History electives are non-studio courses searchable in SIS with the Art History attribute of ARTH.

Studio Arts (furniture design option), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
FDTN-111	Drawing I	3
FDTN-121	2D Design I	3
FDTN-131	3D Design I	3
Choose one of the following:		3
FDTN-112	Drawing II	
FDTN-212	Drawing II Workshop: Topics	
Choose one of the following:		3
FDTN-132	3D Design II	
FDTN-232	3D Design II Workshop: Topic	
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Social Perspective	3
	CAD Studio Elective†	3
Second Year		
CWFD-206	Furniture Design: The Table	3
CWFD-207	Intro to Woodworking and Furniture Design: Bench Seating	3
CWFD-211	Furniture Design: Shaping	3
CWFD-212	Intro to Woodworking and Furniture Design: Boxes and Containers	3
FDTN-141	4D Design	3
STAR-202	Crafts CADD Drawing	3
	General Education – Immersion 1 (WI-GE)	3
	Art History Elective‡	3
	General Education – Ethical Perspective	3
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A or B	
Third Year		
CWFD-301	Furniture Design Junior I	6
CWFD-302	Furniture Design Junior II	6
	Art History Elective‡	3
	Professional Elective§	3
	General Education – Immersion 2	3
	CAD Studio Elective†	3
	General Education – Elective	3
	Open Elective	3
Fourth Year		
CWFD-501	Furniture Design Senior I	6
CWFD-502	Furniture Design Senior II	3
STAR-411	Business Practices for Artists (WI-PR)	3
STAR-502	STAR Capstone	3
	CAD Studio Elective†	3
	General Education – Immersion 3	3
	Open Electives	9
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† CAD Studio Electives are any College of Art and Design course with a lab or studio component, per catalog restrictions.
‡ Art History electives are non-studio courses searchable in SIS with the Art History attribute of ARTH.
§ Students choose one of the following professional electives: New Venture Development (BUSI-221), CADD Applications in Studio Arts (STAR-555), or Professional Development for Artists (PHFA-401).

Studio Arts (glass option), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
FDTN-111	Drawing I	3
FDTN-121	2D Design I	3
FDTN-131	3D Design I	3
Choose one of the following:		3
FDTN-112	Drawing II	
FDTN-212	Drawing II Workshop: Topics	
Choose one of the following:		3
FDTN-132	3D Design II	
FDTN-232	3D Design II Workshop: Topic	
ILLS-209	3D Applications: The Figure	
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	CAD Studio Elective†	3
	General Education – Social Perspective	3
Second Year		
CGLS-206	Molten Glass Practice I	3
CGLS-207	Molten Glass Practice II	3
CGLS-211	Mold & Kiln Glass Practice	3
CGLS-212	Kinetic Glass Practice	3
FDTN-141	4D Design	3
STAR-202	Crafts CADD Drawing	3
	Art History Elective‡	3
	General Education – Ethical Perspective	3
	General Education – Immersion 1 (WI-GE)	3
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A or B	
Third Year		
CGLS-301	Glass Junior I	6
CGLS-302	Glass Junior II	6
	Professional Elective§	3
	Art History Elective‡	3
	General Education – Immersion 2	3
	CAD Studio Elective†	3
	General Education – Elective	3
	Open Elective	3
Fourth Year		
CGLS-501	Glass Senior I	6
CGLS-502	Glass Senior II	3
STAR-411	Business Practices for Artists (WI-PR)	3
STAR-502	STAR Capstone	3
	CAD Studio Elective†	3
	General Education – Immersion 3	3
	Open Electives	9
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† CAD Studio Electives are any College of Art and Design course with a lab or studio component, per catalog restrictions.
‡ Art History electives are non-studio courses searchable in SIS with the Art History attribute of ARTH.
§ Students choose one of the following Professional Electives: New Venture Development (BUSI-221), CADD Applications in Studio Arts (STAR-555), or Professional Development for Artists (PHFA-401).

Studio Arts (metals and jewelry design option), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
FDTN-111	Drawing I	3
FDTN-121	2D Design I	3
FDTN-131	3D Design I	3
Choose one of the following:		3
FDTN-112	Drawing II	
FDTN-212	Drawing II Workshop: Topics	
Choose one of the following:		3
FDTN-132	3D Design II	
FDTN-232	3D Design II Workshop: Topic	
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Social Perspective	3
	CAD Studio Elective†	3
Second Year		
CMTJ-206	Methods and Practice	3
CMTJ-207	Design, Fabrication and Forming	3
CMTJ-211	Design and Fabrication	3
CMTJ-212	Fabrication, Casting, and Mold Making	3
FDTN-141	4D Design	3
STAR-202	Crafts CADD Drawing	3
	Art History Elective‡	3
	General Education – Ethical Perspective	3
	General Education – Immersion 1 (WI-GE)	3
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A or B	
Third Year		
CMTJ-301	Metals and Jewelry Design Junior I	6
CMTJ-302	Metals and Jewelry Design Junior II	6
	Art History Elective‡	3
	Professional Elective§	3
	General Education – Immersion 2	3
	CAD Studio Elective†	3
	General Education – Elective	3
	Open Elective	3
Fourth Year		
CMTJ-501	Metals and Jewelry Design Senior I	6
CMTJ-502	Metals and Jewelry Design Senior II	3
STAR-411	Business Practices for Artists (WI-PR)	3
STAR-502	STAR Capstone	3
	CAD Studio Elective†	3
	General Education – Immersion 3	6
	Open Electives	9
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† CAD Studio Electives are any College of Art and Design course with a lab or studio component, per catalog restrictions.
‡ Art History electives are non-studio courses searchable in SIS with the Art History attribute of ARTH.
§ Students choose one of the following Professional Electives: New Venture Development (BUSI-221), CADD Applications in Studio Arts (STAR-555), or Professional Development for Artists (PHFA-401).

Studio Arts (painting option), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
FDTN-111	Drawing I	3
FDTN-121	2D Design I	3
FDTN-131	3D Design I	3
Choose one of the following:		3
FDTN-112	Drawing II	
FDTN-212	Drawing II Workshop: Topics	
Choose one of the following:		3
FDTN-122	2D Design II	
FDTN-222	2D Design II Workshop: Topic	
Choose one of the following:		3
FDTN-132	3D Design II	
FDTN-232	3D Design II Workshop: Topic	
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Social Perspective	3
Second Year		
FDTN-141	4D Design	3
PAIT-201	Introduction to Painting	3
PRNT-201	Introduction to Printmaking	3
SCUL-201	Introduction to Sculpture	3
STAR-305	Figure Drawing	3
	CAD Studio Elective†	3
	Art History Elective‡	3
	General Education – Ethical Perspective	3
Choose one of the following:		3
PAIT-501	Painting	
SCUL-501	Sculpture	
SCUL-511	Expanded Form	
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A or B	
Third Year		
PAIT-501	Painting	6
STAR-311	Ideation and Series	3
Choose one of the following:		3
PRNT-501	Printmaking	
SCUL-501	Sculpture	
SCUL-511	Expanded Forms	
	Art History Elective‡	3
	General Education – Immersion 1 (GE-WI)	3
	CAD Studio Electives†	6
	General Education – Elective	3
	Open Elective	3
Fourth Year		
PAIT-501	Painting	6
STAR-411	Business Practices for Artists (WI-PR)	3
STAR-502	STAR Capstone	3
Choose one of the following:		3
PRNT-501	Printmaking	
SCUL-501	Sculpture	
SCUL-511	Expanded Forms	
	General Education – Immersion 2, 3	6
	Open Electives	9
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† CAD Studio Electives are College of Art and Design with a lab or studio component, per catalog restrictions.
‡ Art History electives are non-studio courses searchable in SIS with the Art History attribute of ARTH.

Studio Arts (printmaking option), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
FDTN-111	Drawing I	3
FDTN-121	2D Design I	3
FDTN-131	3D Design I	3
Choose one of the following:		3
FDTN-112	Drawing II	
FDTN-212	Drawing II Workshop: Topics	
Choose one of the following:		3
FDTN-122	2D Design II	
FDTN-222	2D Design II Workshop: Topic	
Choose one of the following:		3
FDTN-132	3D Design II	
FDTN-232	3D Design II Workshop: Topic	
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Social Perspective	3
Second Year		
FDTN-141	4D Design	3
PAIT-201	Introduction to Painting	3
PRNT-201	Introduction to Printmaking	3
SCUL-201	Introduction to Sculpture	3
STAR-305	Figure Drawing	3
	CAD Studio Elective†	3
	Art History Elective‡	3
	General Education – Ethical Perspective	3
Choose one of the following:		3
PAIT-501	Painting	
SCUL-501	Sculpture	
SCUL-511	Expanded Forms	
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A or B	
Third Year		
PRNT-501	Printmaking	6
STAR-311	Ideation and Series	3
Choose one of the following:		3
PAIT-501	Painting	
SCUL-501	Sculpture	
SCUL-511	Expanded Forms	
	Art History Elective‡	3
	General Education – Immersion 1 (WI-GE)	3
	CAD Studio Electives†	6
	General Education – Elective	3
	Open Elective	3
Fourth Year		
PRNT-501	Printmaking	6
STAR-411	Business Practices for Artists (WI-PR)	3
STAR-502	STAR Capstone	3
Choose one of the following:		3
PAIT-501	Painting	
SCUL-501	Sculpture	
SCUL-511	Expanded Forms	
	General Education – Immersion 2, 3	6
	Open Electives	9
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† CAD Studio Electives are College of Art and Design courses with lab or studio component, per catalog restrictions.
‡ Art History electives are non-studio courses searchable in SIS with the Art History attribute of ARTH.

Studio Arts (sculpture option), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
FDTN-111	Drawing I	3
FDTN-121	2D Design I	3
FDTN-131	3D Design I	3
Choose one of the following:		3
FDTN-112	Drawing II	
FDTN-212	Drawing II Workshop: Topics	
Choose one of the following:		3
FDTN-122	2D Design II	
FDTN-222	2D Design II Workshop: Topic	
Choose one of the following:		3
FDTN-132	3D Design II	
FDTN-232	3D Design II Workshop: Topic	
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Social Perspective	3
Second Year		
FDTN-141	4D Design	3
PAIT-201	Introduction to Painting	3
PRNT-201	Introduction to Printmaking	3
SCUL-201	Introduction to Sculpture	3
STAR-305	Figure Drawing	3
	CAD Studio Elective†	3
	Art History Elective‡	3
	General Education – Ethical Perspective	3
Choose one of the following:		3
PAIT-501	Painting	
SCUL-501	Sculpture	
SCUL-511	Expanded Forms	
Choose one of the following:		3
	General Education – Natural Science Inquiry Perspective	
	General Education – Scientific Principles Perspective	
	General Education – Mathematical Perspective A or B	
Third Year		
SCUL-501	Sculpture	6
STAR-311	Ideation and Series	3
Choose one of the following:		3
PAIT-501	Painting	
PRNT-501	Printmaking	
SCUL-511	Expanded Forms	
	Art History Elective‡	3
	General Education – Immersion 1 (WI-GE)	3
	CAD Studio Electives†	6
	General Education – Elective	3
	Open Elective	3
Fourth Year		
SCUL-501	Sculpture	6
STAR-411	Business Practices for Artists (WI-PR)	3
STAR-502	STAR Capstone	3
Choose one of the following:		3
PAIT-501	Painting	
PRNT-501	Printmaking	
SCUL-511	Expanded Forms	
	General Education – Immersion 2, 3	6
	Open Electives	9
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† CAD Studio Electives are College of Art and Design courses with lab or studio component, per catalog restrictions.
‡ Art History electives are non-studio courses searchable in SIS with the Art History attribute of ARTH.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Studio art experience and a portfolio of original artwork are required for all programs in the schools of Art and Design. A portfolio must be submitted. View Portfolio Requirements for more information.

Transfer Admission

Transfer course recommendations without associate degree

Courses in studio art, art history, and liberal arts. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program. View Portfolio Requirements for more information.

Appropriate associate degree programs for transfer

Related programs or studio art experience in desired disciplines. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program. View Portfolio Requirements for more information. Summer courses can lead to third-year status in most programs.

Faculty

Dean's Office

Todd Jokl, BA, Yale University; MFA, University of Connecticut; Ed.D., Southern Connecticut State University—Dean, Professor

Chris B. Jackson, BFA, Alfred University; MFA, Rochester Institute of Technology—Senior Associate Dean; Professor

Christine Shank, BFA, Miami University; MFA, Texas Woman's University—Associate Dean of Undergraduate Studies; Associate Professor

School for American Crafts

Andy Buck, BA, Virginia Commonwealth University; MFA, Rhode Island School of Design—Graduate Director, School for American Crafts; Professor

Juan Carlos Caballero-Perez, BFA, MFA, Rochester Institute of Technology—Professor

Robin Cass, BFA, Rhode Island School of Design; MFA, New York State College of Ceramics at Alfred University—Professor

Richard Hirsch, BS, State University College at New Paltz; MFA, Rochester Institute of Technology—Professor Emeritus

Rolf Hoeg, AOS, BS, Rochester Institute of Technology; MFA, Vermont College of Fine Art—Lecturer

Albert Paley, BFA, MFA, Temple University—Artist-in-Residence; Charlotte Fredericks Mowris Professor in Contemporary Craft; Professor

Suzanne Peck, BA, The Colorado College; MFA, Rhode Island School of Design—Lecturer

Michael Rogers, BA, MA, Western Illinois University; MFA, University of Illinois—Professor Emeritus

David Schnuckel, BFA, Anderson University; MFA, Rochester Institute of Technology—Assistant Professor

Jane Shellenbarger, BFA, Kansas City Art Institute; MFA, Southern Illinois University at Edwardsville—Undergraduate Program Co-Director, Studio Arts; Associate Professor

Leonard A. Urso, BFA, MFA, State University College at New Paltz—Ann Mowris Mulligan Distinguished Professor in Contemporary Crafts

School of Art

Michael Amy, BA, Vrije Universiteit Brussel (Belgium); MA, Ph.D., New York University—Professor

Donald Arday, BFA, Cleveland Institute of Art; MFA, Syracuse University—Professor

Eileen Feeney Bushnell, BFA, University of Massachusetts at Amherst; MFA, Indiana State University—Professor

Denton Crawford, BFA, University of South Florida; MFA, University of Georgia—Undergraduate Program Co-Director, Studio Arts; Senior Lecturer

Robert Dorsey, BFA, Rochester Institute of Technology; MFA, Syracuse University—Undergraduate Program Director, Illustration; Professor

Katherine Donahue, BFA, Rochester Institute of Technology—Visiting Lecturer

Allen Douglas, BFA, Syracuse University; Illustration Master Class, Amherst—Lecturer

Craig Foster, BFA, University of Michigan; MS, Medical College of Georgia at Augusta University—Assistant Professor

Emily Glass, BFA, State University College at Potsdam; MFA, Kansas State University—Senior Lecturer

Chad Grohman, BFA, Rochester Institute of Technology; MFA, University of Hartford—Assistant Professor

Robert Heischman, BFA, Miami University of Ohio; UCFA, Oxford University (United Kingdom)—Professor Emeritus

Glen Hintz, BA, Lafayette College; MS, The Medical College of Georgia—School Director, School of Art and School for American Crafts; Undergraduate Program Director, Medical Illustration; Associate Professor

Elizabeth Kronfield, BFA, Bowling Green State University; MFA, University of Georgia—Graduate Director, Fine Arts Studio; Professor

Amy McLaren, BA, Ithaca College; MFA, Rochester Institute of Technology—Senior Lecturer

Heidi Nickisher, BA, University of California at Santa Barbara; MA, California State University, Fullerton; Ph.D., University of Buffalo—Principal Lecturer

Peter Pincus, BFA, MFA, New York State College of Ceramics at Alfred University—Assistant Professor

Clarence Sheffield, BS, University of Utah; MA, University of Colorado at Boulder; Ph.D., Bryn Mawr College—Professor

Luvon Sheppard, BFA, MST, Rochester Institute of Technology—Professor

Alan Singer, BFA, The Cooper Union; MFA, Cornell University—Professor

Sarah Thompson, BA, University of California at San Diego; MA, Ph.D., University of California at Santa Barbara—Associate Professor

Clifford Wun, BFA, Rhode Island School of Design; MFA, Maryland Institute College of Art—Associate Professor

School of Design

Rebecca Aloisio, BFA, Cleveland Institute of Art; MFA, Syracuse University—Lecturer

Jason Arena, BS, University of Buffalo; MFA, Pratt Institute—Undergraduate Program Co-Director, New Media Design; Associate Professor

Deborah Beardslee, BFA, Syracuse University; MFA, Virginia Commonwealth University—Associate Professor

Nancy Bernardo, BA, Valparaiso University; MFA, The School of the Art Institute of Chicago—Associate Professor

Peter Byrne, MFA, York University (Canada)—School Director, School of Design; Melbert B. Cary Professor

Miguel A. Cardona, BFA, MFA, Rochester Institute of Technology—Assistant Professor

Graham Carson, BFA, Indiana University of Pennsylvania; MFA, Rochester Institute of Technology—Senior Lecturer

Nancy Chwiecko, BA, St. Lawrence University; MFA, Rochester Institute of Technology—Associate Professor Emerita

Nancy A. Ciolek, BFA, MFA, Indiana State University—Associate Professor Emerita

Chris Corey, BFA, Herron School of Art & Design; MFA, Maryland Institute College of Art—Visiting Lecturer

Melissa Dawson, BS, Cornell University; MFA, Rochester Institute of Technology—Assistant Professor

Daniel DeLuna, BFA, Ball State University; MFA, Pratt Institute—Associate Professor

Keli DiRisio, AAS, Cazenovia College; BFA, MS, MFA, Rochester Institute of Technology—Assistant Professor

Regina Ferrari, BFA, Wayne State University; MFA, Virginia Commonwealth University—Principal Lecturer

Carol Fillip, BS, State University of New York at Buffalo; MFA, Rochester Institute of Technology—Undergraduate Program Director, Graphic Design; Associate Professor

Shaun Foster, BBA, University of Wisconsin; MFA, Rochester Institute of Technology—Undergraduate Program Director, 3D Digital Design; Associate Professor

Lorrie Frear, BFA, MFA, Rochester Institute of Technology—Professor

Mary Golden, BA, M.Arch., University at Buffalo—Undergraduate Program Director, Interior Design; Assistant Professor

Mitch Goldstein, BFA, Rhode Island School of Design; MFA, Virginia Commonwealth University—Associate Professor

Lara Goulart, BA, Universidade de Brasília; MFA, Rochester Institute of Technology—Visiting Lecturer

David Halbstein, BA, MA, William Patterson University—Associate Professor

Joyce Hertzson, BFA, Rhode Island School of Design; MFA, Indiana University—Professor

Chris B. Jackson, BFA, Alfred University; MFA, Rochester Institute of Technology—Senior Associate Dean; Professor

Gary D. Jacobs, BFA, University of Northern Colorado; MFA, Pennsylvania State University—Assistant Professor

Lorraine Justice, BFA, Edinboro University; MFA, Ph.D., The Ohio State University—Dean Emerita; Professor

Casey Kelly, BFA, Daemen College; MFA, Rochester Institute of Technology—Visiting Assistant Professor

Patti J. Lachance, BFA, Indiana and Purdue Universities; MFA, Rochester Institute of Technology—Associate Professor

Bruce Leonard, BID, Syracuse University—Undergraduate Program Director, Industrial Design; Lecturer

Alex Lobos, BID, Universidad Rafael Landívar (Guatemala); MFA, University of Notre Dame—Graduate Director, Industrial Design; Professor

Mindy Magyar, BS, Cornell University; MFA, Cranbrook Academy of Art; MBA, University of Pennsylvania—Associate Professor

Ihab Mardini, BA, International University of Science and Technology (Syria); MFA, Rochester Institute of Technology—Assistant Professor

Bruce I. Meader, BFA, MFA, Carnegie Mellon University—Professor Emeritus

Gary Molinari, BFA, Rochester Institute of Technology; MS, Nazareth College of Rochester—Senior Lecturer

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Josh Owen, BA, BFA, Cornell University; MFA, Rhode Island School of Design—Director, Vignelli Center for Design Studies; Massimo and Lella Vignelli Distinguished Professor In Design

Alejandro Perez Sanchez, BS, Art Institute of California; MFA, Academy of Art University—Assistant Professor

R. Roger Remington, BFA, Rochester Institute of Technology; MS, University of Wisconsin—Professor Emeritus

Stan Rickel, BID, Pratt Institute; MID, Syracuse University—Graduate Director, Integrative Design; Associate Professor

Vinicius de Andrade Romualdo, BA, University of Brasilia (Brazil); BA, Victoria University of Wellington (New Zealand); MFA, Rochester Institute of Technology—Visiting Lecturer

Joel Rosen, BFA, Virginia Commonwealth University; MFA, Rochester Institute of Technology—Lecturer

Alicia Ross, BA, Baldwin-Wallace College; MFA, Rochester Institute of Technology—Lecturer

Stephen Scherer, BFA, Bradley University—Lecturer

Heidi Schlegel, BFA, Rochester Institute of Technology; MS, University of Nebraska-Lincoln—Assistant Professor

Marla Schweppe, BA, University of Kansas; MA, The Ohio State University—Professor

Amos Scully, BFA, Rochester Institute of Technology; MFA, California College of Arts and Crafts—Associate Professor

Kim Sherman, BS, State University College at Cortland; MFA, Rochester Institute of Technology—Principal Lecturer

Adam Smith, BFA, MFA, Rochester Institute of Technology—Undergraduate Program Co-Director, New Media Design; Graduate Co-Director, Visual Communication Design; Associate Professor

Michael Strobert, BFA, MFA, Rochester Institute of Technology—Graduate Co-Director, Visual Communication Design; Senior Lecturer

Philip Szrama, BS, State University College at Geneseo; MFA, Rochester Institute of Technology—Lecturer

Marissa Tirone, B.Arch., University of Kentucky; M.Arch., Cornell University—Senior Lecturer

Melissa Warp, BFA, University of Minnesota, MFA, Rochester Institute of Technology—Lecturer

School of Film and Animation

Amy Adrion, BA, Georgetown University; MFA, University of California, Los Angeles—Visiting Assistant Professor

Ambarien Alqadar, BA, Jamia Millia University (India); MFA, Temple University—Assistant Professor

Meghdad Asadilari, BSc, MSc, Shiraz University (Iran); MFA, Rochester Institute of Technology—Assistant Professor

Cat Ashworth, BFA, Arizona State University; MFA, State University of New York at Buffalo—Professor

Christine A. Banna, BFA, Boston University; MFA, Tufts University—Lecturer

Kevin Bauer, BFA, State University College at Oneonta; MFA, Rochester Institute of Technology—Lecturer

Jack Beck, BA, Denison University; MFA, University of Iowa—Interim School Co-Director, School of Film and Animation; Undergraduate Program Director, Production; Professor

Mari Jaye Blanchard, BFA, Massachusetts College of Art & Design; MFA, University of Pennsylvania School of Design—Assistant Professor

Michael Boas, BA, State University of New York at Geneseo—Visiting Lecturer

Adrianne Carageorge, BA, Florida State University; MFA, Ohio University—Associate Professor Emerita

Donald Casper, BS, Rochester Institute of Technology—Lecturer

Robert Y. Chung, BA, Eastern Washington State University; MS, Rochester Institute of Technology—Professor Emeritus

Frank Deese, BA, MFA, University of California, Los Angeles—Assistant Professor

Ricardo Figueroa, BS, MS, University of Puerto Rico at Mayagüez (Puerto Rico); Ph.D., Rochester Institute of Technology—Undergraduate Program Director, Motion Picture Science; Associate Professor

Tom Gasek, BFA, Rochester Institute of Technology; MFA, Art Institute of Boston—Graduate Director, Film and Animation; Professor

Brian Larson, BFA, Colorado State University; MFA, Miami International University—Interim School Co-Director, School of Film and Animation; Undergraduate Program Director, Animation; Associate Professor

David Long, BS, University of Texas; MS, University of Rochester—Director, RIT MAGIC Center and MAGIC Spell Studios; Associate Professor

Stephanie Maxwell, BA, University of California, Los Angeles; MFA, San Francisco Art Institute—Professor Emerita

Peter Murphey, BFA, Massachusetts College of Art; MFA, The Art Institute of Boston—Senior Lecturer

Atia Newman, BFA, National College of the Arts, Lahore (Pakistan); MFA, Pratt Institute—Associate Professor

Mark Reisch, BFA, Savannah College of Art and Design; Advanced Studies in Animation Certificate, AnimationMentor.com; MFA, Rochester Institute of Technology—Assistant Professor

Frank J. Romano, BA, City University of New York—Professor Emeritus

Nathan Sawyer, BFA, Rochester Institute of Technology—Visiting Lecturer

Jonathan Seligson, BFA, Rhode Island School of Design; MFA, California Institute of the Arts—Lecturer

David Sluberski, BA, State University College at Fredonia—Senior Lecturer

Malcolm Spaull, BS, St. Lawrence University; MFA, Rochester Institute of Technology—Professor Emeritus

Vanessa Sweet, BFA, The University of the Arts; MFA, California Institute of the Arts—Assistant Professor

John Vincent, AS, Monroe Community College; BA, State University of New York at Empire State College—Visiting Lecturer

Munjal Yagnik, BFA, MFA, Syracuse University—Lecturer

School of Photographic Arts and Sciences

Roberley Ann Bell, BFA, University of Massachusetts at Amherst; MFA, State University of New York at Alfred—Professor

Frank Cost, BA, Eisenhower College; MS, Rochester Institute of Technology—Undergraduate Program Director, Visual Media; James E . McGhee Distinguished Professor

Meredith Davenport, BFA, Rochester Institute of Technology; MFA, Hunter College—Undergraduate Program Director, Photojournalism; Associate Professor

Denis Defibaugh, BS, MS, Rochester Institute of Technology—Undergraduate Program Director, Advertising Photography; Professor Emeritus

Kes Efstathiou, BFA, Montana State University; MFA, Rochester Institute of Technology—Visiting Lecturer

Rachel Ferraro, BFA, Rochester Institute of Technology; MFA, Visual Studies Workshop—Assistant Professor

Gregory Halpern, BA, Harvard University; MFA, California College of the Arts—Associate Professor

Daniel Hughes, BFA, Rochester Institute of Technology—Lecturer

Angela Kelly, Diploma, Trent Polytechnic; Diploma Ed., Mary Ward College; MA, Columbia College—Professor

Ted Kinsman, BS, University of Oregon; MS, Syracuse University—Associate Professor

Susan Lakin, BFA, Art Center College of Design; MFA, University of California—Professor

Dan Larkin, BFA, Rochester Institute of Technology; MFA, Bard College—Associate Professor

Clay Patrick McBride, BFA, MPS, School of Visual Arts—Senior Lecturer

Joshua Rashaad McFadden, BA, Elizabeth City State University; MFA, Savannah College of Art and Design—Assistant Professor

Josh Meltzer, BA, Carleton College; MA, University of Miami—Assistant Professor

Therese Mulligan, BA, University of Missouri-Kansas City; MA, Michigan State University; Ph.D., University of New Mexico—School Director, School of Photographic Arts and Sciences; Professor

Laurie O'Brien, BA, San Francisco State University; MFA, California Institute of the Arts—Associate Professor

Willie Osterman, BFA, Ohio University; MFA, University of Oregon—Professor

Ahndraya Parlato, BA, Bard College; MFA, California College of the Arts—Lecturer

Michael R. Peres, BA, Bradley University; BS, MS, Rochester Institute of Technology—Graduate Director, Media Arts and Technology; Professor

Jennifer Poggi, BS, Syracuse University; MA, Ohio University—Assistant Professor

Robert Rose, BS, Rochester Institute of Technology; M.Ed., American InterContinental University—Assistant Professor

Patricia Russotti, BS, Empire College; M.Ed., Indiana University—Associate Professor

Nanette Salvaggio, BS, Rochester Institute of Technology—Lecturer

Christine Shank, BFA, Miami University; MFA, Texas Women's University—Associate Dean of Undergraduate Studies; Associate Professor

Christye Sisson, BS, MS, Rochester Institute of Technology—Undergraduate Program Director, Photographic Sciences; Professor

William Snyder, BS, Rochester Institute of Technology—Undergraduate Program Director, Advertising Photography; Professor

Josh Thorson, BA, University of Minnesota-Twin Cities; MFA, Bard College; Ph.D., Rensselaer Polytechnic Institute—Graduate Director, Photography and Related Media; Assistant Professor

J. A. Stephen Viggiano, AB, Thomas Edison State College; MS, Ph.D., Rochester Institute of Technology—Assistant Professor

Ken White, BA, Princeton University; MA, MFA, University of New Mexico—Associate Professor

Carole Woodlock, BFA, Alberta College of Arts (Canada); MFA, Concordia University—Professor

Catherine Zuromskis, BA, Harvard College; MA, University of New York at Stony Brook; MA, Ph.D., University of Rochester—Undergraduate Program Director, Fine Art Photography; Associate Professor

Distinguished Professorships

Ann Mowris Mulligan Distinguished Professorship in Contemporary Crafts

Established: 1999

Donor: Ann Mowris Mulligan

Purpose: The holder must have a distinguished record of excellent teaching, wide recognition as a renowned artist, and a demonstrated commitment to students' career development in the craft industry.

Held by: Leonard Urso

Gannett Distinguished Professor

Established: 1987

Donor: Gannett Foundation

Purpose: The distinguished professor is engaged in research and academic study to address problems in the news and information business.

Held by: Open

Charlotte Fredericks Mowris Professorship in Contemporary Crafts

Established: 1973

Donor: Mrs. Charles F. Mowris

Purpose: To perpetuate interest in the School for American Crafts through the work of faculty and students as talented craftspeople.

Held by: Albert Paley

Melbert B. Cary Jr. Professorship in Graphic Arts

Established: 1969

Donor: Mary Flagler Cary Charitable Trust

Purpose: To provide a permanent memorial for Mr. Cary, a former president of the American Institute of Graphic Arts, and to perpetuate his interest in the field.

Held by: Peter Byrne

James E. McGhee Professorship in Photographic Management

Established: 1967

Donor: Photo Marketing Association (formerly Master Photodealers and Finishers Association), Kodak, and friends of M. McGhee

Purpose: To provide a permanent memorial for Mr. McGhee, a former vice president of Eastman Kodak Company and lifelong friend of the photofinishing industry.

Held by: Frank Cost

The Massimo and Lella Vignelli Distinguished Professor in Design

Established: 2010

Donor: The Helen Hamlyn Trust

Purpose: To extend the values and principles implicit in the work and careers of Massimo and Lella Vignelli to the next generation of designers.

Held by: Josh Owen

Saunders College of Business

Jacqueline R. Mozrall, Dean
saunders.rit.edu

Programs of study

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Accelerated dual degree available

Success in today's business environment requires leadership and management attuned to rapid changes in technology and increasingly vigorous global competition. Saunders College of Business offers a portfolio of comprehensive, rigorous programs of study. Our curriculum produces graduates who are able to convert managerial learning into pragmatic business applications.

To achieve these educational aims, Saunders College offers academic programs comprised of four components: business core courses, a program of study, required liberal arts courses, and cooperative education experience. The liberal arts component includes courses in the humanities, mathematics, science, and social sciences. Students are expected to display proficiency in oral and written forms of communication, and to choose a liberal arts concentration or minor. Please visit the college's website–**saunders.rit.edu**–for in depth information on academics, faculty, facilities, research initiatives, advising services, and more.

Admission requirements

For more information on undergraduate admission, including freshman and transfer admission guidelines, please refer to individual program descriptions and the Undergraduate Admission section of this bulletin.

Financial aid and scholarships

Please refer to the Financial Aid and Scholarships section of this bulletin for information regarding financial aid, scholarships, loans, and grants.

Accreditation

Saunders College is accredited by the nationally recognized Association to Advance Collegiate Schools of Business (AACSB International), the premier accrediting agency for schools of business in the U.S.

Business Administration: Accounting, BS

www.rit.edu/study/business-administration-accounting-bs
Matthew Cornwell,
585-475-6916, mcornwell@saunders.rit.edu

Program overview

Accountants are multidisciplinary professionals. They are responsible for determining an organization's overall wealth, profitability, and liquidity. Without accounting, organizations would have no foundation upon which daily and long-term business decisions could be made. The business administration: accounting bachelors covers financial and managerial accounting disciplines while introducing students to the technology needed for the profession. Leveraging the strength of our nationally ranked (#6) management information systems (MIS) program, you'll gain the technological skills needed to design, operate, and control accounting information systems–skills that are highly sought after by employers. As one of the oldest and most respected professions in the world, an accounting degree can lead to an exciting and rewarding career in one of the most essential lines of work in the business world.

The accounting degree covers financial and managerial accounting disciplines while introducing students to technology, including accounting information systems, while gaining exposure to the liberal arts, sciences, and management. Students planning a career in public accounting may select undergraduate course work preparing them to enter RIT's MBA-accounting program. Completion of both the BS and MBA-accounting degrees satisfies the New York state CPA education requirements (see electives). Students may tailor the major to meet diverse career opportunities in commercial, government, and not-for-profit sectors.

Students planning to pursue an MBA-accounting degree and a career in public accounting should consult an accounting professor or accounting academic advisor.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their

competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the accounting degree are required to complete at least one block of cooperative education.

Curriculum

Business Administration: Accounting, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ACCT-110	Financial Accounting	3
ACCT-210	Management Accounting	3
ECON-101	General Education – Global Perspective: Principles of Microeconomics	3
ECON-201	General Education – Elective: Principles of Macroeconomics	3
MGIS-101	Computer-based Analysis	1
MGIS-130	Information Systems & Technology	3
MGMT-101	Business 1: Ideas and Business Planning	3
MGMT-102	Business 2: Business Planning and Professional Development	3
STAT-145	General Education – Mathematical Perspective A: Introduction to Statistics I	3
STAT-146	General Education – Mathematical Perspective B: Introduction to Statistics II	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First Year Writing (WI)	3
Second Year		
ACCT-305	Accounting Profession	1
ACCT-360	Intermediate Financial Accounting I	3
ACCT-445	Accounting Information Systems	3
BLEG-200	Business Law I	3
COMM-253	General Education Elective: Communication	3
FINC-220	Financial Management	3
INTB-225	General Education Elective: Global Business Environment	3
MATH-161	General Education Elective: Applied Calculus	4
MGMT-215	Organizational Behavior	3
MKTG-230	Principles of Marketing	3
	General Education – Artistic Perspective	3
Third Year		
ACCT-365	Intermediate Financial Accounting II	3
ACCT-420	Personal and Small Business Taxation	3
DECS-310	Operations Management	3
MGMT-340	General Education – Ethical Perspective: Business Ethics and Corporate Social Responsibility	3
	General Education – Elective	3
	General Education – Social Perspective	3
	General Education – Natural Science Inquiry Perspective)†	3
	General Education – Scientific Principles Perspective	3
	General Education Immersion 1, 2	6
Fourth Year		
ACCT-430	Cost Accounting (WI-PR)	3
ACCT-490	Auditing	3
MGMT-560	Strategic Management	3
	General Education – Immersion 3	3
	Open Electives	9
	General Education – Electives	9
Total Semester Credit Hours		**124**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
Students must also complete one semester of cooperative education.
† Students will satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and lab portions to satisfy the requirement.

Accelerated dual degree option

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

Business administration: Accounting, BS degree/Accounting, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ACCT-110	Financial Accounting	3
ACCT-210	Management Accounting	3
ECON-101	General Education – Global Perspective: Principles of Microeconomics	3
ECON-201	General Education – Elective: Principles of Macroeconomics	3
MGIS-101	Computer-based Analysis	1
MGIS-130	Information Systems & Technology	3
MGMT-101	Business 1: Ideas and Business Planning	3
MGMT-102	Business 2: Business Planning and Professional Development	3
STAT-145	General Education – Mathematical Perspective A: Introduction to Statistics I	3
STAT-146	General Education – Mathematical Perspective B: Introduction to Statistics II	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First Year Writing (WI)	3
Second Year		
ACCT-360	Intermediate Financial Accounting I	3
ACCT-365	Intermediate Financial Accounting II	3
BLEG-200	Business Law I	3
COMM-253	General Education – Elective: Communication	3
FINC-220	Financial Management	3
INTB-225	General Education – Elective: Global Business Environment	3
MATH-161	General Education – Elective: Applied Calculus	4
MGMT-215	Organizational Behavior	3
MKTG-230	Principles of Marketing	3
	General Education – Artistic Perspective	3
Third Year		
ACCT-305	Accounting Profession	1
ACCT-420	Personal and Small Business Taxation	3
ACCT-430	Cost Accounting	3
MGMT-340	General Education – Ethical Perspective: Business Ethics and Corporate Social Responsibility	3
	General Education – Social Perspective	3
	General Education – Natural Science Inquiry Perspective†	3
	General Education – Scientific Principles Perspective	3
	General Education – Immersion 1, 2, 3	9
	Open Elective	3
Fourth Year		
ACCT-490	Auditing	3
ACCT-645	Accounting Information and Analytics	3
DECS-310	Operations Management	3
MGMT-560	Strategic Management	3
	Open Electives	6
	General Education – Electives	12
Fifth Year		
ACCT-707	Advanced Accounting	3
ACCT-708	Advanced Topics in Auditing and Assurance	3
ACCT-710	Tax Analysis and Strategy	3
ACCT-738	Information Systems Auditing and Assurance Services	3
ACCT-740	Comparative Financial Statement Analysis	3
ACCT-795	Financial Accounting Theory and Research	3
	Graduate Electives	9
	Field Exam	0
Total Semester Credit Hours		**151**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Students will satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and lab portions to satisfy the requirement.
‡ Students must also complete one semester of cooperative education.

Accreditation

Saunders College of Business undergraduate and graduate programs are fully accredited by the Association to Advance Collegiate Schools of Business (AACSB) International, the premier accrediting organization for business schools. Less than 5 percent of the institutions granting business degrees have received this accreditation.

Admission requirements

Freshman Admission
For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
3 years of math required; pre-calculus recommended

Transfer Admission
Transfer course recommendations without associate degree
Courses in economics, accounting, liberal arts, science, and mathematics

Appropriate associate degree programs for transfer
AS degree in accounting or business administration

Business Administration: Finance, BS

www.rit.edu/study/business-administration-finance-bs
Matthew Cornwell,
585-475-6916, mcornwell@saunders.rit.edu

Program overview

Explore the management, creation, and study of money, banking, investments, assets, and liabilities, and the impact of technology on financial systems, cash-flow analysis, capital markets, financial decision-making, and forecasting. This is the exciting world of finance.

In RIT's finance degree, you'll become familiar with financial systems–in the public, private, and government spaces–and become an expert in cash-flow analysis, capital markets, financial decision-making, and forecasting. Using big data and data analytics to understand financial trends, a finance degree gives you the tools to predict and forecast market performance.

The business administration: finance major prepares students for management positions in financial, commercial, industrial, and governmental organizations. Students are taught the principles of financial decision making as they build an understanding of the economic, legal, and financial environment in which they will operate. Career options for finance majors. are in all types of industries, from government, industry, and service to not-for-profit organizations. The Sklarsky Center for Business Analytics, which features Bloomberg Terminals, provides the latest in finance-based technology, computing power, and software.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the finance degree are required to complete at least one block of cooperative education.

Curriculum

Business Administration: Finance, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ACCT-110	Financial Accounting	3
ACCT-210	Management Accounting	3
ECON-101	General Education – Global Perspective: Principles of Microeconomics	3
ECON-201	General Education – Elective: Principles of Macroeconomics	3
MGIS-101	Computer-based Analysis	1
MGIS-130	Information Systems & Technology	3
MGMT-101	Business 1: Ideas and Business Planning	3
MGMT-102	Business 2: Business Planning and Professional Development	3
STAT-145	General Education – Mathematical Perspective A: Introduction to Statistics I	3
STAT-146	General Education – Mathematical Perspective B: Introduction to Statistics II	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First Year Writing (WI)	3

COURSE		SEMESTER CREDIT HOURS
Second Year		
COMM-253	General Education – Elective: Communication	3
FINC-220	Financial Management	3
FINC-352	Financial Management II	3
INTB-225	General Education – Elective: Global Business Environment	3
MATH-161	General Education – Elective: Applied Calculus	4
MGMT-035	Careers in Business	0
MGMT-215	Organizational Behavior	3
MKTG-230	Principles of Marketing	3
	General Education – Artistic Perspective	3
	General Education – Social Perspective	3
	Open Elective	3
Third Year		
DECS-310	Operations Management	3
FINC-362	Intermediate Investments	3
FINC-460	Financial Analysis and Modeling	3
MGMT-340	General Education – Ethical Perspective: Business Ethics and Corporate Social Responsibility	3
	General Education – Immersion 1, 2	6
	General Education – Natural Science Inquiry Perspective†	3
	General Education – Scientific Principles Perspective	3
	Finance Electives	6
Fourth Year		
MGMT-560	Strategic Management	3
	Finance Elective	3
	Open Electives	9
	General Education – Immersion 3	3
	General Education – Elective	12
Total Semester Credit Hours		**123**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
Students must also complete one semester of cooperative education.
† Students will satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and lab portions to satisfy the requirement.

Finance electives

BLEG-200	Business Law I
FINC-320	Professional Financial Planning and Management
FINC-361	Financial Institutions and Markets
FINC-420	Finance in a Global Environment
FINC-425	Stock Market Algorithmic Trading
FINC-470	Introduction to Options and Futures
FINC-489	Seminar in Finance
FINC-559	Financing New Ventures
FINC-580	Financial Analytics

Accreditation

Saunders College of Business undergraduate and graduate programs are fully accredited by the Association to Advance Collegiate Schools of Business (AACSB) International, the premier accrediting organization for business schools. Less than 5 percent of the institutions granting business degrees have received this accreditation.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
3 years of math required; pre-calculus recommended

Transfer Admission

Transfer course recommendations without associate degree
Courses in economics, accounting, liberal arts, science, and mathematics

Appropriate associate degree programs for transfer
AS degree in accounting or business administration

Business Administration: International Business, BS

www.rit.edu/study/business-administration-international-business-bs
Matthew Cornwell,
585-475-6916, mcornwell@saunders.rit.edu

Program overview

As the world continues to become more globally connected, the need to do business internationally becomes increasingly important. The international business degree prepares you to handle all commercial transactions – from private and government to sales and investments – that take place between two or more nations. You can leverage the strength of RIT's global campuses in China, Croatia, Dubai, and Kosovo, as well as a comprehensive study abroad program to gain experience living, working, or studying in hundreds of countries around the world. The international business major provides the analytical tools and conceptual framework needed to understand the international financial, political, and economic environment, and how that environment influences a firm's global strategy and performance.

Students in the business administration: international business major develop the foundation necessary to understand and conduct cross-border and global business. Proficiency in a foreign language is an integral part of the major. A co-major or a minor is chosen in one of the following areas: accounting, entrepreneurship, finance, management, management information systems, marketing, or supply chain management. This combination assures students have a well rounded foundation in business with a solid understand of the significance of cultural and geographic influences on global as well as local commerce.

International business positions include substantial personal and professional benefits. Overseas assignments typically bring long hours and hard work, yet the reward of upward mobility within the corporate world continues to lure young executives to global assignments.

Foreign language requirement

Proficiency in a foreign language offered by RIT is a requirement of the major. You may fulfill this requirement by completing a minor in Arabic, Chinese, French, German, Italian, Japanese, Portuguese, Russian, or Spanish.

Students with fluency in one foreign language can request to waive the requirement or they may choose to study a second foreign language.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the international business degree are required to complete at least one block of cooperative education, which may have an international component. Many students study abroad to solidify their understanding of a foreign language and gain experience living in another culture. They follow their study abroad experience with a co-op in a multinational corporation in the United States, or in an international company overseas, to acquire comprehensive international business experience.

Curriculum

Business Administration: International Business, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ACCT-110	Financial Accounting	3
ACCT-210	Management Accounting	3
ECON-101	General Education – Global Perspective: Principles of Microeconomics	3
ECON-201	General Education – Elective: Principles of Macroeconomics	3
MGIS-101	Computer-based Analysis	1
MGIS-130	Information Systems & Technology	3
MGMT-101	Business 1: Ideas and Business Planning	3
MGMT-102	Business 2: Business Planning and Professional Development	3
STAT-145	General Education – Mathematical Perspective A: Introduction to Statistics I	3
STAT-146	General Education – Mathematical Perspective B: Introduction to Statistics II	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First Year Writing (WI)	3
Second Year		
COMM-253	General Education – Elective: Communication	3
FINC-220	Financial Management	3
INTB-225	General Education – Elective: Global Business Environment	3
INTB-315	Exporting and Global Sourcing	3
MATH-161	General Education – Elective: Applied Calculus	4
MGMT-035	Careers in Business	0
MGMT-215	Organizational Behavior	3
MKTG-230	Principles of Marketing	3
	Open Elective	3
	General Education – Artistic Perspective	3
	General Education – Social Perspective	3
Third Year		
DECS-310	Operations Management	3
MGMT-340	General Education – Ethical Perspective: Business Ethics and Corporate Social Responsibility	3
	International Business Electives	6
	Co-major Courses§	6
	General Education – Natural Science Inquiry Perspective†	3
	General Education – Immersion 1, 2	6
	General Education – Elective (International)	3
Fourth Year		
INTB-550	Global Entry and Competition Strategies (WI-PR)	3
MGMT-560	Strategic Management	3
	Open Elective	3
	Co-major Courses§	6
	General Education – Scientific Principles Perspective	3
	General Education – Immersion 3	3
	General Education – Elective (International)	3
	General Education – Electives	6
Total Semester Credit Hours		**123**

Please see General Education Curriculum (GE) for more information.

Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Students must also complete one semester of cooperative education. Students will strengthen their co-major by adding three semesters of foreign language and two regional studies courses.

† Students will satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and lab portions to satisfy the requirement.

§ Students may choose to substitute a minor in an area in which a co-major is available (but not a non-business minor or the Business Administration minor). Substituting a minor for a co-major should not require an additional semester of study. Students using a minor to substitute for the co-major may need to take additional open electives in lieu of a co-major course.

International Business Electives

ECON-449	Comparative Economic Systems
FINC-420	Finance in a Global Environment
INTB-300	Cross-Cultural Management
INTB-310	Regional Business Studies
INTB-320	Global Marketing
INTB-489	Seminar in International Business

International GE Electives

ANTH-240	Muslim Youth Cultures
ANTH-275	Global Islam
ANTH-365	Culture and Politics in the Middle East
HIST-170	Twentieth Century Europe
HIST-261	History of Modern China
HIST-265	History of Modern Japan
HIST-270	History of Modern France
HIST-280	History of Modern Germany
HIST-365	Conflict of Modern East Asia
HIST-462	East-West Encounters
POLS-350	Politics of East Asia

Accreditation

Saunders College of Business undergraduate and graduate programs are fully accredited by the Association to Advance Collegiate Schools of Business (AACSB) International, the premier accrediting organization for business schools. Less than 5 percent of the institutions granting business degrees have received this accreditation.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
3 years of math required; pre-calculus recommended

Transfer Admission

Transfer course recommendations without associate degree
Courses in economics, accounting, liberal arts, science, and mathematics

Appropriate associate degree programs for transfer
AS degree in accounting or business administration

Business Administration: Management, BS

www.rit.edu/study/business-administration-management-bs

Matthew Cornwell,
585-475-6916, mcornwell@saunders.rit.edu

Program overview

Industries around the world are in need of decision-makers and problem-solvers. Fortune 500 companies and non-profit organizations alike require strategic managers that know how to leverage the latest technology. Our business management degree focuses on the critical competencies and interpersonal skills needed to be a successful change-agent in any organization. Students are exposed to many facets of management and managing, from the ability to motivate peers, to communicating with others, to leading a team – all of which are the essential skills for good managers. RIT's management degree builds a T-shaped professional: those who have developed a deep disciplinary knowledge with a broad understanding of the professional and personal skills that define an effective leader.

The business administration: management major prepares students for management careers in a variety of enterprises and organizations. Students develop the skills and concepts needed to become effective leaders and ethical decision makers. The curriculum emphasizes communication skills, emotional intelligence, and critical reasoning while providing both depth and flexibility in its offerings. Students are required to choose a concentration in entrepreneurship, leadership, or supply chain management.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the business management degree are required to complete at least one block of cooperative education.

Curriculum

Business Administration: Management, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ACCT-110	Financial Accounting	3
ACCT-210	Management Accounting	3
ECON-101	General Education – Global Perspective: Principles of Microeconomics	3
ECON-201	General Education – Elective: Principles of Macroeconomics	3
MGIS-101	Computer-based Analysis	1
MGIS-130	Information Systems & Technology	3
MGMT-101	Business 1: Ideas and Business Planning	3
MGMT-102	Business 2: Business Planning and Professional Development	3
STAT-145	General Education – Mathematical Perspective A: Introduction to Statistics I	3
STAT-146	General Education – Mathematical Perspective A: Introduction to Statistics II	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First Year Writing (WI)	3
Second Year		
COMM-253	General Education – Elective: Communication	3
INTB-225	General Education – Elective: Global Business Environment	3
FINC-220	Financial Management	3
MATH-161	General Education – Elective: Applied Calculus	4
MGMT-035	Careers in Business	0
MGMT-215	Organizational Behavior	3
MGMT-320	Organizational Effectiveness Skills	3
MKTG-230	Principles of Marketing	3
	General Education – Artistic Perspective	3
	General Education – Social Perspective	3
	Open Elective	3
Third Year		
DECS-310	Operations Management	3
DECS-350	Project Management	3
MGMT-310	Leading High-Performance Teams (WI-PR)	3
MGMT-340	General Education – Ethical Perspective: Business Ethics and Corporate Social Responsibility	3
	Approved Management Elective	3
	General Education – Immersion 1, 2	6
	General Education – Natural Science Inquiry Perspective †	3
	General Education – Scientific Principles Perspective	3
	Open Elective	3
Fourth Year		
MGMT-450	Negotiations and Decision-Making	3
MGMT-550	Real World Business Solutions	3
MGMT-560	Strategic Management	3
	General Education – Electives	12
	General Education – Immersion 3	3
	Open Electives	6
Total Semester Credit Hours		**123**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
Students must also complete one semester of cooperative education.
† Students will satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and lab portions to satisfy the requirement.

Approved Management Electives

DECS-435	Supply Chain Management Fundamentals
ISEE-582	Lean Six Sigma Fundamentals
MGIS-360	Building a Web Business
MGIS-435	Advanced Systems Analysis and Design
MKTG-320	Internet Marketing
MKTG-365	Marketing Analytics
MGMT-XXX	Any "MGMT" course not already completed

Accreditation

Saunders College of Business undergraduate and graduate programs are fully accredited by the Association to Advance Collegiate Schools of Business (AACSB) International, the premier accrediting organization for business schools. Less than 5 percent of the institutions granting business degrees have received this accreditation.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
3 years of math required; pre-calculus recommended

Transfer Admission

Transfer course recommendations without associate degree
Courses in economics, accounting, liberal arts, science, and mathematics

Appropriate associate degree programs for transfer
AS degree in accounting or business administration

Business Administration: Marketing, BS

www.rit.edu/study/business-administration-marketing-bs

Matthew Cornwell,
585-475-6916, mcornwell@saunders.rit.edu

Program overview

Marketing is a critical element in the success of modern business operations. The overall process of entering markets, creating value for customers, and developing profits is the fundamental challenge for the contemporary marketing manager. RIT's marketing degree focuses on the complete business-consumer relationship, from internet marketing, social media, professional selling, international marketing, and consumer behavior. You'll gain competencies in the technical skills of search engine optimization and data analytics as you gain a complete understanding of the dynamic field of marketing and its impact on an organization's success.

In the business administration: marketing major, students learn theory and gain practical experience by creating tactically enabled strategic marketing plans. Through projects they learn to work independently and in teams to achieve organizational objectives. Students develop leadership and communication skills through classroom experiences and their work on real and simulated business challenges. Students gain proficiency in analyzing and understanding buyers, developing and delivering professional sales presentations, and designing and implementing marketing research projects. Students graduate with the ability to create and critically evaluate strategic marketing plans.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the marketing degree are required to complete at least one block of cooperative education.

Curriculum

Business Administration: Marketing, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ACCT-110	Financial Accounting	3
ACCT-210	Management Accounting	3
ECON-101	General Education – Global Perspective: Principles of Microeconomics	3
ECON-201	General Education – Elective: Principles of Macroeconomics	3
MGIS-101	Computer-based Analysis	1
MGIS-130	Information Systems & Technology	3
MGMT-101	Business 1: Ideas and Business Planning	3
MGMT-102	Business 2: Business Planning and Professional Development	3
STAT-145	General Education – Mathematical Perspective A: Introduction to Statistics I	3
STAT-146	General Education – Mathematical Perspective B: Introduction to Statistics II	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First Year Writing (WI)	3
Second Year		
COMM-253	General Education – Elective: Communication	3
FINC-220	Financial Management	3
INTB-225	General Education – Elective: Global Business Environment	3
MATH-161	General Education – Elective: Applied Calculus	4
MGMT-035	Careers in Business	0
MGMT-215	Organizational Behavior	3
MKTG-230	Principles of Marketing	3
MKTG-320	Digital Marketing	3
	Open Elective	3
	General Education – Artistic Perspective	3
	General Education – Social Perspective	3
Third Year		
DECS-310	Operations Management	3
MGMT-340	General Education – Ethical Perspective: Business Ethics and Corporate Social Responsibility	3
MKTG-350	Consumer Behavior	3
MKTG-365	Marketing Analytics	3
	General Education – Immersion 1, 2	6
	General Education – Natural Science Inquiry Perspective†	3
	General Education – Scientific Principles Perspective	3
	Marketing Electives	6
Fourth Year		
MGMT-560	Strategic Management	3
MKTG-550	Marketing Strategy (WI-PR)	3
	Open Electives	9
	General Education – Immersion 3	3
	General Education – Electives	12
Total Semester Credit Hours		**123**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Students must also complete one semester of cooperative education.

† Students will satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and lab portions to satisfy the requirement.

Marketing electives

COURSE	
ISTE-105	Web Foundations
ISTE-305	Rapid Online Presence
MAAT-101	Cross Media Foundations
MAAT-106	Typography and Page Design
MAAT-107	Imaging
MGIS-360	Building a Web Business
MGMT-360	Digital Entrepreneurship
MKTG-310	Marketing Research
MKTG-330	Global Marketing
MKTG-360	Professional Selling
MKTG-370	Advertising and Promotion Management
MKTG-410	Search Engine Marketing and Analytics
MKTG-430	Social Media Marketing
MKTG-489	Seminar in Marketing

Accreditation

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Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
3 years of math required; pre-calculus recommended

Transfer Admission

Transfer course recommendations without associate degree
Courses in economics, accounting, liberal arts, science, and mathematics

Appropriate associate degree programs for transfer
AS degree in accounting or business administration

Business Exploration, Undeclared

www.rit.edu/study/business-exploration
Matthew Cornwell,
585-475-6916, mcornwell@saunders.rit.edu

Program overview

Explore your interests in business, finance, marketing, or management before you declare a major. The business exploration option gives you an opportunity to explore your interests in business while you complete foundation courses. You can sample courses in a variety of majors while you identify the program that best meets your interests and career aspirations.

For students interested in pursuing a career in business, but are uncertain as to which major best fits their personal and professional objectives, the business exploration option provides students with up to a year and a half to declare a major. During this time, students complete liberal arts and sciences courses as well as business core courses, which provide an understanding of all facets of business and serve as a foundation for advanced study in a specific area of interest. Advisors provide guidance throughout the option and assist students in course selection and in declaring a major.

Curriculum

Business exploration, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ACCT-110	Financial Accounting	3
MGMT-101	Business 1: Ideas and Business Planning	3
MGIS-101	Computer-based Analysis	1
MGMT-102	Business 2: Business Planning and Professional Development	3
MGIS-130	Information Systems and Technology	3
ECON-101	Principles of Microeconomics	3
ECON-201	Principles of Macroeconomics	3
STAT-145	Introduction to Statistics I	3
STAT-146	Introduction to Statistics II	4
ACCT-210	Management Accounting	3
ACSC-010	Year One	0
	First Year Writing	3
	Wellness Education*	0
Total Semester Credit Hours		**32**

* Please see Wellness Education Requirements for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
3 years of math required; pre-calculus recommended

Hospitality and Tourism Management, BS

www.rit.edu/study/hospitality-and-tourism-management-bs
Matthew Cornwell,
585-475-6916, mcornwell@saunders.rit.edu

Program overview

The hospitality and tourism degree provides an in-depth understanding of the hospitality and tourism industry and prepares students to enter nearly any segment of the industry, including lodging, hotels, restaurants, casinos, cruise line operations, resorts and spas, event management, or airline catering. Among the biggest evolutions in the hospitality field is the impact of technology on guest experience, food service and delivery, and more. Technology, along with data analytics, is driving how hospitality professionals are interacting with guests and managing their expectations. Today's hospitality professionals must be knowledgeable of how the latest technology is being used to improve the guest experience.

The hospitality management degree provides an in-depth understanding of the hospitality and tourism industry and prepare students to enter nearly any segment of the industry, such as lodging, hotels, restaurants, casino, cruise line operations, resorts and spas, event management, or airline catering. The major provides students the knowledge and competences needed to successfully manage a restaurant, hotel, or an independently-owned hospitality or tourism business.

Among the biggest evolutions in the hospitality field is the impact of technology on guest experience, food service and delivery, and more. Technology, along with data analytics, is driving how hospitality professionals are interacting with guests and managing their expectations. From apps that help plan and manage guest experiences, to wearables that unlock guest room doors, to online check-in and food ordering, today's hospitality professionals must be knowledgeable of how the latest technology is being used to improve the guest experience. Hospitality and tourism major study the hospitality industry alongside students majoring in computing, information sciences, engineering, business, entrepreneurship, and more. This exposes students to diverse ideas from those studying in other majors. This powerful experience can help inform the senior capstone project, where students tackle a hospitality industry problem and propose an innovative solution.

Plan of study

The hospitality and tourism management major includes a comprehensive core curriculum that lays a strong foundation in the core principles of hospitality, service management, and tourism operations. Students also develop an essential set of skills, operations analysis, project management, food safety, traditional and digital marketing, facilities management, strategic planning, information systems, real estate, and human resource management which are needed to successfully manage the operations of all types of hospitality careers that occur across all industry sectors.

Students can customize the major around their career aspirations and interests by creating a three-to-five course sequence from disciplines from across RIT's nine colleges. This broadens their knowledge and expands their expertise. Courses in innovation, entrepreneurship, marketing, finance, packaging science, web design and development, and more expand upon the major's core courses and create opportunities for students to engage in hospitality and tourism management in new, exciting ways.

The hospitality and tourism management major is recognized by Forbes, Travel Weekly, Nation's Restaurant News, and Corporate Travel magazines. Bestschools.com ranked RIT's program among the 20 best tourism degrees.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the hospitality management degree are required to complete a combined 1,200 hours of practical cooperative education experience with classroom theory. In co-op placements, students work directly in the hospitality industry in a variety of positions and organizations. Co-op is usually completed in the summer following the freshman and sophomore years and during any semester in the junior and senior years, except the final semester of the senior year, when students are required to be in residence on campus. Co-op is planned, monitored, and evaluated by the student, the co-op counselor, the faculty adviser, and the employing firm.

Curriculum

Hospitality and Tourism Management, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ACCT-110	Financial Accounting	3
ACCT-210	Management Accounting	3
ECON-101	General Education – Global Perspective: Principles of Microeconomics	3
HSPT-225	Hospitality and Tourism Fundamentals	3
HSPT-315	Lodging Operations Analytics and Management	3
MGIS-130	Information Systems & Technology	3
MGMT-101	Ideas and Business Planning	3
MGMT-102	Business 2: Business Planning and Professional Development	3
STAT-145	General Education – Mathematical Perspective A: Introduction to Statistics I	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First Year Writing (WI)	3
Second Year		
COMM-253	Communication	3
ECON-201	General Education – Elective: Principles of Macroeconomics	3
FINC-220	Financial Management	3
HSPT-215	Principles of Food Production and Service	3
HSPT-499	HSPT Co-op (summer)	0
INTB-225	General Education – Elective: Global Business Environment	3
NUTR-215	Contemporary Nutrition	3
MATH-161	General Education – Elective: Applied Calculus	4
MGMT-035	Careers in Business	0
MGMT-215	Organizational Behavior	3
MKTG-230	Principles of Marketing	3
STAT-146	General Education – Mathematical Perspective B: Introduction to Statistics I	3
Third Year		
DECS-310	Operations Management	3
HSPT-335	Food and Beverage Management	3
HSPT-375	Customer Experience Management	3
HSPT-499	HSPT Co-op (summer)	0
MGMT-340	General Education – Ethical Perspective: Business Ethics and Corporate Social Responsibility	3
	General Education – Immersions 1, 2	6
	Open Elective	3
	General Education – Natural Science Inquiry Perspective	4
	General Education – Social Perspective	3
	General Education – Scientific Principles Perspective	3
Fourth Year		
HSPT-485	Restaurant and Event Management	4
HSPT-495	Hospitality Project Planning and Development (WI)	3
MGMT-560	Strategic Management	3
	General Education – Immersion 3	3
	Open Electives	9
	General Education – Electives	6
	General Education – Artistic Perspective	3
Total Semester Credit Hours		**124**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
3 years of math required; pre-calculus recommended

Transfer Admission

Transfer course recommendations without associate degree
Courses in economics, accounting, liberal arts, science, and mathematics

Appropriate associate degree programs for transfer
AS degree in accounting or business administration

Management Information Systems (MIS), BS

www.rit.edu/study/management-information-systems-mis-bs

Matthew Cornwell,
585-475-6916, mcornwell@saunders.rit.edu

Program overview

Technology enhances an organization's operational efficiency. Through analysis of existing business processes, you will be able to improve and design new information systems that can help add value to an existing product and help managers make crucial decisions. The management information systems degree focuses on data analytics, teamwork, leadership skills, customer service, and underlying business theories. An MIS degree gives you the ability to develop innovative systems to solve company problems and improve business intelligence.

The management information systems major prepares students for careers involving leading-edge enterprise technologies and the analysis, design, and management of computer-based information systems. The curriculum provides students with the opportunity to analyze existing business processes and learn to utilize digital technologies to improve and/or design new models. As a result students are able to apply the concepts of enterprise resource planning and work with sophisticated enterprise systems to help companies achieve their goals. Students also are able to design systems that are usable, practical, and cost-effective. Major career directions for graduates include business analysis, enterprise resource planning analysis and consulting, database application development and administration, network design and administration, website development and administration, and the management of information systems projects.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the MIS degree are required to complete at least one block of cooperative education.

Curriculum

Management Information Systems, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ACCT-110	Financial Accounting	3
ACCT-210	Management Accounting	3
ECON-101	General Education – Global Perspective: Principles of Microeconomics	3
ECON-201	General Education – Elective: Principles of Macroeconomics	3
MGIS-101	Computer-based Analysis	1
MGIS-130	Information Systems & Technology	3
MGMT-101	Business 1: Ideas and Business Planning	3
MGMT-102	Business 2: Business Planning and Professional Development	3
STAT-145	General Education – Mathematical Perspective A: Introduction to Statistics I	3
STAT-146	General Education – Mathematical Perspective B: Introduction to Statistics II	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First Year Writing (WI)	3
Second Year		
COMM-253	General Education – Elective: Communication	3
FINC-220	Financial Management	3
INTB-225	General Education – Elective: Global Business Environment	3
MATH-161	General Education – Elective: Applied Calculus	4
MGIS-320	Database Management Systems	3
MGMT-035	Careers in Business	0
MGMT-215	Organizational Behavior	3
MKTG-230	Principles of Marketing	3
	Open Elective	3
	General Education – Artistic Perspective	3
	General Education – Social Perspective	3
Third Year		
DECS-310	Operations Management	3
MGIS-330	Systems Analysis and Design	3
MGIS-350	Developing Business Applications	3
MGMT-340	General Education – Ethical Perspective: Business Ethics and Corporate Social Responsibility	3
	General Education – Immersion 1, 2	6
	General Education – Natural Science Inquiry Perspective)†	3
	General Education – Scientific Principles Perspective	3
	MGIS Electives	6
Fourth Year		
MGIS-550	MIS Capstone (WI-PR)	3
MGMT-560	Strategic Management	3
	Open Electives	9
	General Education – Immersion 3	3
	General Education – Electives	12
Total Semester Credit Hours		**123**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
Students must also complete one semester of cooperative education.
† Students will satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and lab portions to satisfy the requirement.

Management Information Systems Electives

MGIS-355	Business Intelligence
MGIS-360	Building a Web Business
MGIS-425	Database Systems Development
MGIS-429	Cyber: Risk and Resilience
MGIS-445	Web Systems Development
MGIS-450	Enterprise Systems
MGIS-489	Seminar in MIS
MGIS-589	Hacking for Defense (H4D)
MGMT-360	Digital Entrepreneurship

Accreditation

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Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
3 years of math required; pre-calculus recommended

Transfer Admission

Transfer course recommendations without associate degree
Courses in economics, accounting, liberal arts, science, and mathematics

Appropriate associate degree programs for transfer
AS degree in computer information systems, accounting, or business administration

Supply Chain Management, BS

www.rit.edu/study/supply-chain-management-bs
Matthew Cornwell,
585-475-6916, mcornwell@saunders.rit.edu

Program overview

Today, many companies and organizations are involved in making products readily available so consumers, producers, and manufacturers can have them when and where they want them, and at a competitive price. Coordinating and managing all of the organizations and suppliers involved in the activities that move products at the right time, to the right place, is the goal of a supply chain management degree. More than ever, technology is driving the supply chain business processes and services that employers are seeking to give them a competitive edge.

The supply chain management degree focuses on providing students with the knowledge to assist in developing and implementing efficient global supplier systems in order to maximize customer value. Supply chain management coordinates the interrelated processes required both within a business and with businesses partners, including suppliers, to deliver products and services. Students gain a background in the areas commonly needed to support supply chain management roles, such as business strategy, information systems, lean/quality management, customer service, purchasing, negotiations, contracts, forecasting, inventory management, logistics, and project management. Besides business operations, supply chain management plays a critical role in medical missions, disaster relief operations, and other types of service industries. These activities touch almost every business function, including product development, sourcing, marketing, global issues, logistics/distribution, operations management, information systems, and finance.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the supply chain management degree are required to complete at least one block of cooperative education.

Curriculum

Supply Chain Management, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ACCT-110	Financial Accounting	3
ACCT-210	Management Accounting	3
ECON-101	General Education – Global Perspective: Principles of Microeconomics	3
ECON-201	General Education – Elective: Principles of Macroeconomics	3
MGIS-101	Computer-based Analysis	1
MGIS-130	Information Systems & Technology	3
MGMT-101	Business 1: Ideas and Business Planning	3
MGMT-102	Business 2: Business Planning and Professional Development	3
STAT-145	General Education – Mathematical Perspective A: Introduction to Statistics I	3
STAT-146	General Education – Mathematical Perspective B: Introduction to Statistics II	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First Year Writing (WI)	3
Second Year		
COMM-253	General Education – Elective: Communication	3
DECS-310	Operations Management	3
DECS-435	Supply Chain Management Fundamentals	3
INTB-225	General Education – Elective: Global Business Environment	3
MATH-161	General Education – Elective: Applied Calculus	4
MKTG-230	Principles of Marketing	3
MGMT-035	Careers in Business	0
MGMT-215	Organizational Behavior	3
	General Education – Artistic Perspective	3
	General Education – Social Perspective	3
	Open Elective	3
Third Year		
FINC-220	Financial Management	3
MGIS-320	Database Management Systems	3
MGIS-450	Enterprise Systems	3
MGMT-340	General Education – Ethical Perspective: Business Ethics and Corporate Social Responsibility	3
	General Education – Immersion 1, 2	6
	General Education – Natural Science Inquiry Perspective†	3
	General Education – Scientific Principles Perspective	3
	General Education – Elective	3
	Supply Chain Management Elective	3
Fourth Year		
DECS-445	Managing Supplier Relations	3
DECS-550	Supply Chain Management Capstone (WI-PR)	3
ISEE-582	Lean Six Sigma Fundamentals	3
MGMT-560	Strategic Management	3
	General Education – Immersion 3	3
	Open Elective	3
	General Education – Electives	9
	Supply Chain Management Elective	3
Total Semester Credit Hours		**123**

Please see General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
Students must also complete one semester of cooperative education.
† Students will satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and lab portions to satisfy the requirement.

Supply Chain Management Electives

COURSE	
BLEG-300	Business Law II
DECS-350	Project Management
INTB-300	Cross-Cultural Management
INTB-315	Exporting and Global Sourcing
INTB-550	Global Entry and Competition Strategies
ISEE-350	Engineering Management
ISEE-626	Contemporary Production Systems
ISEE-703	Supply Chain Management
MGIS-330	Systems Analysis and Design
MGIS-355	Business Intelligence
MGMT-450	Negotiations and Decision-Making

Accreditation

Saunders College of Business undergraduate and graduate programs are fully accredited by the Association to Advance Collegiate Schools of Business (AACSB) International, the premier accrediting organization for business schools. Less than 5 percent of the institutions granting business degrees have received this accreditation.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
3 years of math required; pre-calculus recommended

Transfer Admission

Transfer course recommendations without associate degree
Courses in economics, accounting, liberal arts, science, and mathematics

Appropriate associate degree programs for transfer
AS degree in accounting or business administration

Faculty

Dean's Office

Jacqueline R. Mozrall, BS, Rochester Institute of Technology; MS, North Carolina State University; Ph.D., University of New York at Buffalo—Dean; Professor

Qiang (John) Tu, BS, MS, Xi'an Jiaotong University (China); Ph.D., University of Toledo—Senior Associate Dean; Professor

Lisa Boice, BA, MBA, Long Island University; JD, Hofstra University School of Law—Assistant Dean of Student Services

Shawn Sturgeon, Ph.D., University of Cincinnati—Director of Accreditation and Assessment; Lecturer

Finance and Accounting

Steven C. Gold, BA, BS, Rutgers University; MA, Ph.D., State University of New York at Binghamton—Professor, Interim Department Chair

Emily Cokeley, BS, Bethany College; BS, State University College at Brockport; Ph.D., Syracuse University—Visiting Lecturer

John Curran, BA, University of Rochester; MS, Syracuse University—Visiting Lecturer

Philip C. Gelsomino II, BS, MS, Rochester Institute of Technology; CPA, New York—Lecturer

Chun-Keung (Stan) Hoi, BA, MS, North Texas State University; Ph.D., Arizona State University—Professor

Zhijian (James) Huang, B.Eng., Shanghai Jiaotong University (China); MS, Michigan State University; M.Eng., Cornell University; Ph.D., Pennsylvania State University—Assistant Professor

Archana Jain, B.Comm., M.Comm., University of Rajasthan (India); MBA, Ph.D., University of Memphis—Associate Professor

Suzanne McCaffrey, BS, University of Maryland, College Park; MS, University of Mississippi—Visiting Lecturer

Leonid (Leo) Pugachev, Ph.D., University of Oklahoma—Assistant Professor

Ashok J. Robin, B.Comm, University of Madras (India); MBA, Ph.D., State University of New York at Buffalo—Professor

Qian Song, B.Sc ., M.Sc ., Qingdao University (China); Ph.D., Washington State University—Associate Professor

Daniel D. Tessoni, BBA, St. John Fisher College; MS, Clarkson College of Technology; Ph.D., Syracuse University; CPA, New York—Daniel D. Tessoni Endowed Professor for Accounting

Dilin Wang, BS, University of Alaska Fairbanks; MS, State University of New York at Buffalo; Ph.D., Oregon State University—Assistant Professor

Ke-an Wu, BS, Jiangxi University of Finance and Economics (China); MS, Catholic University Leuven (Belgium); Ph.D., University of Oregon—Associate Professor

Rong Yang, BS, MS, Tianjin University of Finance and Economics (China); MBA, Ph.D., Rutgers University—Professor

Hao Zhang, BA, MA, Xiamen University (China); Ph.D., State University of New York at Buffalo—Professor

Management

Shalini Khazanchi, BS, South Gujarat University (India); MBA, University of Pune (India); Ph.D., University of Cincinnati—Department Chair; Professor

Kristin Bain, BA, University of Northern Colorado; MA, University of Denver; Ph.D., University of Utah, Salt Lake City—Assistant Professor

Robert J. Barbato, BA, Le Moyne College; Ph.D., Michigan State University—Professor

Steven Carnovale, BS, Ph.D., Rutgers University—Assistant Professor

Richard DeMartino, BA, Roanoke College; MPA, Ph.D., University of Virginia—Professor

John E. Ettlie, BS, MS, Ph.D., Northwestern University—Professor

Kenan Guler, MS, New York University; Ph.D., Rutgers University—Assistant Professor

Clyde E. Hull, BA, Yale University; MBA, Ph.D., Indiana University—Professor

H. Andrew Lawrence, BS, EMBA, Rochester Institute of Technology—Lecturer

Martin Lawlor, BA, State University of New York at Buffalo; MLS, State University College at Geneseo; MBA, Rochester Institute of Technology—Senior Lecturer

Ezekiel Leo, BA, University of California, Berkeley; Ph.D., University of Illinois at Urbana-Champaign—Assistant Professor

Stephen Luxmore, BA, MA, University of Guelph (Canada); Ph.D.; University of Toronto (Canada)—Principle Lecturer

Molly McGowan, BA, State University College at Geneseo; MPA, State University College at Brockport— Senior Lecturer; Director, The Leadership Academy at Saunders

A. Erhan Mergen, BS, Middle East Technical University (Turkey); MS, Ph.D., Union College—Professor

dt ogilvie, BA, Oberlin College; MBA, Southern Methodist University; Ph.D., University of Texas at Austin—Professor

Joy Olabisi, BS, Georgia Institute of Technology; MS, Ph.D., University of Michigan—Associate Professor

Michael E. Palanski, BS, Grove City College; MA, Covenant Theological Studies; Ph.D., Binghamton University—Professor

Sandra L. Rothenberg, BS, Syracuse University; MS, Ph.D., Massachusetts Institute of Technology—Professor

Ettore Spadafora, Ph.D., University of South Carolina—Assistant Professor

Shawn Sturgeon, Ph.D., University of Cincinnati—Director of Accreditation and Assessment; Lecturer

Zhi Tang, BA, Shandorun University (China); MA, Fudon University (China); Ph.D., University of Alabama—Program Director and Professor

Robert B. Vlosky, MBA, Wake Forest University—Visiting Lecturer

John D. Ward, BS, Georgia Institute of Technology; MS, Purdue University—Principle Lecturer

Management Information Systems, Marketing, and Digital Business

Sean William Hansen, BA, Harvard University; MBA, Ph.D., Case Western Reserve University—Department Chair-Associate Professor

Duygu (Kayiran) Adkevelioglu, BS, MS, Bilkent University (Turkey); Ph.D., University of California, Irvine—Assistant Professor

Quang (Neo) Bui, BS, MS, Brigham Young University; Ph.D., Bentley University—Assistant Professor

Michael Caceci, BA, City University of New York; MBA, Pace University —Lecturer

Sorim Chung, BJ, MA, University of Missouri, Columbia; MA, Ph.D., University of California, Riverside—Assistant Professor

Deborah Colton-Hebert, BA, State University of New York at Buffalo; MBA, Rochester Institute of Technology; Ph.D., University of South Carolina—Associate Professor

Laurie Dwyer, BS, St. Lawrence University; MBA, Rochester Institute of Technology—Principle Lecturer

Neil Hair, BS, Cardiff University (United Kingdom); DIPM, Chartered Institute of Marketing; MS, Sheffield Hallam University (United Kingdom); Ph.D., Cranfield University (United Kingdom)—Associate Professor

Saiwu Lin, MS, University of Arizona—Lecturer

Manlu Liu, BS, Jiangsu University (China); MS, Zhejiang University; MBA, The Hong Kong University of Science & Technology (Hong Kong); Ph .D ., University of Arizona—Associate Professor

Richard Mislan, BS, Rochester Institute of Technology; MS, Ferris State University; Ph.D., Nova Southeastern University—Lecturer

Emi Moriuchi, BA, Manchester Metropolitan University (United Kingdom); MA, Hawaii Pacific University; Ph.D., University of Manchester (United Kingdom)—Assistant Professor

Rajendran (Raj) Sriramachandra Murthy, BE, University of Madras (India); MBA, Ph.D., Southern Illinois University—Associate Professor

Victor J. Perotti, BS, MA, MS, Ph.D., The Ohio State University—Benjamin Forman Professor for Collaborative Research

Bryan A. Reinicke, BA, College of Wooster; MBA, Kent State University; Ph.D., Indiana University—Associate Professor

Jing Tang, BS, University of Science and Technology of China (China); MS, University of Chinese Academy of Sciences (China); MPhil., EMLYON Business School (France); Ph.D., Case Western Reserve University—Assistant Professor

Qiang (John) Tu, BS, MS, Xi'an Jiaotong University (China); Ph.D., University of Toledo—Senior Associate Dean; Professor

Keith Weber, MS, California State University, Fullerton—Lecturer

International Hospitality and Service Innovation

William H. Dresnack, BS, Long Island University; MS, State University of New York at Binghamton; JD, University of Buffalo—Department Chair; Associate Professor

Lorraine E. Hems, BS, Nazareth College of Rochester; MS, Rochester Institute of Technology; CS, CWE—Lecturer

Jerrie (Yu-chin) Hsieh, BS, National Taiwan Normal University (Taiwan); MS, Ph.D., Purdue University—Associate Professor

Malarvizhi Hirudayaraj, BA, Fatima College (Trinidad and Tobago); B.Ed., Madurai Kamaraj University (India); MA, Stella Maris College (India); M.Phil., University of Madras (India); Ph.D., Southern Illinois University—Associate Professor

Muhammet Kesgin, BSc, MSc, Akdeniz University (Turkey); Ph.D., Coventry University (United Kingdom)—Associate Professor

Richard M. Lagiewski, BS, MS, Rochester Institute of Technology; Ph.D., Edinburgh Napier University (Scotland)—Assistant Professor

Jennifer Matic, BA, Grand Valley State University; MS, Rochester Institute of Technology; Ph.D., University of Bath (United Kingdom)—Assistant Professor

Karthik Namasivayam, BA, Madras University (India); MS, Ph.D., Cornell University—Professor

Torrence E. Sparkman, BS, University of Illinois at Chicago; M.Div., Trinity Evangelical Divinity School; Ph.D., University of Illinois at Urbana-Champaign—Associate Professor

Phillippa Thiuri, BA, Mount Holyoke College; M.Ed., Harvard University; Ph.D., Boston College—Lecturer

Distinguished Professorships

Eugene Fram Chair in Critical Thinking

Established: 2012

Donor: Anonymous

Purpose: Designed to provide campus-wide leadership in cross-disciplinary approaches to critical thinking.

Held by: Jennifer L. Schneider, CIH

J. Warren McClure Research Professorship in Marketing

Established: 1977

Donor: Mr. and Mrs. J. Warren McClure

Purpose: To perpetuate Mr. McClure's professional interest in the field of marketing

Held by: Rajendran Sriramachandra Murthy, Ph.D.

Madelon and Richard Rosett Professorship for Research

Established: 2000

Donor: Madelon and Richard Rosett

Purpose: To support a professorship of a nationally prominent scholar in any field of business

Held by: Hao Zhang

Benjamin Forman Professorship for Collaborative Research

Established: 2008

Donor: Maurice Foreman in honor of his father, Benjamin Forman

Purpose: To support a professorship of a nationally prominent scholar in Research, Teaching, or Collaboration

Held by: Vic Perotti

Benjamin Forman Professorship for Research

Established: 2008

Donor: Maurice Foreman in honor of his father, Benjamin Forman

Purpose: To support a professorship of a nationally prominent scholar in Research

Held by: Michael Palanski

Executive Education Professorships

Established: 2019

Purpose: To supporting the Executive Education team to continue to drive the reputation of these programs.

Held by: John Ettlie, Ashok Robin

Daniel D. Tessoni Professorship in Accounting

Established: 2015

Donor: Friends and Alumni of Dan Tessoni and Saunders College of Business

Purpose: To honor Daniel D. Tessoni for his teaching contributions and his lifelong impact on students

Held by: Daniel Tessoni, Ph.D.

Benjamin Forman Chair for Research

Established: 2008

Donor: Maurice Foreman in honor of his father, Benjamin Forman

Purpose: To support a professorship of a nationally prominent scholar in Research

Held by: Michael Palanski

Benjamin Forman Chair for Teaching Excellence

Held by: John Ward
Executive Education Professorships
Held by: Open

Daniel D. Tessoni Endowed Chair in Accounting

Established: 2015
Donor: Friends and Alumni of Dan Tessoni and Saunders College of Business

Purpose: To honor Daniel D. Tessoni for his teaching contributions and his lifelong impact on students
Held by: Daniel Tessoni, Ph.D.

Golisano College of Computing and Information Sciences

Anne R. Haake, Dean
www.rit.edu/computing

Programs of study

#	Computer Science, BS	48
	Computing and Information Technologies, BS	51
	Computing Exploration, Undeclared	53
#	Computing Security, BS	54
#	Game Design and Development, BS	57
	Human-Centered Computing, BS	59
	New Media Interactive Development, BS	61
#	Software Engineering, BS	62
	Web and Mobile Computing, BS	67

Accelerated BS/MS option available.

The Golisano College of Computing and Information Sciences is one of the most comprehensive computing colleges in the United States. With its focus on interdepartmental and intercollege cooperation, the college directs its energy and effort toward discovering new, innovative methods and research opportunities in solving complex, present-day, and future computing challenges.

The college's programs address the growing need for experts in the fields of computational science, human-computer interaction and accessibility, gaming, simulation, computing security, edutainment, management of complex information technology infrastructures, and software engineering. These programs offer the most current thinking in computing and information sciences and technology, and are supported by extensive laboratory facilities and outstanding faculty.

Please visit the school's website–**www.rit.edu/computing**–for in depth information on academics, faculty, facilities, research initiatives, and more.

Admission requirements

For more information on undergraduate admission, including freshman and transfer admission guidelines, please see the individual program descriptions and the Undergraduate Admission section of this bulletin.

Financial aid and scholarships

Please refer to the Financial Aid and Scholarships section of this bulletin for information regarding financial aid, scholarships, loans, and grants.

Accreditation

The bachelor of science in computer science program is accredited by the Computing Accreditation Commission of ABET, http://www.abet.org. The bachelor of science in software engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

Computer Science, BS

www.rit.edu/study/computer-science-bs
Mohan Kumar, Professor
585-475-4583, mjkvcs@rit.edu

Program overview

The computer science degree attracts students who are interested in both the mathematical theory and technical applications of computer science. Most employers look for students who are good computer scientists but also understand the tools and techniques of mathematics, science, and industry, and are able to communicate effectively. The major is for the mathematically adept student who wishes to become a computing professional with knowledge of relevant applications areas. The program also attracts students transferring to RIT with an associate degree in computer science with course work in mathematics and science.

Plan of study

Computer science covers a wide spectrum of areas within the field of computing, ranging from the theoretical to the practical. A computer scientist can specialize in areas such as intelligent systems (i.e., artificial intelligence), computer graphics, computer theory, data management, distributed and parallel computing, systems software, or computer security. Programming is necessary, but computer scientists also must be adaptable as well as adept at problem-solving and analytical reasoning, able to understand design principles, and fluent in using computers.

Students take a core of computer science courses that provide a solid foundation for advanced work. Building on this base, students explore a variety of specializations in their third, fourth, and fifth years. In addition, students develop a broad appreciation for computer applications and the effect of computers on society via program electives, general education courses, and various free electives, which can be used to complete a minor.

The program provides students with both a broad and deep foundation in theory and modern software and hardware concepts as well as introduces students to numerous programming languages and paradigms. Students have an opportunity to engage in significant programming and software development work (it's not unreasonable to think of computer scientists as technology inventors), but we also offer students more and more opportunities to engage in both traditional and applied research. In addition to required computer science courses, students have an opportunity to take computer science electives in areas such as architecture and operating systems; computer graphics and visualization; data management; distributed systems; intelligent systems; languages and tools; security; and theory.

Employers not only look for students who have strong technical skills, but who also understand mathematics, science, and the importance of effective communication. The computer science degree provides students with a solid foundation in mathematics, science, liberal arts and an opportunity to take outside electives, complimenting the strong technical core that the program offers.

Hands-on learning

The demands of industry and government require college graduates to master both the fundamentals and the applied aspects of their profession. To meet this requirement, two applied educational experiences are woven into the program. Students are required to complete a cooperative educational experience as well as an extensive set of laboratory experiences, many as members of a team. These experiences not only strengthen a student's technical skills but gives them the ability to communicate clearly and work effectively as part of a team.

Experiential education

The demands of industry and government require college graduates to master both the fundamentals and the applied aspects of their profession. To meet this requirement, two applied educational experiences–cooperative education and an extensive set of laboratory and small-group experiences–are woven into the major. Students are required to complete a minimum of three blocks of cooperative education. Second, students engage in an extensive set of laboratory and small-group experiences, many as members of a team. These activities are typically held in a setting involving 15 to 20 students each, providing a venue for significant student-faculty interaction.

Program educational objectives

Our program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. They will be able to:

- Pursue advanced study in computing or participate in modern software development.
- Collaborate successfully with colleagues and clients.
- Work as ethical and responsible members of the computing profession and society.

Student outcomes

To allow our BS graduates to meet our long-term program educational objectives, the department has developed seven student outcomes, which are narrower statements used to describe what our students are expected to know and be able to do by graduation. Students graduating from our B.S. program are able to:

1. Apply the theory and principles of computer science.
2. Demonstrate fluency in high-level programming languages, environments, and tools for computing.
3. Demonstrate knowledge of the principles of computer organization, operating systems, and networks.
4. Apply computing skills and work effectively in teams in industry or research.
5. Demonstrate advanced knowledge of a selected area within the computer science discipline.
6. Prepare technical documents and make effective oral presentations.
7. Comprehend and analyze both legal and ethical issues involving the use of computing in society.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the computer science degree are required to complete three blocks of cooperative education experience.

Curriculum

Computer Science, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSCI-141	Computer Science I	4
CSCI-142	Computer Science II	4
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-190	General Education – Elective: Discrete Mathematics for Computing	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – First-Year Writing (WI)	3
Second Year		
CSCI-099	Undergraduate Cooperative Education Seminar	0
CSCI-243	The Mechanics of Programming	3
CSCI-488	Undergraduate Summer Co-op	0
Choose one of the following:		3
CSCI-261	Analysis of Algorithms	
CSCI-264	Honors Analysis of Algorithms	
Choose one of the following:		3
CSCI-262	Introduction to Computer Science Theory	
CSCI-263	Honors Introduction to Computer Science Theory	
MATH-241	General Education – Elective: Linear Algebra	3
MATH-251	General Education – Elective: Probability and Statistics I	3
SWEN-261	Introduction to Software Engineering	3
	General Education – Natural Science Inquiry Perspective	4
	General Education – Scientific Principles Perspective‡	3
	General Education – Elective‡	4
	General Education – Elective	3
Third Year		
CSCI-250	Concepts of Computer Systems	3
CSCI-320	Principles of Data Management	3
CSCI-331	Introduction to Artificial Intelligence	3
CSCI-499	Computer Science Undergraduate Co-op (spring)	0
	General Education – Elective‡	3
	General Education – Immersion 1 (WI-PR)	3
Fourth Year		
CSCI-251	Concepts of Parallel and Distributed Systems	3
CSCI-344	Programming Language Concepts	3
CSCI-471	Professional Communications (WI-PR)	3
	Open Electives	6
	CS Electives	6
	CS Elective§	3
	General Education – Elective‡	3
	General Education – Immersion 2	3
Fifth Year		
CSCI-499	Computer Science Undergraduate Co-op (fall)	0
	CS Elective§	3
	General Education – Immersion 3	3
	General Education – Elective	3
	Open Electives	6
Total Semester Credit Hours		**126**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students must complete one of the following lab science sequences: (a) University Physics I, II (PHYS-211, 212); (b) General & Analytical Chemistry I, II and Labs (CHMG-141, 142, 145, 146); or (c) General Biology I, II, and Labs (BIOL-101, 102, 103, 104). Students are free to choose from approved science electives that either extend or complement their lab science selection.
§ Two computer science elective courses must come from the same CS cluster.

Accelerated dual degree option

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

Computer Science, BS/MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSCI-141	Computer Science I	4
CSCI-142	Computer Science II	4
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-190	General Education – Elective: Discrete Mathematics for Computing	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – First Year Writing (WI)	3
Second Year		
CSCI-099	Undergraduate Cooperative Education Seminar	0
CSCI-243	The Mechanics of Programming	3
CSCI-488	CS Undergraduate Summer Co-op (summer)	0
Choose one of the following:		3
CSCI-261	Analysis of Algorithms	
CSCI-264	Honors Analysis of Algorithms	
Choose one of the following:		3
CSCI-262	Introduction to Computer Science Theory	
CSCI-263	Honors Introduction to Computer Science Theory	
MATH-241	General Education – Elective: Linear Algebra	3
MATH-251	General Education – Elective: Probability and Statistics I	3
SWEN-261	Introduction to Software Engineering	3
	General Education – Natural Science Inquiry Perspective‡	4
	General Education – Scientific Principles Perspective‡	3
	General Education – Elective‡	4
	General Education – Elective	3
Third Year		
CSCI-250	Concepts of Computer Systems	3
CSCI-320	Principles of Data Management	3
CSCI-331	Introduction to Artificial Intelligence	3
CSCI-499	Computer Science Undergraduate Co-op (spring)	0
	General Education – Science Elective‡	3
	General Education – Immersion 1 (WI)	3
Fourth Year		
CSCI-251	Concepts of Parallel and Distributed Systems	3
CSCI-344	Programming Language Concepts	3
CSCI-471	Professional Communications (WI-PR)	3
	Open Electives	6
	CS Electives§	9
	General Education – Science Elective‡	3
	General Education – Immersion 2	3
Fifth Year		
CSCI-499	Computer Science Undergraduate Co-op (fall)	0
	CS Elective§	3
	General Education – Immersion 3	3
	General Education – Elective	3
	Open Electives	6
Sixth Year		
CSCI-610	Fundamentals of Computer Graphics	3
CSCI-631	Foundations of Computer Vision	3
CSCI-664	Computational Complexity	3
CSCI-799	Computer Science Graduate Independent Study	6
CSCI-790	Computer Science MS Thesis	6
Total Semester Credit Hours		**147††**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students must complete one of the following lab science sequences: (a) University Physics I, II (PHYS-211, 212); (b) General & Analytical Chemistry I, II and Labs (CHMG-141, 142, 145, 146); or (c) General Biology I, II, and Labs (BIOL-101, 102, 103, 104). Students are free to choose from approved science electives that either extend or complement their lab science selection.
§ Two computer science elective courses must come from the same CS cluster.
** Students who complete the MS Project take one more graduate elective than those who complete the MS Thesis.
†† The BS degree requires 126 semester hours; the MS degree requires 30 semester hours; students use 9 semester hours of computer science graduate electives toward both degrees.

Computer Science, BS degree/Computing Security, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSCI-141	Computer Science I	4
CSCI-142	Computer Science II	4
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-190	General Education – Elective: Discrete Mathematics for Computing	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – First Year Writing (WI)	3
Second Year		
CSCI-099	Undergraduate Cooperative Education Seminar	0
CSCI-243	The Mechanics of Programming	3
CSCI-499	Computer Science Undergraduate Co-op (summer)	0
Choose one of the following:		3
CSCI-261	Analysis of Algorithms	
CSCI-264	Honors Analysis of Algorithms	
Choose one of the following:		3
CSCI-262	Introduction to Computer Science Theory	
CSCI-263	Honors Introduction to Computer Science Theory	
MATH-241	General Education – Elective: Linear Algebra	3
MATH-251	General Education – Elective: Probability and Statistics I	3
SWEN-261	Introduction to Software Engineering	3
	General Education – Natural Science Inquiry Perspective‡	4
	General Education- Scientific Principles Perspective‡	3
	General Education – Elective: Lab Science II‡	4
	General Education – Elective	3
Third Year		
CSCI-250	Concepts of Computer Systems	3
CSCI-320	Principles of Data Management	3
CSCI-331	Introduction to Artificial Intelligence	3
CSCI-499	Computer Science Undergraduate Co-op (spring)	0
	General Education – Science Elective	3
	General Education – Immersion 1	3
Fourth Year		
CSCI-251	Concepts of Parallel and Distributed Systems	3
CSCI-344	Programming Language Concepts	3
CSCI-471	Professional Communications (WI-PR)	3
	Open Electives	6
	CS Electives	9
	General Education – Science Elective‡	3
	General Education – Immersion 2	3
Fifth Year		
CSCI-499	Computer Science Undergraduate Co-op (fall)	0
	CS Elective	3
	General Education – Immersion 3	3
	General Education – Elective	3
	Open Electives	6
Sixth Year		
CSEC-604	Cryptography and Authentication	3
CSEC-742	Computer System Security	3
CSEC-790	MS Thesis	6
	Computing Security Graduate Elective	3
	CSEC Research Electives	6
Total Semester Credit Hours		**147**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and lab portions to satisfy the requirement.

Computer Science, BS degree/Software Engineering, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSCI-141	Computer Science I	4
CSCI-142	Computer Science II	4
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-190	General Education – Elective: Discrete Mathematics for Computing	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First Year Writing (WI)	3
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Second Year		
CSCI-099	Undergraduate Co-operative Education Seminar	0
CSCI-243	The Mechanics of Programming	3
CSCI-488	CS Undergraduate Summer Co-op (summer)	0
Choose one of the following:		3
CSCI-262	Introduction to Computer Science Theory	
CSCI-263	Honors Introduction to Computer Science Theory	
MATH-241	General Education – Elective: Linear Algebra	3
MATH-251	General Education – Elective: Probability and Statistics I	3
Choose one of the following:		3
CSCI-261	Analysis of Algorithms	
CSCI-264	Honors Analysis of Algorithms	
SWEN-261	Introduction to Software Engineering	3
	General Education – Elective: Lab Science II†	4
	General Education – Elective	3
	General Education – Natural Science Perspective: Lab Science I‡	4
	General Education – Scientific Principles Perspective†	3
Third Year		
CSCI-250	Concepts of Computer Systems	3
CSCI-320	Principles of Data Management	3
CSCI-331	Introduction to Artificial Intelligence	3
CSCI-499	Computer Science Undergraduate Co-op (spring)	0
	General Education – Science Elective‡	3
	General Education – Immersion 1 (WI)	3
Fourth Year		
CSCI-251	Concepts of Parallel and Distributed Systems	3
CSCI-344	Programming Language Concepts	3
CSCI-471	Professional Communications (WI-PR)	3
SWEN-746	Model-Driven Development (Counts as Undergraduate Open Elective)	3
SWEN-777	Software Quality Assurance (Counts as Undergraduate Open Elective)	3
	General Education – Immersion 2	3
	Computer Science Electives	9
	General Education – Science Elective‡	3
Fifth Year		
CSCI-499	Computer Science Undergraduate Co-op (fall)	0
	Computer Science Elective	3
	General Education – Immersion 3	3
	General Education – Elective	3
	Open Electives	6
Sixth Year		
SWEN-732	Collaborative Software Development	3
SWEN-640	Research Methods	3
SWEN-755	Software Architecture	3
SWEN-790	Thesis	6
SWEN-799	Independent Study	3
	Graduate Elective	3
Seventh Year		
SWEN-790	Thesis	6
	Graduate Elective	3
Total Semester Credit Hours		**156**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Students must complete one of the following lab science sequences: University Physics I (PHYS-211) and University Physics II (PHYS-212); General & Analytical Chemistry I (CHMG-141), General & Analytical Chemistry I Lab (CHMG-145), General & Analytical Chemistry II (CHMG-142), and General & Analytical Chemistry II Lab (CHMG-146); or General Biology I (BIOL-101), General Biology I Lab (BIOL-103), General Biology II (BIOL-102), and General Biology II Lab (BIOL-104).
‡ Students satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and lab portions to satisfy the requirement.

Accreditation

The BS degree in computer science is accredited by the Computing Accreditation Commission of ABET.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 4 years of math including pre-calculus required
- Requires chemistry or physics and strongly recommends both.
- Computing electives are recommended

Transfer Admission

Transfer course recommendations without associate degree

Courses in computer science, calculus, liberal arts; calculus-based physics, chemistry, or biology

Appropriate associate degree programs for transfer

AS degree in computer science, engineering science, or liberal arts

Computing and Information Technologies, BS

www.rit.edu/study/computing-and-information-technologies-bs

Stephen Zilora, Professor
585-475-7643, Stephen.Zilora@rit.edu

Program overview

Information technology is found in every aspect of our lives: the workplace, our homes, the way we communicate, and in much of the entertainment we consume. IT professionals, therefore, are in great demand and highly valued. IT professionals are solution architects, identifying complex problems and creating custom solutions that help users meet their goals. They play an integral role in any modern organization, working on all phases of IT solutions from conception to development, testing, deployment, security, and management. In this information technology degree, you'll learn to design, implement, and manage complex IT systems.

Students in the computing and information technologies major are characterized by their hands-on approach to technology. They are designers and builders, but primarily they're enablers. Students approach complex problems and create custom solutions that help users meet their goals. They play an integral role in any modern organization, often working behind the scenes to deploy technology where it's needed most.

That versatility is the core principle of our major. People are interacting with computers more than ever before. With that comes a need for professionals that have the broad practical skills to facilitate those interactions across a variety of sectors. Not only do computing and information technology students learn to implement complex systems, but they become well versed in their management as well. Every day, more companies are realizing the benefits that IT professionals bring to the table.

Plan of study

A defining aspect of the computing and information technologies curriculum is the breadth of technologies and the focus on integration. Students learn how to solve problems and find ways to make it work. Course work prepares students to be not just technical wizards, but also communicators and facilitators, enabling them to be successful throughout their career. Building on the core courses, students can further their skills in two separate areas or establish even greater depth in a single area. Possible areas of concentration include web administration, database, networking and communications, web development, and enterprise administration. The major requires students to complete two blocks of cooperative education. Students may pursue co-op placements after completing their second year of study.

Global opportunities

The computing and information technologies degree is offered at RIT's main campus, in Rochester, NY, and at RIT Croatia's campuses in Dubrovnik and Zagreb. Because the same curriculum is offered in all three locations, students may spend a semester abroad learning about the Croatian culture without any negative impact to their schedule of studies. Furthermore, in their senior year all students take Senior Development Project I,II (ISTE-500, 501), a year-long course in which teams are composed of students from RIT's main campus and both RIT Croatia campuses. Whether students choose to study abroad or remain in Rochester, they will be working side-by-side with their peers from across the world.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the computing and information technologies degree are required to complete two blocks of cooperative education experience.

Curriculum

Computing and information technologies, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
COMM-142	General Education – Elective: Introduction to Technical Communication (WI-GE)	3
CSEC-102	Information Assurance and Security	3
ISTE-120	General Education – Elective: Computational Problem Solving in the Information Domain I	4
ISTE-121	General Education – Elective: Computational Problem Solving in the Information Domain II	4
MATH-131	General Education – Mathematical Perspective A: Discrete Mathematics	4
MATH-161	General Education – Mathematical Perspective B: Applied Calculus	4
NSSA-102	Computer System Concepts	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First Year Writing (WI)	3
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
Second Year		
ISTE-99	School of Information Second Year Seminar	0
ISTE-140	Web & Mobile I	3
ISTE-230	General Education – Elective: Introduction to Database and Data Modeling	3
ISTE-240	Web & Mobile II	3
ISTE-499	Undergraduate Co-op (summer)	0
NSSA-220	Task Automation Using Interpretive Languages	3
NSSA-221	System Administration I	3
NSSA-241	Introduction to Routing and Switching	3
STAT-145	General Education – Elective: Introduction to Statistics I	3
	General Education – Artistic Perspective	3
	General Education – Natural Science Inquiry Perspective	4
	General Education – Elective	3
Third Year		
ISTE-260	Designing the User Experience	3
ISTE-430	Information Requirements Modeling	3
ISTE-499	Undergraduate Co-op (summer)	0
	CIT Concentration Courses	9
	General Education – Social Perspective	3
	General Education – Scientific Principles Perspective	4
	General Education – Immersion 1	3
	Open Electives	6
Fourth Year		
ISTE-500	Senior Development Project I	3
ISTE-501	Senior Development Project II (WI-PR)	3
	CIT Concentration Courses	9
	General Education – Immersion 2, 3	6
	Open Electives	9
Total Semester Credit Hours		**126**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Concentrations

Database Applications

Choose three of the following:	
ISTE-330	Database Connectivity and Access
ISTE-432	Database Application Development
ISTE-434	Data Warehousing
ISTE-436	Database Management and Access
ISTE-438	Contemporary Databases
ISTE-470	Data Mining and Exploration

Enterprise Administration

Required Courses	
NSSA-320	Configuration Management
NSSA-322	Systems Administration II
Choose one of the following:	
NSSA-244	Virtualization
NSSA-370	Project Management
NSSA-422	Storage Architectures
NSSA-423	Scalable Computing Architectures
NSSA-425	Data Center Operations
NSSA-427	Scalable Web Services Architectures

Networking and Communications

Required Course	
NSSA-245	Network Services
Choose two of the following:	
NSSA-242	Wireless Networking
NSSA-370	Project Management
NSSA-441	Advanced Routing and Switching
NSSA-443	Network Design and Performance
NSSA-445	Mobile Adhoc and Sensor Networks

Web Development

ISTE-340	Client Programming
ISTE-341	Server Programming
SWEN-383	Software Design Principles and Patterns

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math are required and pre-calculus is recommended
- Requires chemistry or physics and strongly recommends both.
- Computing electives are recommended

Transfer Admission

Transfer course recommendations without associate degree

Courses in computer science, calculus, liberal arts; calculus-based physics, chemistry, or biology

Appropriate associate degree programs for transfer

AS degree in computer science, engineering science, or liberal arts

Computing Exploration, Undeclared

www.rit.edu/study/computing-exploration

Michael Yacci, Professor
585-475-5416, mayici@rit.edu

Program overview

With eight undergraduate computing majors, the computing exploration option is a great way for you to gain an overview of the computing field while you take the time to decide which major best meets your personal and professional aspirations.

The computing exploration option provides students with the opportunity to explore seven of the college's undergraduate computing majors—computer science, computing and information technologies, computing security, human-centered computing, new media interactive development, software engineering, and web and mobile computing. Students complete courses in computer science, computing security, and web development. They may also take additional courses in other computing majors as they decide on which major best fits their career goals and aspirations.

Plan of study

Students may stay in the exploration option for up to two semesters (one academic year). Each student has an assigned academic advisor who provides guidance on the requirements of each major, course selection, minors, and career options. All courses taken in the exploration option are accepted by the seven computing majors; all credits earned are applicable to a student's chosen major and maintain the student's track toward graduation.

The computing exploration option offers students the opportunity to explore the field of computing before declaring a specific major. All students in this undeclared major take a one-credit course, Computing Exploration Seminar, which provides an overview of the seven computing majors. Students learn about the course of study in each program and career opportunities in each field. Through the seminar and courses, they are introduced to the faculty, students, and laboratory facilities in each program.

While in the computing exploration option, each student will take a two-course sequence in both programming and mathematics, appropriate for all degrees. An academic advisor will consult one-on-one to ensure that each student stays on track. Students may choose a major at the end of the fall or spring semester while in the exploration program – all course work taken while in the computing exploration option will be applied to the new program of study.

Curriculum

Computing Exploration, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181	Project-based Calculus I	4
MATH-182	Project-based Calculus II	4
CSCI-141	Computer Science I	4
CSCI-142	Computer Science II	4
CSEC-101	Fundamentals of Computing Security	3
ISTE-140	Web and Mobile I	3
CINT-101	Computing Exploration Seminar	1
MATH-190	Discrete Math for Computing	3
ACSC-010	Year One	0
ENGL-150	Writing Seminar	3
Choose one of the following:		3
	LAS Perspective 1 (ethical)	
	LAS Perspective 2 (artistic)	
	LAS Perspective 3 (global)	
	LAS Perspective 4 (social)	
Choose one of the following:		3
SWEN-250	Personal Software Engineering	
NMDE-111	New Media Design Digital Survey I	
NSSA-241	Introduction to Routing and Switching	
	Wellness Education*	0
Total Semester Credit Hours		**35**

Please see General Education Curriculum–Liberal Arts and Sciences (LAS) for more information.

* Please see Wellness Education Requirements for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 4 years of math including pre-calculus required
- Requires chemistry or physics and strongly recommends both.
- Computing electives are recommended

Computing Security, BS

www.rit.edu/study/computing-security-bs
Rob Olson, Lecturer
585-475-4601, rboics@rit.edu

Program overview

The computing security degree at RIT is a cybersecurity degree that provides students with a solid foundation in programming and mathematics and an extensive selection of advanced topics from the areas of the network and system security, digital forensics and malware, software security, data security, and privacy, to cyber analytics and intelligence.

The scope of computer systems and networks and the span of these systems increases in organizations every day. At the same time, industry and society's dependence on these technologies is growing dramatically, as is the creation of malicious software that attacks computing systems and networks. Therefore, computing security has become a major concern for organizations large and small to ensure their business success and continuity. The result is an increased and urgent demand for security professionals and technologies that can secure and protect from relentless attack digital assets of an organization as well as the hardware and software infrastructures that house the information.

The BS degree in computing security produces professionals who understand people and processes that impact information security. In addition to possessing state-of-the-art knowledge in protecting digital assets of large or small organizations, graduates will be able to proactively identify security vulnerabilities in software, hardware, and infrastructure, and provide and implement actionable solutions that are satisfactory to the organization. Graduates will also be able to collect digital forensic evidence to reveal network and data breach incidents, attribute the attackers or origin, assess the extent of the damage or loss of information, and design strategies that ensure data are protected from future attacks.

The BS in computing security provides students with a solid foundation in computer science and mathematics during the first two years of the program. Starting the third year, students can select an in-depth study in various aspects of computing security including network and system security, malware and digital forensics, software security, and security evaluations and management.

Plan of study

Students complete core courses, advanced courses, and cooperative education. Core courses include a programming sequence, an ethics course, a computer networking and system administration sequence, and foundation courses in computer and network security. Advanced courses allow students to design the focus of their information security course work. Cooperative education is a required component of the major.

Advanced electives

Students complete six advanced security elective courses. These elective expand their knowledge in one of several disciplines of security, including network and systems security, digital forensics and malware, security software, and security management.

Students can create customized clusters for their special interests provided compositions of clusters are vetted by their academic advisor and the undergraduate program director. Courses in a customized cluster should be on the list of approved advanced elective courses of computing security. To be counted as a cluster course, a College of Computing and Information Sciences course not on the list of advanced elective courses of computing security needs to be approved by the undergraduate program director on a case by case basis, or simply such a course can be counted as a free elective for students.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the computing security degree are required to complete two blocks of cooperative education experience.

Curriculum

Computing Security, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-190	General Education – Elective: Discrete Mathematics for Computing	3
NSSA-241	Introduction to Routing and Switching	3
YOPS-10	RIT 365: RIT Connections	0
Choose one of the following:		3
CSEC-101	Fundamentals of Computing Security	
CSEC-140	Introduction to Cybersecurity	
Choose one of the following:		4
CSCI-141	General Education – Elective: Computer Science I	
CSEC-123	General Education – Elective: Software Development and Problem Solving 1	
ISTE-123	General Education – Elective: Software Development and Problem Solving 1	
SWEN-123	General Education – Elective: Software Development and Problem Solving 1	
Choose one of the following:		4
CSCI-142	General Education – Elective: Computer Science II	
CSEC-124	General Education – Elective: Software Development and Problem Solving II	
ISTE-124	General Education – Elective: Software Development and Problem Solving II	
SWEN-124	General Education – Elective: Software Development and Problem Solving II	
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – First Year Writing (WI)	3
Second Year		
CSEC-099	Cooperative Education Seminar	0
CSEC-201	Programming for Information Security	3
CSEC-202	Reverse Engineering Fundamentals	3
CSEC-499	Cooperative Education in CSEC (summer)	0
Choose one of the following:		3
MATH-241	General Education – Elective: Linear Algebra	
MATH-252	General Education – Elective: Probability and Statistics II	
MATH-251	General Education – Elective: Probability and Statistics I	3
NSSA-221	Systems Administration I	3
NSSA-245	Network Services	3
	General Education – Social Perspective	3
	General Education – Global Perspective	3
	General Education – Natural Science Inquiry Perspective†	4
	General Education – Scientific Principles Perspective†	4
Third Year		
CSCI-462	Introduction to Cryptography	3
CSEC-380	Principles of Web Application Security	3
CSEC-472	Authentication and Security Models	3
CSEC-499	Cooperative Education in CSEC (summer)	0
ISTE-230	Introduction to Database and Data Modeling	3
PUBL-363	General Education – Elective: Cyber Security Policy and Law	3
	General Education – Immersion 1 (WI-PR)	3
	CSEC Electives	6
	Open Electives	6
Fourth Year		
CSEC-490	Capstone in Computing Security (WI-PR)	3
Choose one of the following:		3
PHIL-102	General Education – Elective: Introduction to Moral Issues	
PHIL-202	General Education – Elective: Foundations of Moral Philosophy	
PHIL-306	General Education – Elective: Professional Ethics	
	CSEC Electives	12
	General Education – Immersion 2, 3	6
	Open Electives	6
Total Semester Credit Hours		**126**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Students must complete one of the following lab science sequences: (a) University Physics I, II (PHYS-211, 212); (b) General & Analytical Chemistry I, II and Labs (CHMG-141, 142, 145, 146); or (c) General Biology I, II, and Labs (BIOL-101, 102, 103, 104). Students are free to choose from approved science electives that either extend or complement their lab science selection.

Accelerated dual degree options

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

Computing Security, BS/MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-190	General Education – Elective: Discrete Mathematics for Computing	3
NSSA-241	Introduction to Routing and Switching	3
YOPS-10	RIT 365: RIT Connections	0
Choose one of the following:		3
CSEC-101	Fundamentals of Computing Security	
CSEC-140	Introduction to Cybersecurity	
Choose one of the following:		4
CSCI-141	General Education – Elective: Computer Science I	
CSEC-123	General Education – Elective: Software Development and Problem Solving 1	
ISTE-123	General Education – Elective: Software Development and Problem Solving 1	
SWEN-123	General Education – Elective: Software Development and Problem Solving 1	
Choose one of the following:		4
CSCI-142	General Education – Elective: Computer Science II	
CSEC-124	General Education – Elective: Software Development and Problem Solving II	
ISTE-124	General Education – Elective: Software Development and Problem Solving II	
SWEN-124	General Education – Elective: Software Development and Problem Solving II	
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First Year Writing (WI)	3
Second Year		
CSEC-99	Cooperative Education Seminar	0
CSEC-201	Programming for Information Security	3
CSEC-202	Reverse Engineering Fundamentals	3
CSEC-499	Cooperative Education in CSEC (summer)	0
Choose one of the following:		3
MATH-241	General Education – Elective: Linear Algebra	
MATH-252	General Education – Elective: Probability and Statistics II	
MATH-251	General Education – Elective: Probability and Statistics I	3
NSSA-221	Systems Administration I	3
NSSA-245	Network Services	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Natural Science Inquiry Perspective: Lab Science I†	4
	General Education – Scientific Principles Perspective: Lab Science II†	4
Third Year		
CSEC-380	Principles of Web Application Security	3
CSEC-472	Authentication and Security Models	3
CSEC-499	Cooperative Education in CSEC (summer)	0
CSCI-462	Introduction to Cryptography	3
ISTE-230	Introduction to Database and Data Modeling	3
PUBL-363	General Education – Elective: Cyber Security Policy and Law	3
	CSEC Undergraduate Elective	3
	CSEC Graduate Elective	3
	Open Electives	6
	General Education – Immersion 1	3
Fourth Year		
CSEC-490	Capstone in Computing Security (WI-PR)	3
	CSEC Undergraduate Electives	6
	CSEC Graduate Elective	3
	CSEC Research Elective	3
	General Education – Immersion 2, 3	6
	Open Electives	6
	General Education – Elective‡	3
Fifth Year		
CSEC-742	Computer System Security	3
CSEC-790	MS Thesis	6
	Computing Security Research Elective	3
	Computing Security Graduate Electives	9
Total Semester Credit Hours		**147**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Students must complete one of the following lab science sequences: University Physics I and University Physics II (PHYS-211/212), General & Analytical Chemistry I, General & Analytical Chemistry I Lab, General & Analytical Chemistry II, and General & Analytical Chemistry II Lab (CHMG-141/142/145/146), or General Biology I, General Biology I Lab, General Biology II, and General Biology II Lab (BIOL-101/102/103/104).
‡ Choose one of the following philosophy courses: Introduction to Moral Issues (PHIL-102), Foundations of Moral Philosophy (PHIL-202), or Professional Ethics (PHIL-306).

Computing Security, BS degree/Science, Technology and Public Policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
Choose one of the following:		3
CSEC-101	Fundamentals of Computing Security	
CSEC-140	Introduction to Cybersecurity	
Choose one of the following:		4
CSCI-141	Computer Science I	
CSEC-123	Software Development and Problem Solving I	
ISTE-123	Software Development and Problem Solving I	
SWEN-123	Software Development and Problem Solving I	
Choose one of the following:		4
CSCI-142	Computer Science II	
CSEC-124	Software Development and Problem Solving II	
ISTE-124	Software Development and Problem Solving II	
SWEN-124	Software Development and Problem Solving II	
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-190	Discrete Mathematics for Computing	3
NSSA-241	Introduction to Routing and Switching	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – First Year Writing (WI)	3
Second Year		
CSEC-099	Cooperative Education Seminar	0
CSEC-201	Programming for Information Security	3
CSEC-202	Reverse Engineering Fundamentals	3
CSEC-499	Cooperative Education in CSEC (summer)	0
MATH-251	Probability and Statistics I	3
Choose one of the following:		3
MATH-241	Linear Algebra	
MATH-252	Probability and Statistics II	
NSSA-221	Systems Administration I	3
NSSA-245	Network Services	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Natural Science Inquiry Perspective‡	4
	General Education – Scientific Principles Perspective‡	4
Third Year		
CSCI-462	Introduction to Cryptography	3
CSEC-380	Principles of Web Application Security	3
CSEC-472	Authentication and Security Models	3
CSEC-499	Cooperative Education in CSEC (summer)	0
ISTE-230	Introduction to Database and Data Modeling	3
PUBL-363	Cyber Security Policy and Law	3
	CSEC Electives	6
	Open Electives	6
	General Education – Immersion 1	3
Fourth Year		
CSEC-490	Capstone in Computing Security	3
PUBL-701	Graduate Policy Analysis	3
PUBL-702	Graduate Decision Analysis	3
Choose one of the following:		3
PHIL-102	Introduction to Moral Issues	
PHIL-202	Foundations of Moral Philosophy	
PHIL-306	Professional Ethics	
	CSEC Electives	12
	General Education – Immersion 2, 3	6
Fifth Year		
PUBL-700	Readings in Public Policy	3
PUBL-703	Evaluation and Research Design	3
PUBL-790	Public Policy Thesis	6
STSO-710	Graduate Science and Technology Policy Seminar	3
	Public Policy Graduate Electives	9
Total Semester Credit Hours		**150**

Please see General Education Curriculum for more information.
(WI) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Choose one of the following philosophy courses: Introduction to Moral Issues (PHIL-102), Foundations of Moral Philosophy (PHIL-202), or Professional Ethics (PHIL-306).
‡ Students must complete one of the following lab science sequences: University Physics I and University Physics II (PHYS-211/212), General & Analytical Chemistry I, General & Analytical Chemistry I Lab, General & Analytical Chemistry II, and General & Analytical Chemistry II Lab (CHMG-141/142/145/146), or General Biology I, General Biology I Lab, General Biology II, and General Biology II Lab (BIOL-101/102/103/104).

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 4 years of math including pre-calculus required
- Requires chemistry or physics and strongly recommends both.
- Computing electives are recommended

Transfer Admission

Transfer course recommendations without associate degree

Courses in computer science, calculus, liberal arts; calculus-based physics, chemistry, or biology

Appropriate associate degree programs for transfer

AS degree in computer science, engineering science, or liberal arts

Game Design and Development, BS

www.rit.edu/study/game-design-and-development-bs
Elouise Oyzon, Associate Professor
httpsritzoomusmyeroics, eroics@rit.edu

Program overview

Game design and development emphasizes game programming within a core computing education to prepare students for careers in the game, simulation, modeling, training, and visualization industries. The emphasis on computing fundamentals gives students more career options and also prepares them for graduate school. Students gain a breadth of knowledge in game design, interactive media, user interaction, animation, modeling, math, science, and design in the context of computational game development. Students can further specialize in engines, graphics, audio, narrative, and more with elective choices that span the entire university.

The game design and development major allows students to explore the entertainment technology landscape and related areas, while still pursuing a broad-based university education. The degree is intended specifically for students who aspire to hold careers within the professional games industry or a related field, such as simulation, edutainment, or visualization. This degree also provides students with a core computing education that prepares them for graduate study or employment in a number of computing fields.

With an emphasis on game programming, the major exposes students to a breadth of development and design processes. Students complete a core of required course work and then pursue advanced studies that can be customized to individual interests and career goals. Students can further specialize their major by taking electives in areas such as game design, production, engines and systems, graphics programming and animation, mobile, web, audio, and more. This depth of course work also enables students to build a robust portfolio of games and other interactive projects. Students are required to complete two blocks of co-op, which may start after their second year of study. Although students usually complete co-ops during the summer term, they may also be completed during the academic year.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the game design degree are required to complete two blocks of cooperative education experience.

Curriculum

Game Design and Development, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
IGME-105	Game Development and Algorithmic Problem Solving I	4
IGME-106	Game Development and Algorithmic Problem Solving II	4
IGME-110	Introduction to Interactive Media	3
IGME-119	2D Animation and Asset Production	3
MATH-131	General Education – Mathematical Perspective A: Discrete Mathematics	4
MATH-185	General Education – Mathematical Perspective B: Mathematics of Graphical Simulation I	3
PHYS-111	General Education – Natural Science Inquiry Perspective: College Physics I	4
YOPS-010	RIT 365: RIT Connections	0
	General Education – First Year Writing (WI)	3
	General Education – Social Perspective	3
	General Education – Global Perspective	3
Second Year		
IGME-099	Co-op Preparation Workshop	0
IGME-202	Interactive Media Development	3
IGME-209	Data Structures & Algorithms for Games & Simulations I	3
IGME-219	3D Animation and Asset Production	3
IGME-220	Game Design & Development I	3
IGME-235	Introduction to Web Technology for Game Developers	3
IGME-236	Interaction, Immersion, & the Media Interface (WI)	3
IGME-499	Undergraduate Co-op (summer)	0
Choose one of the following:		3
MATH-171	Calculus A	
MATH-181	Project-Based Calculus I	
MATH-181A	Calculus I	
MATH-186	Mathematics of Graphical Simulation II	
	General Education – Ethical Perspective	3
	General Education – Scientific Principles Perspective	3
	General Education – Artistic Perspective	3
Third Year		
IGME-309	Data Structures & Algorithms for Games & Simulations II	3
IGME-320	Game Design & Development II	3
IGME-330	Rich Media Web Application Development I	3
IGME-499	Undergraduate Co-op (summer)	0
	General Education – Immersion 1, 2	6
	General Education – Electives	6
	Advanced Elective	3
	Open Electives	6
Fourth Year		
	Advanced Electives	9
	Open Electives	9
	General Education – Immersion 3	3
	General Education – Electives	9
Total Semester Credit Hours		**124**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and the lab portions to fulfill the requirement.

Advanced Electives

IGME-340	Multi-platform Media App Development
IGME-382	Maps, Mapping and Geospatial Technologies
IGME-386	Spatial Algorithms and Problem Solving
IGME-420	Level Design
IGME-421	Tabletop Game Design and Development
IGME-422	Level Design 2
IGME-423	Games for Change
IGME-430	Rich Media Web Application Development II
IGME-440	Online Virtual Worlds & Simulations
IGME-450	Casual Game Development
IGME-451	Systems Concepts for Games and Media
IGME-460	Data Visualization

IGME-470	Physical Computing & Alternative Interfaces
IGME-480	Current Topics in Interactive Development
IGME-484	Geographic Visualization
IGME-529	Foundations of Interactive Narrative
IGME-531	Aesthetics and Computation
IGME-540	Foundations of Game Graphics Programming
IGME-550	Foundations of Game Engine Design and Development
IGME-560	Artificial Intelligence for Game Environments
IGME-570	Digital Audio Production
IGME-571	Interactive Game and Audio
IGME-580	IGM Production Studio
IGME-581	Innovation & Invention
IGME-582	Humanitarian Free & Open Source Software Development
IGME-583	Legal and Business Aspects of FOSS
IGME-584	Software Development on Linux Systems
IGME-585	Project in FOSS Development
IGME-588	New Media Interactive Development Capstone II
IGME-589	Research Studio
IGME-590	Undergraduate Seminar in IGM
IGME-599	Independent Study
IGME-601	Game Development Processes
IGME-602	Game Design
IGME-603	Gameplay and Prototyping
IGME-621	Board and Card Game Design and Development
IGME-622	Game Balance
IGME-623	Theory and Design of Role Play and Interactive Narrative
IGME-624	Tabletop Role-Playing Game Design and Development
IGME-670	Digital Audio Production
IGME-671	Interactive Game and Audio
IGME-680	IGM Production Studio
IGME-681	Innovation and Invention
IGME-690	IGM Seminar
ISTE-454	Mobile Application Development I
ISTE-456	Mobile Application Development II

Accelerated dual degree option

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic advisor for more information.

Game Design and Development, BS/MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
IGME-105	General Education – Elective: Game Development and Algorithmic Problem Solving I	4
IGME-106	General Education – Elective: Game Development and Algorithmic Problem Solving II	4
IGME-110	General Education – Elective: Introduction to Interactive Media	3
IGME-119	2D Animation and Asset Production	3
MATH-131	General Education – Math Perspective A: Discrete Mathematics	4
MATH-185	General Education – Math Perspective B: Mathematics of Graphical Simulation I	3
PHYS-111	General Education – Natural Science Inquiry Perspective: College Physics I	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Second Year		
IGME-099	Co-op Preparation Workshop	0
IGME-202	Interactive Media Development	3
IGME-209	Data Structures and Algorithms for Games and Simulations I	3
IGME-219	3D Animation and Asset Production	3
IGME-220	Game Design & Development I	3
IGME-235	Introduction to Web Technology for Game Developers	3
IGME-236	Interaction, Immersion, & the Media Interface (WI-PR)	3
IGME-499	Undergraduate Co-op (summer)	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Scientific Principles Perspective	3
	General Education – Mathematics Course†	3
Third Year		
IGME-309	Data Structures and Algorithms for Games and Simulations II	3
IGME-320	Game Design and Development II	3
IGME-330	Rich Media Web Application Development I	3
IGME-499	Undergraduate Co-op	0
	General Education – Immersion 1, 2	6
	General Education – Electives	6
	Advanced Elective	3
	Open Electives	6
Fourth Year		
IGME-795	Game Industry Themes and Perspectives	1
IGME-601	Game Development Processes	3
IGME-602	Game Design	3
IGME-603	Gameplay and Prototyping	3
IGME-695	Colloquium in Game Design and Development	1
	Graduate IGM Electives	6
	Open Elective	3
	General Education – Immersion 3	3
	General Education – Electives	9
Fifth Year		
IGME-695	Colloquium in Game Design and Development	1
IGME-788	Capstone Design	3
IGME-789	Capstone Development	3
	Graduate IGM Electives	9
	Open Electives	6
Total Semester Credit Hours		**148**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Student may select one of the following math courses: Mathematics of Graphical Simulation II (MATH-186), Calculus A (MATH-171), Project-Based Calculus I (MATH-181), or Calculus I (MATH-181A).

IGM/Graduate Advanced Electives

IGME-621	Board and Card Game Design and Development
IGME-622	Game Balance
IGME-623	Theory and Design of Role Play and Interactive Narrative
IGME-624	Table Top Role-Playing Game Design and Development
IGME-670	Digital Audio Production
IGME-671	Interactive Game and Audio
IGME-680	IGM Production Studio
IGME-681	Innovation & Invention
IGME-690	Graduate Seminar in IGM
IGME-730	Game Design and Development for Casual and Mobile Platforms
IGME-740	Game Graphics Programming
IGME-742	Level Design
IGME-750	Game Engine Design and Development
IGME-753	Console Development
IGME-760	Artificial Intelligence for Gameplay
IGME-790	Graduate Seminar in IGM
IGME-796	Advanced Topics in Game Design
IGME-797	Advanced Topics in Game Development
IGME-799	Independent Study

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 4 years of math including pre-calculus required
- Requires chemistry or physics and strongly recommends both.
- Computing electives are recommended

Transfer Admission

Transfer course recommendations without associate degree

Courses in computer science, calculus, liberal arts; calculus-based physics, chemistry, or biology

Appropriate associate degree programs for transfer

AS degree in computer science, engineering science, or liberal arts

Human-Centered Computing, BS

www.rit.edu/study/human-centered-computing-bs
Stephen Zilora, Professor
585-475-7643, Stephen.Zilora@rit.edu

Program overview

With a growing reliance on computing in our daily lives, technology is no longer the exclusive realm of tech-savvy users. With roots in multiple areas of computing, arts, and social sciences, the human-computer interaction degree blends strengths from these varied disciplines to understand the ways in which people use technology. With a blending of content from computing, psychology, and design, we serve an increased need for software and devices that are intuitive, usable, and desirable.

Fundamental to human-centered computing is a focus on humans as individuals and in social contexts, and their behavior with technology. Students in this major are at the intersection of computer advancements and understanding human behavior with technology. Topics of consideration include the design, evaluation, and implementation of interactive computing systems and understanding the ways in which such systems can transform our lives. Given the growing reliance on computing in our daily lives, technology no longer is the exclusive realm of tech-savvy users; industry has recognized the need to make software and devices that are usable and desirable. This major prepares students for careers in industry or graduate study, offering options to specialize in different areas of human-centered computing depending on individual student interests in computing, design, or psychology.

The human-centered computing major is unique in its foundation of psychology, design, and technology. The curriculum combines courses from three different RIT colleges to ensure students develop a firm understanding of these diverse subjects. Core courses include several foundational classes in technology, cognitive science and psychology, Gestalt, color theory, and creative thinking. This is an interdisciplinary degree with concentrations available in accessibility, design, front-end development, instructional technology, natural language processing, and psychology.

The human-computer relationship is constantly evolving, and the days of the singular do everything device is disappearing. New innovations promise a future of multiple, interconnected technologies that respond to our needs in real time. The world needs professionals that are able to design, prototype, implement and evaluate interactive computing systems; those skills make up the core of the HCC degree.

HCC is about leveraging technology, exploring and adapting how people access and interact with it. Finding ways to integrate technology with our everyday lives—regardless of our physical capabilities, age, or location—is a key component of the program. HCC professionals are changing the world every day: Whether it's developing ways for computers to reproduce realistic animations of American Sign Language, designing the successor to Fitbit, or building the next generation of speech recognition software. HCC students are the driving force at the center of the global accessibility effort, both as students and as professionals.

Human-centered computing is a large and dynamic professional field, and the curriculum is designed to reflect that diversity. The degree features 6 areas of concentration, allowing students to immerse themselves in the two areas that they find most interesting. The major requires students to complete two blocks of cooperative education, which may begin after the second year of study. With an HCC degree, your passions become your career.

HCC Degree Concentrations

Accessibility: Learn to develop systems that are equally accessible to all people, making the benefits of technology a reality for everyone.

Front End Development: Master programming and development for desktop, web, and mobile computing interfaces, with a focus on efficient code and meeting user needs.

Instructional Technology: Plan, organize and develop systems to effectively leverage technology to convey knowledge and skills to users.

Design: Learn to integrate elements of imagery, type, actions, color, and more to form a unified graphical interface that is understandable to people everywhere.

Psychology: Explore how humans perceive, process, and store information. Study best practices in research and evaluation, and learn how to implement them into your work.

Natural Language Processing: Study the interactions between computers and human language. Learn about the latest advances in computational linguistics and how computers derive meaning via natural language processing.

Global Opportunities

Students in the human-centered computing major can participate in a study abroad experience at RIT Croatia's campuses in Dubrovnik or Zagreb, where many of the program's courses are offered regularly. The major participates in Senior Development Project I, II (ISTE-500, 501), a global course in which teams of students from RIT's main campus and both RIT Croatia campuses work together on an industry-inspired project.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the human-centered computing degree are required to complete two blocks of cooperative education experience.

Curriculum

Human-Centered Computing, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ISTE-110	General Education – First-Year Writing: FYW: Ethics in Computing (WI)	3
ISTE-120	General Education – Elective: Computational Problem Solving in the Information Domain I	4
ISTE-121	General Education – Elective: Computational Problem Solving in the Information Domain II	4
ISTE-140	Web & Mobile I	3
ISTE-240	Web & Mobile II	3
NMDE-111	New Media Digital Design Survey I	3
PSYC-101	General Education – Scientific Principles Perspective: Introduction to Psychology	3
PSYC-223	General Education – Elective: Cognitive Psychology	3
STAT-145	General Education – Mathematical Perspective A: Introduction to Statistics I	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Elective	3
Second Year		
ISTE-99	School of Information Second Year Seminar	0
ISTE-252	Foundations of Mobile Design	3
ISTE-262	Foundations of Human Centered Computing	3
ISTE-264	Prototyping and Usability Testing	3
ISTE-499	Undergraduate Co-op (summer)	0
NMDE-112	New Media Digital Design Survey II	3
PSYC-250	General Education – Elective: Research Methods I (WI)	3
PSYC-251	General Education – Elective: Research Methods II	3
STAT-146	General Education – Mathematical Perspective B: Introduction to Statistics II	4
	General Education – Social Perspective	3
	General Education – Natural Science Inquiry Perspective	3
	Open Elective	3
Third Year		
ISTE-266	Design for Accessibility	3
ISTE-499	Undergraduate Co-op (summer)	0
	HCC Concentration Courses	12
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
	General Education – Immersion 1	3
	Open Electives	6
Fourth Year		
ISTE-500	Senior Development Project I	3
ISTE-501	Senior Development Project II (WI)	3
	HCC Concentration Courses	6
	General Education – Ethical Perspective	3
	General Education – Immersion 2, 3	6
	Open Elective	3
	General Education - Elective	3
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Concentrations

Accessibility

ISTE-362	Access & Assistive Technology
ISTE-462	Research in Accessibility
ISTE-464	Accessibility Through the Lifespan

Design

NMDE-201	New Media Design Elements II
NMDE-203	New Media Design Interactive II
NMDE-302	New Media Design Graphical User Interface

Front End Development

ISTE-340	Client Programming
ISTE-454	Mobile Application Development I
ISTE-456	Mobile Application Development II

Instructional Technology

ISTE-560	Fundamentals of Instructional Technology
ISTE-561	Interactive Courseware
PSYC-235	Learning and Behavior

Natural Language Processing

ENGL-351	Language Technology (required)
ENGL-581	Introduction to Natural Language Processing (required)
Plus one of the following:	
ENGL-582	Seminar in Computational Linguistics
ENGL-584	Spoken Language Processing

Psychology

PSYC-430	Memory and Attention
PSYC-431	Language and Thought
PSYC-432	Decision Making, Judgment and Problem Solving

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math are required and pre-calculus is recommended
- Requires chemistry or physics and strongly recommends both.
- Computing electives are recommended

Transfer Admission

Transfer course recommendations without associate degree

Courses in computer science, calculus, liberal arts; calculus-based physics, chemistry, or biology

Appropriate associate degree programs for transfer

AS degree in computer science, engineering science, or liberal arts

New Media Interactive Development, BS

www.rit.edu/study/new-media-interactive-development-bs
Elouise Oyzon, Associate Professor
httpsritzoomusmyeroics, eroics@rit.edu

Program overview

The field of new media explores new and evolving technologies—the internet, social software, hand-held and wearable devices, touch and gestural interfaces, the Internet of Things, virtual reality, and more—to create useful, delightful, and engaging experiences. In the new media interactive development major, you'll learn the programming and computing skills for multiple interfaces, as well as the design skills needed to make projects look sleek and polished for outstanding user interaction. You can focus your studies on a specific area of new media to truly explore your interests and adapt your skills to a range of emerging technologies.

New media is an ever-changing form of digital communication that engages, immerses, and often entertains users. Whereas old media involved newspapers, radio, and television, new media has adapted digital technology for the internet, social networks, wearable computing, and more. New media development professionals develop and design software for these devices. They must possess deep and far-ranging skills along with a broad understanding of the social and economic impact of all cutting-edge new media technologies. These professionals must be consummate problem-solvers with a well-honed ability to learn emerging technologies. And finally, they must also be able to make informed, timely decisions in an arena of constant urgency and change. In the new media interactive development major, students explore a multitude of creative and technical electives, including physical computing, interfaces, web, mobile, production, and more.

Our graduates build professional-quality web sites, program apps for mobile devices and tablets, and create social networking applications that connect people with technology and each other. Students learn to program using current and emerging technologies for the web, touchscreens, wearables, and interactive objects in the environment. They also learn design principles to make the interactive experiences they build polished and captivating.

Plan of study

The new media interactive development major integrates strong programming skills with math, design, and communication skills essential for creative, digital media development. All students complete general education requirements in the liberal arts and social sciences. Students customize their major through both general education electives, free electives, and program electives in areas such as advanced interactive development for the web, mobile development and alternative interfaces, physical/wearable computing, game design, game development, design and media production, interactive audio, and more. Many courses are project- and team-based, which helps students to build a robust portfolio of interactive projects.

Students also work closely with students in the new media design major, housed in the College of Art and Design. Students in these majors share core courses in programming and design to learn how both disciplines collaborate. In the senior year, students from both majors work together on a capstone project, which enables them to gain valuable industry experience and portfolio development. Students also are required to complete two blocks of cooperative education, which can occur during the academic year or during the summer.

New media interactive development's partner program is a BFA in new media design. Throughout their education, students in new media interactive development and new media design take several courses together culminating in a team capstone project in their senior year. Check out some of our students' projects in the IGM Gallery.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the new media interactive development degree are required to complete two blocks of cooperative education experience.

Curriculum

New Media Interactive Development, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
IGME-101	New Media Interactive Design and Algorithmic Problem Solving I	4
IGME-102	New Media Interactive Design and Algorithmic Problem Solving II	4
IGME-110	Introduction to Interactive Media	3
MATH-131	Discrete Mathematics	4
MATH-185	General Education – Mathematical Perspective A: Mathematics of Graphical Simulation I	3
NMDE-111	New Media Design Digital Survey I	3
NMDE-112	New Media Design Digital Survey II	3
YOPS-010	RIT 365: RIT Connections	0
	General Education – First Year Writing (WI)	3
	General Education – Natural Science Inquiry Perspective	3
	General Education – Artistic Perspective	3
Second Year		
IGME-099	Co-op Preparation Workshop	0
IGME-201	New Media Interactive Design and Algorithmic Problem Solving III	3
IGME-202	Interactive Media Development	3
IGME-230	Website Design & Implementation	3
IGME-236	Interaction, Immersion, & the Media Interface (WI)	3
IGME-330	Rich Media Web Application Development I	3
IGME-499	Undergraduate Co-op (summer)	0
STAT-145	General Education – Mathematical Perspective A: Introduction to Statistics†	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Scientific Principles Perspective‡	3
	General Education – Ethical Perspective	3
Third Year		
Choose one of the following:		3
IGME-340	Multi-platform Media App Development	
ISTE-454	Mobile Application Development I	
ISTE-456	Mobile Application Development II	
IGME-430	Rich Media Web Application Development II	3
IGME-470	Physical Computing & Alternative Interfaces	3
IGME-480	Current Topics in Interactive Development	3
IGME-499	Undergraduate Co-op (summer)	0
	Open Electives	6
	General Education – Immersion 1, 2	6
	General Education – Electives	6
Fourth Year		
IGME-588	New Media Interactive Development Capstone II	3
NMDE-401	New Media Design Capstone I	3
	New Media Interactive Development Advanced Electives	6
	Open Electives	9
	General Education – Immersion 3	3
	General Education – Electives	6
Total Semester Credit Hours		**123**

Please see General Education (GE) for more information.
(WI) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Students have the option of taking Introduction to Statistics I (STAT-145) or one of the following math courses: Calculus A (MATH-171), Project Based Calculus (MATH-181), or Calculus (MATH-181A).
‡ Students satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and the lab portions to fulfill the requirement.

New Media Interactive Development Advanced Electives

COURSE	
IGME-340	Multi-platform Media App Development
IGME-350	International Game Industry
IGME-382	Maps, Mapping and Geospatial Technologies
IGME-386	Spatial Algorithms and Problem Solving
IGME-420	Level Design
IGME-422	Level Design 2
IGME-421	Tabletop Game Design and Development
IGME-423	Games for Change
IGME-430	Rich Media Web Application Development II
IGME-440	Online Virtual Worlds & Simulations
IGME-450	Casual Game Development
IGME-451	Systems Concepts for Games and Media
ISTE-454	Mobile Application Development I
ISTE-456	Mobile Application Development II
IGME-460	Data Visualization
IGME-470	Physical Computing & Alternative Interfaces
IGME-480	Current Topics in Interactive Development
IGME-484	Geographic Visualization
IGME-529	Foundations of Interactive Narrative
IGME-531	Aesthetics and Computation
IGME-540	Foundations of Game Graphics Programming
IGME-550	Foundations of Game Engine Design and Development
IGME-560	Artificial Intelligence for Game Environments
IGME-570	Digital Audio Production
IGME-571	Interactive Game and Audio
IGME-580	IGM Production Studio
IGME-581	Innovation & Invention
IGME-582	Humanitarian Free & Open Source Software Development
IGME-583	Legal and Business Aspects of FOSS
IGME-584	Software Development on Linux Systems
IGME-585	Project in FOSS Development
IGME-588	New Media Interactive Development Capstone II
IGME-589	Research Studio
IGME-590	Undergraduate Seminar in IGM
IGME-599	Independent Study
IGME-601	Game Development Processes
IGME-602	Game Design
IGME-603	Gameplay and Prototyping
IGME-621	Board and Card Game Design and Development
IGME-622	Game Balance
IGME-623	Theory and Design of Role Play and Interactive Media
IGME-624	Tabletop Role-Playing Game Design and Development
IGME-670	Digital Audio Production
IGME-671	Interactive Game and Audio
IGME-680	IGM Production Studio
IGME-681	Innovation & Invention
IGME-690	IGM Seminar
NMDE-201	New Media Design Elements II
NMDE-203	New Media Design Interactive II
NMDE-302	New Media Design Graphical User Interface

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 4 years of math including pre-calculus required
- Requires chemistry or physics and strongly recommends both.
- Computing electives are recommended

Transfer Admission

Transfer course recommendations without associate degree

Courses in computer science, calculus, liberal arts; calculus-based physics, chemistry, or biology

Appropriate associate degree programs for transfer

AS degree in computer science, engineering science, or liberal arts

Software Engineering, BS

www.rit.edu/study/software-engineering-bs

Naveen Sharma, Professor
585-475-2472, nxsvse@rit.edu

Program overview

As software becomes ever more common in everything from airplanes to appliances, there is an increasing demand for engineering professionals who can develop high-quality, cost-effective software systems. The BS in software engineering combines traditional computer science and engineering with specialized course work in software engineering. This software development degree encompasses technical issues affecting software architecture, design, and implementation as well as process issues that address project management, planning, quality assurance, and product maintenance. Students are prepared for immediate employment and long-term professional growth in a range of software development organizations.

Students learn principles, methods, and techniques for the construction of complex and evolving software systems. The major encompasses technical issues affecting software architecture, design, and implementation as well as process issues that address project management, planning, quality assurance, and product maintenance. Upon graduation, students are prepared for immediate employment and long-term professional growth in software development organizations.

We offer a challenging undergraduate program that prepares students for the demands and challenges of the software industry. The undergraduate degree consists of both core and elective courses that focus on the software engineering lifecycle. In addition, each student must complete a senior project on a team of four or five students.

Plan of study

The software engineering program has four key elements: engineering design, software product development, teamwork, and communication. The curriculum ensures that the student's coursework balances between software design principles and software process practices. In every course, teamwork is emphasized with a significant part of the final grade being based on team project activities. By the time our students start their senior project, they will have worked on 20 to 25 different student teams in their software engineering courses. Software engineering students also develop their communication skills. In every course, they will be preparing engineering documentation, such as requirements documents, design documents, project plans, burndown charts, and software test plans. Also, at the end of each project cycle, the students make oral presentations on their work and receive critique from the instructor and other students in the class.

The software engineering program focuses on developing skills to:

1. Model and analyze proposed and existing software systems, especially through the use of discrete mathematics and statistics.
2. Apply quality principles to the definition of software systems and processes.
3. Analyze and design complex software systems using contemporary principles such as cohesion and coupling, abstraction and encapsulation, design patterns, frameworks, and architectural styles.
4. Apply contemporary software engineering methods to planning, management, and development of software systems.
5. Accurately communicate technical material related to all phases of the software life cycle via concise and correct documents, graphics and oral presentations.

6. Work in small teams to develop a software system. This includes the ability to assume distinct operational roles (e.g., configuration management, quality assurance) in addition to design and implementation.
7. Assess the social, environmental, and cultural factors arising from existing software systems as well as potential risks of proposed systems with a clear understanding of the ethical and professional responsibilities necessary for different software product lines.
8. Relate principles of software engineering to at least one application domain where those principles can be applied.
9. Explore new topics in software engineering or related application domains with limited oversight and input from faculty or mentors.
10. Rapidly learn, assess, and adapt to new languages, environments, and paradigms for software development.

With the skills obtained in our program, software engineering students will be able to design and build quality software solutions that meet the customer's requirements, are delivered on time, without defects, and within budget.

An important component of the curriculum is the complementary course work in related disciplines. As with other engineering fields, mathematics and the natural sciences are fundamental. In addition, students must complete courses in related fields of engineering, business, or science. Two engineering electives, plus a three-course sequence in an application domain, enable students to connect software engineering principles to application areas. A required course in economics or finance bridges software engineering with the realities of the business environment.

Students are required to complete 40 weeks of cooperative education prior to graduation. Students typically begin co-op in their third year of study, alternating semesters of study on campus with co-op blocks. To ensure that co-op is integrated with the curriculum, students must complete their final co-op block prior to taking Software Engineering Project I.

Students also complete general education courses in the liberal arts to develop a sense of professionalism and social responsibility in the technical world.

Electives

Engineering electives

Students may choose engineering electives from software engineering, computer science, or majors in the Kate Gleason College of Engineering. Additional rules and restrictions are listed on the department website.

Application domain courses

An application domain is a set of three courses that expose students to an area in which software engineering is often applied. There are standard predefined application domains and students are free to suggest a customized domain. Example application domain areas include artificial intelligence, bioinformatics, business applications, computational mathematics, computer engineering, computing security, economics, entrepreneurship, industrial and systems engineering, interactive entertainment, public policy, scientific and engineering computing, statistics, or usability.

Senior design project

A two-course senior design project helps students synthesize and apply the knowledge and experience they have gained in classes and on co-op assignments to an industry-sponsored project. Organizations with challenging technical problems frequently contact faculty seeking assistance in defining a solution. Many of these issues find their resolution via the work of the Software Engineering senior project teams.

In the first course, students organize themselves into teams, based on the number and complexity of the projects available. The bulk of the semester is devoted to requirements elicitation and architectural design, but also may include detailed design, prototyping, and even production, depending on the nature of the project. In addition, teams are responsible for assigning specific roles to team members and developing a project plan that includes scheduled concrete milestones. In the second course, students work on the tactical issues of development and deployment. Teams complete the construction and integration of their project, conduct testing, and demonstrate the final outcome to faculty and the sponsoring organization.

Organizations that have sponsored senior projects include Wegmans, Paychex, Moog, Northrup Grumman Security Systems, Intel Corp., Webster Financial Group, Oracle, Nokia, IBM Thomas Watson Research, PaeTec Communications, Alstom Signaling Inc., RIT Information and Technology Services, Harris Corporation (RF Communications Division), the Air Force Research Laboratory, Excellus Blue Cross Blue Shield, Telecom Consulting Group NE Corp. (TCN), and Videk.

Laboratories

Equipped with the latest technology, the software engineering department's facilities include three student instructional studio labs, a specialized embedded systems lab, and a collaboration lab. In addition, freshmen are encouraged to take advantage of the department's mentoring lab. Staffed by advanced software engineering students, this lab offers new students an environment where they can learn from those who have successfully fulfilled most of the major's academic requirements.

Students enrolled in software engineering courses also can use any of the department's eleven team rooms. Equipped with a computer and projector, network connections, a meeting table, seating for six, and generous whiteboard space, these rooms support the department's commitment to teamwork, both inside and outside the classroom.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the software engineering degree are required to complete three blocks (40 weeks) of cooperative education experience.

Curriculum

Software engineering, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-190	General Education – Elective: Discrete Mathematics for Computing	3
SWEN-101	Software Engineering Freshman Seminar	1
SWEN-123	General Education – Elective: Software Development and Problem Solving I	4
SWEN-124	General Education – Elective: Software Development and Problem Solving II	4
SWEN-250	Personal Software Engineering	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
Second Year		
COMM-253	Communication	3
PHYS-211	General Education – Natural Science Inquiry Perspective: University Physics I	4
PHYS-212	General Education – Scientific Principles Perspective: University Physics II	4
STAT-205	General Education – Elective: Applied Statistics	3
SWEN-99	Undergraduate Cooperative Education Seminar	0
SWEN-256	Software Process and Project Management	3
SWEN-261	Introduction to Software Engineering	3
SWEN-262	Engineering of Software Subsystems	3
SWEN-344	Engineering of Web Based Software Systems	3
SWEN-488	Software Engineering Summer Co-op	0
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Third Year		
MATH-241	General Education – Elective: Linear Algebra	3
SWEN-340	Software Design for Computing Systems	3
Choose one of the following:		3
SWEN-444	Human-Centered Requirements and Design	
SWEN-445	Honors Human-Centered Requirements and Design	
SWEN-499	Software Engineering Co-op (spring)	0
	General Education – Immersion 1	3
	Software Engineering Process Elective	3
Fourth Year		
Choose one of the following:		3
CSCI-261	Analysis of Algorithms	
CSCI-264	Honors Analysis of Algorithms	
SWEN-331	Engineering Secure Software	3
SWEN-440	Software System Requirements and Architecture (WI-PR)	3
SWEN-499	Software Engineering Co-op (spring)	0
	General Education – Immersion 2	3
	Math/Science Elective	3
Fifth Year		
SWEN-561	Software Engineering Project I	3
SWEN-562	Software Engineering Project II	3
	Engineering Elective	3
	General Education – Immersion 3	3
	Math/Science Elective	3
	Professional Elective	3
	Software Engineering Design Elective	3
	Open Electives	12
Total Semester Credit Hours		**127**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accelerated dual degree options

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

Software Engineering, BS/MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-based Calculus II	4
MATH-190	General Education – Elective: Discrete Mathematics for Computing	3
SWEN-101	Software Engineering Freshman Seminar	1
SWEN-123	General Education – Elective: Software Development and Problem Solving I	4
SWEN-124	General Education – Elective: Software Development and Problem Solving II	4
SWEN-250	Personal Software Engineering	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First Year Writing (WI)	3
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
Second Year		
COMM-253	General Education – Elective: Communication (WI)	3
PHYS-211	General Education – Natural Science Inquiry Perspective: University Physics I	4
PHYS-212	General Education – Scientific Principles Perspective: University Physics II	4
STAT-205	General Education – Elective: Applied Statistics	3
SWEN-99	Undergraduate Cooperative Education Seminar	0
SWEN-256	Software Process and Project Management	3
SWEN-261	Introduction to Software Engineering	3
SWEN-262	Engineering of Software Subsystems	3
SWEN-344	Engineering of Web Base Software Systems	3
SWEN-488	Software Engineering Summer Co-op (summer)	0
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Third Year		
MATH-241	General Education – Elective: Linear Algebra	3
SWEN-340	Software Design for Computing Systems	3
SWEN-444	Human-Centered Requirements and Design	3
SWEN-499	Software Engineering Co-op (spring)	0
SWEN-732	Collaborative Software Development (Counts as BS: SWEN Process Elective)	3
	General Education – Immersion 1	3
Fourth Year		
SWEN-331	Engineering Secure Software	3
SWEN-440	Software System Requirements and Architecture (WI-PR)	3
SWEN-499	Software Engineering Co-op (spring)	0
Choose one of the following:		3
CSCI-261	Analysis of Algorithms	
CSCI-264	Honors Analysis of Algorithms	
	Math/Science Elective	3
	General Education – Immersion 2	3
Fifth Year		
SWEN-561	Software Engineering Project I	3
SWEN-562	Software Engineering Project II	3
SWEN-640	Research Methods	3
SWEN-746	Model-Driven Development (Counts as BS: SWEN Design Elective)	3
	Software Engineering Design Elective	3
	Math/Science Elective	3
	Professional Elective	3
	General Education – Immersion 3	3
	Open Electives	12
Sixth Year		
SWEN-755	Software Architecture	3
SWEN-790	Thesis	6
SWEN-799	Independent Study	3
	Graduate Electives	9
Total Semester Credit Hours		**151**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Software Engineering, BS degree/Computing Security, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-190	General Education – Electives: Discrete Mathematics for Computing	3
SWEN-101	Software Engineering Freshman Seminar	1
SWEN-123	General Education – Elective: Software Development and Problem Solving I	4
SWEN-124	General Education – Elective: Software Development and Problem Solving II	4
SWEN-250	Personal Software Engineering	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Ethical perspective	3
	General Education – Artistic perspective	3
	General Education-First Year Writing (WI)	3
Second Year		
COMM-253	General Education – Elective: Communication (WI)	3
PHYS-211	General Education – Natural Science Inquiry Perspective: University Physics I	4
PHYS-212	General Education – Scientific Principles Perspective: University Physics II	4
STAT-205	General Education – Elective: Applied Statistics	3
SWEN-99	SE Co-op Seminar	0
SWEN-256	Software Process and Project Management	3
SWEN-261	Introduction to Software Engineering	3
SWEN-262	Engineering of Software Subsystems	3
SWEN-344	Engineering of Web Based Software Systems	3
SWEN-488	Software Engineering Summer Co-op (summer)	0
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Third Year		
CSCI-261	Analysis of Algorithms	3
SWEN-444	Human-Centered Requirements and Design	3
SWEN-499	Software Engineering Co-op	0
	Software Engineering Process Elective	3
	General Education – Immersion 1	3
	General Education – Math/Science Elective	3
Fourth Year		
MATH-241	General Education – Elective: Linear Algebra	3
SWEN-331	Engineering Secure Software	3
SWEN-340	Software Design of Computing Systems	3
SWEN-440	Software System Requirements and Architecture (WI-PR)	3
SWEN-499	Software Engineering Co-op (spring)	0
	General Education – Immersion 2	3
Fifth Year		
SWEN-561	Software Engineering Project I	3
SWEN-562	Software Engineering Project II	3
	Computing Security Graduate Electives	6
	General Education – Immersion 3	3
	Software Engineering Design Elective	3
	Engineering Elective	3
	Open Electives	6
	Professional Elective	3
	General Education – Math/Science Elective	3
Sixth Year		
CSEC-604	Cryptography and Authentication	3
CSEC-742	Computer System Security	3
CSEC-790	MS Thesis	6
	Computing Security Graduate Electives	6
	Computing Security Research Electives	6
Total Semester Credit Hours		**151**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Software Engineering, BS degree/Computer Science, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-190	General Education – Elective: Discrete Mathematics for Computing	3
SWEN-101	Software Engineering Freshman Seminar	1
SWEN-123	General Education – Elective: Software Development and Problem Solving I	4
SWEN-124	General Education – Elective: Software Development and Problem Solving II	4
SWEN-250	Personal Software Engineering	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – First Year Writing (WI)	3
Second Year		
COMM-253	General Education – Elective: Communication (WI)	3
PHYS-211	General Education – Natural Science Perspective: University Physics I	4
PHYS-212	General Education – Scientific Principles Perspective: University Physics II	4
STAT-205	General Education – Elective: Applied Statistics	3
SWEN-99	Undergraduate Cooperative Education Seminar	0
SWEN-256	Software Process and Project Management	3
SWEN-261	Introduction to Software Engineering	3
SWEN-262	Engineering of Software Subsystems	3
SWEN-344	Engineering of Web Based Software Systems	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Third Year		
CSCI-261	Analysis of Algorithms	3
MATH-241	General Education – Elective: Linear Algebra	3
SWEN-444	Human-Centered Requirements and Design	3
SWEN-499	Software Engineering Co-op (fall)	0
	Software Engineering Process Elective	3
	General Education – Immersion 1	3
Fourth Year		
SWEN-331	Engineering Secure Software	3
SWEN-340	Software Design of Computing Systems	3
SWEN-440	Software System Requirements and Architecture (WI-PR)	3
SWEN-488	Software Engineering Summer Co-op (summer)	0
SWEN-499	Software Engineering Co-op (spring)	0
	Math/Science Elective	3
	General Education – Immersion 2	3
Fifth Year		
SWEN-561	Software Engineering Project I	3
SWEN-562	Software Engineering Project II	3
CSCI-664	Computational Complexity (Counts as an Open Elective)	3
	Graduate Computer Science Foundation Course (Counts as an Open Elective)	3
	Engineering Elective	3
	General Education – Immersion 3	3
	Software Engineering Design Elective	3
	Open Electives	6
	Professional Elective	3
	General Education – Math/Science Elective	3
Sixth Year		
CSCI-620	Introduction to Big Data	3
CSCI-630	Foundations of Artificial Intelligence	3
CSCI-641	Advanced Programming Skills	3
CSCI-664	Computational Complexity	3
CSCI-711	Global Illumination	3
CSCI-788	Computer Science MS Project	3
CSCI-799	Computer Science Graduate Independent Study	6
	Computer Science Graduate Course	3
	Graduate Computer Science Foundations Course	3
Total Semester Credit Hours		**157**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Software Engineering Design Electives

SWEN-342	Engineering of Concurrent and Distributed Software Systems
SWEN-343	Engineering of Enterprise Software Systems
SWEN-344	Engineering of Web Based Software Systems
SWEN-549	Software Engineering Design Seminar
SWEN-563	Real-Time and Embedded Systems
SWEN-564	Modeling of Real-Time Systems
SWEN-565	Performance Engineering of Real-Time and Embedded Systems
SWEN-567	Hardware/Software Co-Design for Cryptographic Applications
SWEN-711	Engineering Self-Adaptive Software Systems
SWEN-712	Engineering Accessible Software
SWEN-745	Software Modeling
SWEN-746	Model-Driven Development
SWEN-755	Software Architecture
SWEN-789	Graduate Special Topics (Design Focused)

Software Engineering Process Electives

SWEN-350	Software Process and Product Quality
SWEN-352	Software Testing
SWEN-356	Trends in Software Development Processes
SWEN-559	Software Engineering Process Seminar
SWEN-722	Process Engineering
SWEN-732	Collaborative Software Development
SWEN-772	Software Quality Engineering
SWEN-789	Graduate Special Topics (Process Focused)

Engineering Electives

	Any software engineering (SWEN) elective course
	Any graduate level computer science (CSCI) course (exceptions apply)
	Any course offered through the College of Engineering (exceptions apply)
CSCI-251	Concepts of Parallel and Distributed Systems
CSCI-320	Principles of Data Management
CSCI-331	Introduction to Artificial Intelligence
CSCI-344	Programming Language Concepts
CSCI-351	Data Communications and Networks
CSCI-352	Operating Systems
CSCI-420	Principles of Data Mining
CSCI-431	Introduction to Computer Vision
CSCI-452	Systems Programming
CSCI-453	Computer Architecture
CSCI-455	Principles of Cybersecurity
CSCI-462	Introduction to Cryptography
CSCI-464	Xtreme Theory
CSCI-510	Introduction to Computer Graphics

Professional Electives

	Any Engineering elective
BLEG-200	Business Law I
DECS-310	Operations Management
ECON-405	International Trade and Finance
ECON-430	Managerial Economics
FINC-220	Financial Management
HRDE-386	Human Resources Development
INTB-225	Global Business Environment
MGMT-215	Organizational Behavior
MGMT-350	Entrepreneurship
MGMT-420	Managing Innovation and Technology
MKTG-230	Principles of Marketing

Math/Science Electives*

BIOG-101	Explorations in Cellular Biology and Evolution
BIOG-102	Explorations in Animal and Plant Anatomy and Physiology
BIOL-101	General Biology I
BIOL-102	General Biology II
CHMG-131	General Chemistry for Engineers
CHMG-141	General & Analytical Chemistry I
CHMG-142	General & Analytical Chemistry II
CSCI-262	Introduction to Computer Science Theory
CSCI-263	Honors Introduction to Computer Science Theory
ECON-403	Econometrics I
ECON-404	Mathematical Methods: Economics
ENVS-101	Concepts of Environmental Science
IMGS-111	Imaging Science Fundamentals
IMGS-112	Astronomical Imaging Fundamentals
ITDS-280	Designing of Scientific Experiments
MATH-219	Multivariable Calculus
MATH-231	Differential Equations
MATH-241	Linear Algebra
MATH-251	Probability and Statistics I
MATH-252	Probability and Statistics II
MATH-351	Graph Theory
MATH-367	Codes and Ciphers
MEDG-101	Human Biology I
MEDG-102	Human Biology II
PHYS-220	University Astronomy
PHYS-225	Introduction to Computational Physics and Programming

Accreditation

The bachelor of science in software engineering is accredited by the Engineering Accreditation Commission of ABET.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 4 years of math including pre-calculus required
- Requires chemistry or physics and strongly recommends both.
- Computing electives are recommended

Transfer Admission

Transfer course recommendations without associate degree

Courses in computer science, calculus, liberal arts; calculus-based physics, chemistry, or biology

Appropriate associate degree programs for transfer

AS degree in computer science, engineering science, or liberal arts

Web and Mobile Computing, BS

www.rit.edu/study/web-and-mobile-computing-bs
Stephen Zilora, Professor
585-475-7643, Stephen.Zilora@rit.edu

Program overview

The web and mobile computing major is about combining people and technology to bring out the best in both. In this web development degree students learn how to integrate the back end code with the front end user experience, and are able to do it across several languages and platforms, to impact the app design process at all levels. Students are highly valuable to employers seeking today's most skilled application developers.

Web and mobile computing explores ubiquitous application development with a firm focus on the end user experience. Students have an interest in the technology of today (and tomorrow), but they're also interested in how people use that technology. The web and mobile computing major is about combining people and technology to bring out the best in both.

What truly sets our graduates apart is their ability to see the world through the eyes of the user. Creating an impactful App begins with solid code and good design, but understanding user expectations is the cornerstone of that process. In the Web and mobile computing major, students learn a user-centric approach to application creation. That, coupled with a robust developer skillset, enables them to produce applications that connect with multiple users across varied environments.

The curriculum is structured with this in mind. Students learn how to integrate the back end code with the front end UI, and will be able to do it across several languages and platforms. This comprehensive knowledge enables students to impact the App design process at all levels, making them incredibly valuable to employers seeking today's application developers. Students can also specialize on one of four areas, which provides students with the knowledge they need to pursue a professional or personal aspiration.

Plan of study

A defining aspect of the web and mobile computing curriculum is the depth of study. Students learn a wide variety of languages and platforms so that they can meet the demands of industry and the public. For example, students don't just learn about web services, they learn how to use existing web services, how to create different types of web services, and how to do it in a variety of languages. And that's just part of what they'll learn in one of their courses (ISTE-341 Server Programming). After establishing this strong foundation, students can further their skills by choosing two of the following concentrations: web application development, mobile application development, geographic information systems, and wearable and ubiquitous development. The major also requires students to complete two blocks of cooperative education, which students may begin after completing their second year of study.

Concentrations

Web Application Development: Want to build the next Ebay, Gmail, or Squarespace? Master the skills needed to push web apps in new directions.

Database: Data is the lifeblood of modern business. Storage, integrity, access, speed, security – learn how to manage modern data in any environment.

Mobile Application Development: Learn to write clean, efficient code in multiple languages and to design an impactful user interface on modern mobile platforms.

Wearable and Ubiquitous Development: Smartwatches, the Internet of Things, and beyond – learn to integrate new and cutting edge tech into the modern world.

Project Life Cycle: Understand how the entire process works, from initial client discussions to meeting deadlines, managing risks, and producing deliverables.

Global opportunities

The web and mobile computing degree is offered at RIT's main campus, in Rochester, NY, and at RIT Croatia's campuses in Dubrovnik and Zagreb. Because the same curriculum is offered in all three locations, students may spend a semester abroad learning about the Croatian culture without any negative impact to their schedule of studies. Furthermore, in their senior year all students take Senior Development Project I,II (ISTE-500, 501), a year-long course in which teams are composed of students from RIT's main campus and both RIT Croatia campuses. Whether students choose to study abroad or remain in Rochester, they will be working side-by-side with their peers from across the world.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the web and mobile computing computing degree are required to complete two blocks of cooperative education experience.

Curriculum

Web and Mobile Computing, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ISTE-120	General Education – Education: Computational Problem Solving in the Information Domain I	4
ISTE-121	General Education – Education: Computational Problem Solving in the Information Domain II	4
ISTE-140	Web & Mobile I	3
ISTE-230	General Education – Education: Introduction to Database and Data Modeling	3
ISTE-240	Web & Mobile II	3
MATH-131	General Education – Mathematical Perspective A: Discrete Mathematics	4
NMDE-111	New Media Design Digital Survey I	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Elective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
Second Year		
ISTE-99	School of Information Second Year Seminar	0
ISTE-222	Computational Problem Solving in the Information Domain III	3
ISTE-252	Foundations of Mobile Design	3
ISTE-260	Designing the User Experience	3
ISTE-330	Database Connectivity and Access	3
ISTE-340	Client Programming	3
ISTE-499	Undergraduate Co-op (summer)	0
MATH-161	General Education – Mathematical Perspective B: Applied Calculus	4
NSSA-290	Networking Essentials for Developers	3
SWEN-383	Software Design Principles and Patterns	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
Third Year		
ISTE-341	Server Programming	3
ISTE-422	Application Development Practices	3
ISTE-499	Undergraduate Co-op (summer)	0
	WMC Concentration Courses	6
	General Education – Immersion 1	3
	General Education – Social Perspective	3
	General Education – Natural Science Inquiry Perspective‡	4
	Open Electives	9
Fourth Year		
ISTE-500	Senior Development Project I	3
ISTE-501	Senior Development Project II (WI)	3
	WMC Concentration Courses	6
	General Education – Immersion 2, 3	6
	General Education – Scientific Principles Perspective	4
	Open Elective	3
	General Education – Electives	6
Total Semester Credit Hours		**126**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and the lab portions to fulfill the requirement.

Concentrations

Web Application Development

COURSE	
ISTE-442	Secure Web Application Development
ISTE-444	Web Server Development and Administration

Mobile Application Development

COURSE	
ISTE-454	Mobile Application Development I
ISTE-456	Mobile Application Development II

Wearable & Ubiquitous Development

COURSE	
ISTE-358	Foundations of Wearable & Ubiquitous Computing
ISTE-458	Advanced Topics in Wearable & Ubiquitous Computing

Project Life Cycle

COURSE	
NSSA-370	Project Management
ISTE-430	Information Requirements Modeling

Database

COURSE	
Choose two of the following:	
ISTE-432	Database Application Development
ISTE-438	Contemporary Databases
ISTE-470	Data Mining and Exploration

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math are required and pre-calculus is recommended
- Requires chemistry or physics and strongly recommends both.
- Computing electives are recommended

Transfer Admission

Transfer course recommendations without associate degree

Courses in computer science, calculus, liberal arts; calculus-based physics, chemistry, or biology

Appropriate associate degree programs for transfer

AS degree in computer science, engineering science, or liberal arts

Faculty

Anne R. Haake, BA, Colgate University; MS, Rochester Institute of Technology; MS, Ph.D., University of South Carolina—Dean; Professor

Michael A. Yacci, BS, Ithaca College; MS, Rochester Institute of Technology; Ph.D., Syracuse University—Senior Associate Dean for Academic Affairs; Professor

Pengcheng Shi, BS, Shanghai Jiao Tong University (China); MS, M Phil, Ph.D., Yale University—Doctorate Program Director; Associate Dean for Research and Scholarship; Professor

Computer Science

Mohan Kumar, BE, Bangalore University (India); MTech, Ph.D., Indian Institute of Science (India)—Department Chair; Professor

Reynold Bailey, BS, Midwestern State University; MS, Ph.D., Washington University—Associate Undergraduate Program Director; Professor

Ivona Bezakova, BS, Comenius University (Slovakia); MS, Ph.D., University of Chicago—Professor

Hans-Peter Bischof, BS, MS, University of Ulm (Germany); Ph.D., University of Osnabrück (Germany)—Graduate Program Director; Professor

T.J. Borrelli, BS, St. John Fisher College; MS, Rochester Institute of Technology—Senior Lecturer

Jeremy Brown, BS, Rochester Institute of Technology; MS, Florida Institute of Technology—Lecturer

Zack Butler, BS, Alfred University; Ph.D., Carnegie Mellon University—Associate Chair; Professor

Ting Cao, BS, Changsha University of Science and Technology (China); MS, University of Edinburgh (United Kingdom)—Lecturer

Warren Carithers, BS, MS, University of Kansas—Associate Professor

Maria Cepeda, BS, Antonio Machado Education Institute (Spain); MS, Rochester Institute of Technology—Lecturer

Aaron Deever, BS, Pennsylvania State University; Ph.D., Cornell University—Senior Lecturer, Associate Undergraduate Program Director

Razie Fathi, BS, Allameh Tabatabaei University (Iran); The College of Saint Rose/State University of New York at Albany—Visiting Lecturer

Matthew Fluet, BS, Harvey Mudd College; Ph.D., Cornell University—Associate Professor

Joe Geigel, BS, Manhattan College; MS, Stevens Institute of Technology; Ph.D., George Washington University—Professor

James Heliotis, BS, Cornell University; Ph.D., University of Rochester—Professor

Edith Hemaspaandra, BS, MS, Ph.D., University of Amsterdam (Netherlands)—Professor

Christopher Homan, AB, Cornell University; MS, Ph.D , University of Rochester—Associate Professor

Hadi Hosseini, BS, Amirkabir University of Technology (Iran); MS, University of New Brunswick (Canada); Ph.D., University of Waterloo (Canada)—Assistant Professor

Peizhao Hu, BS, University of Wales (United Kingdom); Ph.D., University of Queensland (Australia)—Associate Professor

Scott Johnson, BS, MS, Rochester Institute of Technology—Lecturer

Thomas Kinsman, BS, University of Delaware; MS, Carnegie Mellon University; Ph.D., Rochester Institute of Technology—Senior Lecturer

Minseok Kwon, BS, MS, Seoul National University (South Korea); Ph.D., Purdue University—Associate Professor

Xumin Liu, BE, Dalian University of Technology (China); ME, Jinan University (China); Ph.D., Virginia Polytechnic Institute and State University—Associate Professor

Michael Mior, BS, University of Ontario (Canada); MS, University of Toronto (Canada); Ph.D., University of Waterloo (Canada)—Assistant Professor

Arthur Nunes-Harwitt, BS, Brandeis University; MS, University of Pittsburgh; Ph.D., Rochester Institute of Technology—Lecturer

Ifeoma Nwogu, BS, University of Lagas (Nigeria); MS, University of Pennsylvania; Ph.D., University of Buffalo—Assistant Professor

Jansen Orfan, BS, Monmouth University; MS, University of Rochester—Lecturer

Alex Ororbia, BS, Bucknell University; MS, Ph.D., Pennsylvania State University—Assistant Professor

Monika Polak, BS, MS, Ph.D., Maria Curie-Sktodowska University (Poland) —Lecturer

Stanislaw Radziszowski, MS, Ph.D., University of Warsaw (Poland)—Professor

Muhammed Mustapha Rafique, BS, National University of Computer and Emerging Sciences (Pakistan); MS, Ph.D. Virginia Tech University —Assistant Professor

Rajendra K. Raj, BS, Indian University of Technology (India); MS, University of Tennessee; Ph.D., University of Washington—Professor

Carlos Rivero Osuna, BS, MS, Ph.D., University of Seville (Spain)—Assistant Professor

Leonid Reznik, Degree of Electronics, Leningrad Institute of Aeronautical Construction (Russia); MS, St. Petersburg Aircraft Academy (Russia); Ph.D., St. Petersburg Polytechnic Institute (Russia)—Professor

Carol Romanowski, BS, MS, Ph.D., University at Buffalo—Professor

Niyazi Sorkunlu, BS, Ankara Universitesi (Turkey); MS, Rochester Institute of Technology; Ph.D., University at Buffalo—Visiting Lecturer

Ben Steele, BA, Wesleyan University; MS, Rochester Institute of Technology—Senior Lecturer

Sean Strout, BS, MS, Rochester Institute of Technology—Principal Lecturer

Phil White, BS, Clarkson College; MS, Rochester Institute of Technology—Senior Lecturer

Richard Zanibbi, BA, MS, Ph.D., Queens University (Canada)—Professor

Computing Security

Bo Yuan, BS, MS Shanghai Normal University (China); Ph.D., State University of New York at Binghamton—Department Chair; Professor

Giovani R. Abuaitah, BS, Birzeit University (Israel); MS, Ph.D., Wright State University—Lecturer

Hrishikesh Bhattacharya, BTech, Indian Institute of Technology (India); Ph.D., University of Texas at Austin—Assistant Professor

Ahmed Hamza, BS, The American University of Cairo (Egypt); MS, Georgetown University—Lecturer

Daryl Johnson, BS, St. John Fisher College; MS, Rochester Institute of Technology—Associate Professor

Sumita Mishra, BS, Patna University (India); BS, Ph.D., State University of New York at Buffalo—Professor

Rob Olson, BS, MS, State University of New York at Fredonia; MS, Nova Southeastern University—Lecturer; Undergraduate Program Director

Yin Pan, BS, MS, Shanghai Normal University (China); MS, Ph.D., State University of New York at Binghamton—Professor

Gahyun Park, BS, Ewha Womans University (South Korea); MS, Ph.D., Purdue University—Lecturer

Justin M. Pelletier, BS, Stonehill College; MBA, Rochester Institute of Technology; Ph.D., Capella University—Lecturer

Hanif Rahbari, BS, Sharif University of Technology (Iran); MS, Amirkabir University (Iran); Ph.D., University of Arizona—Assistant Professor

William Stackpole, BS, Roberts Wesleyan College; MS, Rochester Institute of Technology—Professor

Stacey Watson, BA, York University (Canada); BE, Brock University (Canada); MS, Columbus State University; Ph.D., University of North Carolina at Charlotte—Visiting Assistant Professor

Jonathan Weissman, BS, College of Staten Island; MA, Brooklyn College—Senior Lecturer

Matthew Wright, BS, Harvey Mudd College; MS, Ph.D., University of Massachusetts—Director, Center for Cybersecurity; Professor

School of Information

Matt Huenerfauth, MS, University of Delaware; MSc, University College Dublin (Ireland); Ph.D., University of Pennsylvania—School Director; Professor

Garret Arcoraci, State University College at Brockport—Lecturer

Catherine I. Beaton, BA, B.Ed., MITE, Dalhousie University (Canada)—Associate Professor

Daniel S. Bogaard, BFA, Indiana University; MS, Rochester Institute of Technology—Undergraduate Program Director; Associate Professor

Charles B. Border, BA, State University College at Plattsburgh; MBA, Ph.D., State University of New York at Buffalo—Associate Professor

Stephen Cady, BA, Brooks Institute; BA, Antioch University; MFA, University of Illinois—Visiting Lecturer

Bryan French, BA, State University College at Potsdam; MS, Rochester Institute of Technology—Senior Lecturer

Erik Golen, BS, Ph.D., Rochester Institute of Technology—Lecturer

James Habermas, BA, MS, State University College at Brockport—Visiting Lecturer

Bruce H. Hartpence, BS, MS, Rochester Institute of Technology—Professor

Lawrence Hill, BS, MS, Rochester Institute of Technology—Networking and Systems Administration Program Coordinator; Associate Professor

Edward Holden, BA, State University College at Oswego; MBA, Rochester Institute of Technology—Associate Professor

Jai Kang, BS, Seoul National University (South Korea); MA, Kent State University; MS, Georgia Institute of Technology; Ph. D., State University of New York at Buffalo—Associate Professor

Jeffrey A. Lasky, BBA, City College of New York; MBA, City University of New York; MS, University of Minnesota— Professor Emeritus

James Leone, BS, University of Cincinnati; MA, Ph.D., Johns Hopkins University—Professor

Peter Lutz, BS, St. John Fisher College; MS, Ph.D., State University of New York at Buffalo—Professor

Sharon P. Mason, BS, Ithaca College; MS, Rochester Institute of Technology; Ph.D., University of Buffalo—Professor

Michael McQuaid, BFA, New York University; MBA, MS, University of Wisconsin; Ph.D., University of Arizona—Senior Lecturer

Tae (Tom) Oh, BS, Texas Tech University; MS, Ph.D., Southern Methodist University—Professor

Sylvia Perez-Hardy, BS, MBA, Cornell University—Associate Professor

Nirmala Shenoy, BE, ME, University of Madras (India); Ph.D., University of Bremen (Germany)—Professor

Kristen Shinohara, BS, University of Puget Sound; MS, University of Washington-Tacoma; Ph.D., University of Washington-Seattle—Assistant Professor

Brian Tomaszewski, BA, University at Albany; MA, University at Buffalo; Ph.D., Pennsylvania State University— Associate Professor

Elissa M. Weeden, BS, MS, Rochester Institute of Technology; Ed.S., Ph.D., Nova Southeastern University—Associate Professor—Associate Professor

Qi Yu, BE, Zhejiang University (China); MS, National University of Singapore (Singapore); Ph.D., Virginia Polytechnic Institute and State University—Professor

Stephen J. Zilora, BS, University of Rochester; MS, New Jersey Institute of Technology—Professor

Interactive Games and Media

David I. Schwartz, BS, MS, Ph.D., University at Buffalo—Director; Associate Professor

Jessica Bayliss, BS, California State University, Fresno; MS, Ph.D., University of Rochester—Associate Director; Professor

John A. Biles, BA, MS, University of Kansas—Professor Emeritus

Alberto Bobadilla Sotelo, BS Universidad Nacional Autonoma de Mexico (Mexico); MS, Rochester Institute of Technology—Lecturer

Sean Boyle, BS, MS, Rochester Institute of Technology—Senior Lecturer

Christopher Cascioli, BS, MS, Rochester Institute of Technology—Lecturer

Erin Cascioli, BS, MS, Nazareth College—Lecturer

Carlos Castellanos, BA, San Francisco State University; MFA, San Jose State University; Ph.D., Simon Fraser University— Assistant Professor

Christopher A. Egert, BS, MS, Rochester Institute of Technology; Ph.D., University at Buffalo—Associate Professor

Stephen Kurtz, BA, University of Miami; MFA, MS, Rochester Institute of Technology—Professor Emeritus

Gordon Goodman, BA, State University of New York at Binghamton; MS (instructional technology), MS (computer science), Rochester Institute of Technology—Professor Emeritus

Owen Gottlieb, BS, Dartmouth College; MA, University of Southern California—Associate Professor

W. Michelle Harris, MPS, New York University—Associate Professor

Tona Henderson, BS, Southwest Missouri State University; MS, University of Missouri—Associate Professor

Jay Alan Jackson, BS, MS, Ph.D., Florida State University—Associate Professor

Stephen Jacobs, BA, MA, New School for Social Research—Professor

Anthony Jefferson, BS, State University College at Oswego; MS, Rochester Institute of Technology—Principle Lecturer

Elizabeth Lane Lawley, AB, MLS, University of Michigan; Ph.D., University of Alabama—Professor

Sten McKinzie, BS, MS, Rochester Institute of Technology—Lecturer

Erika Mesh, BS, MS, Rochester Institute of Technology—Lecturer

Jesse O'Brien, BS, The Art Institute of Pittsburgh; MFA, The Academy of Art University—Senior Lecturer

Elouise Oyzon, BFA, MFA, Rochester Institute of Technology—Associate Professor; Undergraduate Program Director

Konstantinos Papangelis, BS, University of Huddersfield (United Kingdom); MS, University of Lancaster (United Kingdom); Ph.D., University of Aberdeen (United Kingdom); Fellow of the Royal Society of the Arts—Assistant Professor

Chao Peng, B.Arch., Hebei University of Engineering (China); MFA, University of Alaska Fairbanks; Ph.D., Virginia Polytechnic Institute and State University—Assistant Professor

Ian Schreiber, BS, Carnegie Mellon University; MA, Savannah College of Art and Design—Assistant Professor

David Simkins, BA, MS, Ph.D., University of Wisconsin-Madison—Associate Professor

Brian Tomaszewski, BA, University of Albany; MA, University at Buffalo; Ph.D., Pennsylvania State University—Associate Professor

Austin Willoughby, BS, MS, Rochester Institute of Technology—Lecturer

Steven Yi, B.Mus, University of Georgia; Ph.D., National University of Ireland (Ireland)—Assistant Professor

Software Engineering

Naveen Sharma, MS, Indian Institutes of Science (India); Ph.D., Kent State University—Department Chair; Professor

Yasmine El-Glaly, BSc, Faculty of Computers and Informatics (Egypt); MSc, Ain Shams University (Egypt); Ph.D., Virginia Polytechnic Institute and State University—Lecturer

Bruce Herring, BS, MS Florida State University—Lecturer

Larry Kiser, BS, Roberts Wesleyan College; MS, Rochester Institute of Technology—Senior Lecturer

Samuel Malachowsky, BBA, State University of New York at Buffalo; MBA, Medaille College—Senior Lecturer

Kenn Martinez, BS, Syracuse University; MS, Rensselaer Polytechnic Institute—Senior Lecturer

Kal Rabb, BS, University of Rochester; MS, Rochester Institute of Technology—Lecturer

Thomas Reichlmayr, BS, MS, Rochester Institute of Technology—Undergraduate Program Director; Associate Professor

Bob St. Jacques, BS, MS, Rochester Institute of Technology—Senior Lecturer

James Vallino, BE, The Cooper Union; MS, University of Wisconsin; Ph.D., University of Rochester—Professor Emeritus

Computing and Information Sciences

Pengcheng Shi, BS, Shanghai Jiao Tong University (China); MS, M.Phil., Ph.D., Yale University—Doctorate Program Director; Professor; Associate Dean for Research and Scholarship

Linwei Wang, BS, Zhejiang University (China); M.Phil., Hong Kong University of Science and Technology (Hong Kong); Ph.D., Rochester Institute of Technology—Professor

Yu Kong, BS, Anhui University (China); MS, Ph.D., Beijing Institute of Technology (China)—Assistant Professor

Rui Li, BS, Harbin Institute of Technology (China); MS, Tianjin University of Technology (China); Ph.D., Rochester Institute of Technology—Assistant Professor

Kate Gleason College of Engineering

Doreen Edwards, Dean
rit.edu/engineering

Programs of study

#	Biomedical Engineering, BS	73
#	Chemical Engineering, BS	75
#	Computer Engineering, BS	79
#	Electrical Engineering, BS	82
	Engineering Exploration, Undeclared	86
#	Industrial Engineering, BS	87
	Integrated Electronics, Certificate	92
#	Mechanical Engineering, BS	93
	Mechatronics Engineering, Certificate	96
#	Microelectronic Engineering, BS	97

Accelerated BS/MS option available.

The majors offered by the Kate Gleason College of Engineering prepare students for careers in industry or for graduate study in engineering and related fields. Students develop a strong intellectual foundation for lifelong learning through a balance of course work in the liberal arts, physical sciences, and professional studies. All students participate in a five-year program that integrates a comprehensive four-year academic major with one year of cooperative education experience. After the second year of study, students typically alternate study on campus with cooperative education.

Please visit the college's website–**www.rit.edu/engineering**–for in depth information on academics, faculty, facilities, research initiatives, advising, and more.

Admission requirements

For more information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

Financial aid and scholarships

Please refer to the Financial Aid and Scholarships section of this bulletin for information regarding financial aid, scholarships, loans, and grants.

Accreditation

All eligible majors have received national accreditation by ABET (Accreditation Board of Engineering and Technology), which is a prerequisite for licensure as a professional engineer in many states. In their final semester of study, graduating seniors in ABET approved majors are eligible to sit for the NCEES Fundamentals of Engineering (FE) section of the New York State Professional Engineering examination, which is the first step in the process for licensure as a Professional Engineer (PE).

Biomedical Engineering, BS

www.rit.edu/study/biomedical-engineering-bs
Steven Day, Associate Professor
585-475-4738, swdeme@rit.edu

Program overview

Biomedical engineering leverages the vast knowledge base of biology and medicine to solve problems focused on health care and the human body. Biomedical engineers design instruments, devices, and software; bring together knowledge from many technical sources to develop new medical procedures; and conduct research needed to solve clinical problems. They often serve a coordinating function, using their background in both engineering and medicine to collaborate with health care professionals on identifying a problem and designing a solution.

What is biomedical engineering?

Biomedical engineers are intimately involved in the development of devices and techniques to address issues to improve human health. The field is highly multidisciplinary, requiring expertise from a wide range of professionals, and in particular engineers from disciplines as diverse as chemical, electrical, and mechanical engineering. This is true whether in industrial, research, or clinical settings. A successful multidisciplinary team must have at least one member, a biomedical engineering, who possesses a comprehensive understanding of the highly variable and intricate nature of the biomedical system of interest, such as the heart or a prosthetic limb. Biomedical engineers must possess the quantitative and analytical engineering skills needed to precisely define the challenge that is being addressed and assess the effectiveness of any plausible solutions.

Educational objectives

The biomedical engineering degree delivers a focused curriculum that targets the biomedical enterprise from a highly quantitative and analytically rigorous perspective. The goal is to enable participants to compete successfully for engineering-related positions immediately upon graduation or to pursue post-graduate education in engineering, science, or medicine. Students have the ability to contribute significantly to the development of new knowledge, understanding, and innovative solutions in the health care industry and across a wide variety of health care related research applications.

The bachelor of science degree in biomedical engineering strives to produce graduates who will:

- Draw upon the fundamental knowledge, skills, and tools of biomedical engineering to develop system-based engineering solutions that satisfy constraints imposed by a global society.
- Enhance their skills through formal education and training, independent inquiry, and professional development.
- Work well both independently and collaboratively, as well as demonstrate strong leadership skills, accountability, initiative, and ethical and social responsibility.
- Be able to successfully pursue graduate degrees at the master's and/or doctorate levels.

The program's curriculum strives to achieve these objectives by:

- Integrating cooperative education into the program for all students.
- Providing a strong foundation in mathematics and science with a balance between liberal studies and technical courses.
- Incorporating a strong laboratory component in the program with outstanding laboratory facilities.
- Having a diverse faculty committed to engineering education.

Plan of study

RIT's biomedical engineering degree is a five-year program consisting of the following requirements:

- Biomedical engineering core courses – The curriculum consists of a core set of courses in science, technology, engineering, and mathematics (STEM) that address the essential aspects of engineering as a discipline and biomedical applications in particular. Recognizing that biological systems generally possess a significant degree of random behavior, a three-course sequence in statistical analysis, including design of experiments, is an essential component of the curriculum. There are foundation courses in general and analytic chemistry as well as cell and molecular biology, immunology, and biocompatibility.
- Professional technical electives – The program includes two free electives that allow you to choose courses from any college in the university. In the fourth or fifth year of the program, students choose two technical electives specifically related to some aspect of biomedical engineering, such as biomechanics, instrumentation and imaging, or tissue engineering. Technical and free electives can also be utilized to establish a minor course of study related to biomedical engineering.
- Cooperative education – An important aspect of the biomedical engineering program is one year of cooperative education experience. (See Cooperative Education below.)
- Liberal arts courses – Courses that include writing, communications, and the humanities and social sciences comprise liberal arts course you'll complete as part of the program. A three-course immersion is also required. The immersion can enhance your biomedical engineering studies, or be a topic of personal.
- Free electives – Courses chosen by you, these free electives provide you with the opportunity to choose additional course work to enhance a personal or professional interest.
- Multidisciplinary senior design – The biomedical engineering major culminates in the fifth year with a two-course multidisciplinary senior design experience. This capstone design course integrates engineering theory, principles, and processes within a collaborative environment that bridges engineering disciplines. Learn more by exploring multidisciplinary senior design.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

The biomedical engineering degree requires students to complete four blocks (roughly one year) of cooperative education. Beginning the summer after your second year of the program, you'll alternate semesters on campus with full-time, paid work experience in an area of biomedical engineering that interests you. These full-time experiences enable you to apply what you've learned in the classroom to real world situations. Students also benefit from the chance to network with professionals in the field.

Curriculum

Biomedical Engineering, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIME-181	Intro to Biomedical Engineering	1
BIME-191	Introduction to Programming for Biomedical Engineers	3
CHMG-141	General Education – Elective: General & Analytical Chemistry I	3
CHMG-142	General Education – Elective: General & Analytical Chemistry II	3
CHMG-145	General Education – Elective: General & Analytical Chemistry I Lab	1
CHMG-146	General Education – Elective: General & Analytical Chemistry II Lab	1
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Scientific Principles Perspective: University Physics I	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – First Year Writing (WI)	3
	General Education – Elective	3
Second Year		
BIME-99	BME Career Seminar	0
BIME-200	Introductory Musculoskeletal Biomechanics	3
BIME-250	Biosystems Process Analysis	3
BIME-320	Fluid Mechanics	3
BIME-370	Introduction to Biomaterials Science	3
BIME-391	Biomechanics and Biomaterials Lab	2
BIOG-140	General Education – Elective: Cell and Molecular Biology for Engineers I	3
BIOG-240	General Education – Elective: Cell and Molecular Biology for Engineers II	3
EGEN-099	Engineering Co-op Preparation	0
MATH-221	General Education – Elective: Multivariable and Vector Calculus	4
MATH-231	General Education – Elective: Differential Equations	3
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
	General Education – Ethical Perspective	3
Third Year		
BIME-360	Biomedical Signal Analysis	3
BIME-410	Systems Physiology I	3
BIME-499	Co-op (fall and summer)	0
STAT-251	General Education – Elective: Probability and Statistics for Engineers I	3
	General Education – Global Perspective	3
	Open Elective	3
Fourth Year		
BIME-407	Medical Device Design	3
BIME-411	Systems Physiology II (WI-PR)	3
BIME-450	Numerical Analysis of Complex Biosystems	3
BIME-491	Quantitative Physiological Signal Analysis Lab	1
BIME-499	Co-op (spring and summer)	0
ISEE-325	Engineering Statistics and Design of Experiments	3
	General Education – Immersion	3
Fifth Year		
BIME-460	Dynamics and Control of Biomedical Systems	3
BIME-492	Systems Physiology Control and Dynamics Lab	1
BIME-497	Multidisciplinary Senior Design I	3
BIME-498	Multidisciplinary Senior Design II	3
	Professional Electives	6
	Open Electives	6
	General Education – Social Perspective	3
	General Education – Immersion 2, 3	6
Total Semester Credit Hours		**129**

Please see General Education Curriculum (GE) for more information..
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accelerated dual degree option

BS in Biomedical Engineering/MS in Science, Technology and Public Policy

Throughout history, technology has been a major driver of social, political, and economic change. Societies around the globe employ public policies to solve problems and achieve their social, economic, and environmental objectives. The spheres of public policy and technology overlap as society is challenged to consider not only the role of new technologies in its quest for improved quality of life, but also how policies affect the development, emergence, and choice of new technologies. Because of the role engineers play in creating new technology, they increasingly have an important role in helping to shape public policy. Moreover, policies affecting how we as a society live and work—such as environmental, industrial, energy, and national security policy, to name a few—demand that engineers be prepared to integrate policy issues into their engineering practice.

Biomedical engineering students may choose to pursue an accelerated dual degree in which they may complete the BS in biomedical engineering and an MS in science, technology and public policy in approximately five years. Many biomedical engineers combine their technical knowledge with the policy skills needed to analyze and advocate for policy change in both private and public organizations. The interdisciplinary nature of the program, in conjunction with the quantitative and qualitative approaches taken to understand and analyze policy, will contribute to your ability to gain exciting leadership roles in a range of the engineering fields.

Biomedical Engineering, BS degree/Science, Technology and Public Policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIME-181	Intro to Biomedical Engineering	1
BIME-191	Introduction to Programming for Biomedical Engineers	3
CHMG-141	General & Analytical Chemistry I	3
CHMG-142	General & Analytical Chemistry II	3
CHMG-145	General & Analytical Chemistry I Lab	1
CHMG-146	General & Analytical Chemistry II Lab	1
MATH-181	General Education - Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education - Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education - Scientific Principles Perspective: University Physics I	4
YOPS-010	RIT 365: RIT Connections	0
	General Education - Artistic Perspective	3
	General Education - Elective	3
	General Education - First Year Writing (WI)	3
Second Year		
BIME-099	BME Career Seminar	0
BIME-200	Introductory Musculoskeletal Biomechanics	3
BIME-250	Biosystems Process Analysis	3
BIME-320	Fluid Mechanics	3
BIME-370	Introduction to Biomaterials Science	3
BIME-391	Biomechanics and Biomaterials Lab	2
BIOG-140	Cell and Molecular Biology for Engineers I	3
BIOG-240	Cell and Molecular Biology for Engineers II	3
EGEN-099	Engineering Co-op Preparation	0
MATH-221	Multivariable and Vector Calculus	4
MATH-231	Differential Equations	3
PHYS-212	General Education - Natural Science Inquiry Perspective: University Physics II	4
	General Education - Ethical Perspective	3
Third Year		
BIME-360	Biomedical Signal Analysis	3
BIME-410	Systems Physiology I	3
BIME-499	Co-op (fall)	0
STAT-251	Probability and Statistics for Engineers I	3
	General Education - Global Perspective	3
	Open Elective	3

COURSE		SEMESTER CREDIT HOURS
Fourth Year		
BIME-407	Medical Device Design	3
BIME-411	Systems Physiology II	3
BIME-450	Numerical Analysis of Complex Biosystems	3
BIME-491	Quantitative Physiological Signal Analysis Lab	1
BIME-499	Co-op (summer)	0
ISEE-325	Engineering Statistics and Design of Experiments	3
PUBL-701	Graduate Policy Analysis	3
PUBL-702	Graduate Decision Analysis	3
STSO-710	Graduate Science and Technology Policy Seminar	3
	General Education - Immersion 1, 2	6
	Public Policy Elective	3
	General Education - Social Perspective	3
Fifth Year		
BIME-497	Multidisciplinary Senior Design I	3
BIME-498	Multidisciplinary Senior Design II	3
BIME-492	Systems Physiology Control and Dynamics Lab	1
PUBL-703	Evaluation and Research Design	3
PUBL-700	Readings in Public Policy	3
BIME-460	Dynamics and Control of Biomedical Systems	3
	General Education - Immersion 3	3
	Open Elective	3
	Public Policy Electives	6
Choose one of the following:		6
PUBL-790	Public Policy Thesis	
PUBL-798	Comprehensive Exam plus 2 Graduate Electives	
Total Semester Credit Hours		**150**

Please see General Education Curriculum for more information.
(WI) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accreditation

The BS program in biomedical engineering is accredited by the Engineering Accreditation Commission of ABET. Visit the college's accreditation page for information on enrollment and graduation data, program educational objectives, and student outcomes.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 4 years of math required; including pre-calculus or above
- Chemistry and physics required
- Biology required

Transfer Admission

Transfer course recommendations without associate degree
Pre-engineering courses such as calculus, calculus-based physics, chemistry, and liberal arts.

Appropriate associate degree programs for transfer
AS degree in engineering science

Chemical Engineering, BS

www.rit.edu/study/chemical-engineering-bs
Steven Weinstein, Professor
585-475-4299, sjweme@rit.edu

Program overview

Chemical engineering applies the core scientific disciplines of chemistry, physics, biology, and mathematics to transform raw materials or chemicals into more useful or valuable forms, invariably in processes that involve chemical change. All engineers employ mathematics, physics, and engineering to overcome technical problems in a safe and economical fashion. The chemical engineer provides the critical level of expertise needed to solve problems in which chemical specificity and change have particular relevance. They not only create new, more effective ways to manufacture chemicals, they also work collaboratively with chemists to pioneer the development of high-tech materials for specialized applications. Well-known contributions include the development and commercialization of synthetic rubber, synthetic fiber, pharmaceuticals, and plastics. Chemical engineers contribute significantly to advances in the food industry, alternative energy systems, semiconductor manufacturing, and environmental modeling and remediation. A special focus on process engineering cultivates a systems perspective that makes chemical engineers extremely versatile and capable of handling a wide spectrum of technical problems.

Students develop a firm and practical grasp of engineering principles and the underlying science associated with traditional and emerging chemical engineering applications. They also learn to tie together phenomena at small scales (micro- and nano-scale) with the behavior of systems at the macro-scale. While chemical engineers have always excelled at analyzing and designing processes with multiple length scales, modern chemical engineering applications require this knowledge to be extended to the nano-scale. The program provides training to address this emerging need.

How is chemical engineering different from chemistry?

Virtually every aspect of a modern industrial economy is critically dependent upon chemical engineering for manufacturing bulk and specialty chemicals and high-tech materials needed to create a limitless array of value-added products. Chemical engineering applies the core scientific disciplines of chemistry, physics, biology, and mathematics to transform raw materials or chemicals into more useful or valuable forms, invariably in processes that involve chemical change. They work in multidisciplinary teams to create novel materials that are at the heart of virtually every product and service that enhances our quality of life. Examples include nano scale composites, pharmaceuticals, plastics, fibers, metals, and ceramics. Key applications include the development of alternative energy systems, biomedical materials and therapies, and strategies to minimize the environmental impact of technological advancements.

The line between the functions of chemists and chemical engineers can be blurred, but a general distinction can be made between the function of the two disciplines. Perhaps the clearest distinction can be made in the area of chemical transformation. Typically, chemists develop new molecules via chemical reaction, examine the underlying mechanisms involved, and make precise measurements of both physical and organic chemistry parameters on a bench scale in small volumes. Chemical engineers utilize the work of chemists to build processes to manufacture and purify chemicals and new materials on a larger scale. Using their knowledge of scientific principles (physical and organic chemistry integrated with physics, mathematics, and biology) and design constraints (such as economics, environmental requirements) chemical engineers

develop processes to manufacture raw materials with desired purity on a scale that meets the demands of virtually every industry in our modern society.

Educational objectives

Graduates of the BS degree in chemical engineering are expected, within a few years of graduation, to have:

- demonstrated an ability to draw upon the fundamental knowledge, skills, and tools of chemical engineering to develop scale-appropriate system-based engineering solutions that satisfy constraints imposed by a global society.
- demonstrated an ability to enhance their skills through formal education and training, independent inquiry, and professional development.
- demonstrated an ability to work independently as well as collaboratively with others, and to have demonstrated leadership, accountability, initiative, and ethical and social responsibility.
- demonstrated the ability to successfully pursue graduate degrees at the master's and/or doctorate levels for those with relevant qualifications.

Plan of study

The core curriculum of the chemical engineering major provides students with a solid foundation in engineering principles and their underlying science. Students choose professional technical electives that provide a more depth examination of the chemical engineering field or provide breadth in other engineering disciplines. These electives may be chosen from those offered within the major, as well as from a department-approved list of engineering courses offered throughout the college. A capstone design experience in the fifth year integrates chemical engineering theory, principles, and processes in a collaborative team environment. Four blocks (approximately one year) of cooperative education experience, mathematics and science courses, free electives, and liberal arts courses round out the curriculum.

Capstone experience

Students complete a capstone experience that includes two courses: Design with Constraint and Advanced Design Capstone.

Design with Constraint is taught in a workshop structure with lectures and in-class applications of concepts. Students examine typical constraints on design and their integration with technology. Economics, environmental considerations, hazards analysis, ethics, and globalization and supply chain management are considered. Modern examples that integrate knowledge of unit operations and processes with design constraints are also discussed.

In Advanced Design Capstone students work in teams to design and simulate a realistic chemical manufacturing plant. An assigned project requires students to draw upon, and integrate, the knowledge they have acquired from all core chemical engineering courses taken over the previous five years. The course is taught in the Chemical Engineering Computer Lab and makes extensive use of both chemical process simulation software (ChemCad), software for drawing piping and instrumentation diagrams (P&ID's), and online resources that chemical engineers use to size and select parts and equipment. The course constitutes a project-based application of concepts and skills developed throughout the curriculum.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the chemical engineering degree are required to complete four blocks (approximately one year) of cooperative education This work experience, coupled with the professional networks created by our students and alumni, often translates into job opportunities after graduation. Additionally, for those students who develop an interest in research and demonstrate aptitude in the classroom, a limited number of co-op opportunities are possible in which students will work alongside professors as they conduct research in the chemical engineering field.

Curriculum

Chemical Engineering, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHME-181	Chemical Engineering Insights I	1
CHME-182	Chemical Engineering Insights II	1
CHMG-141	General Education – Elective: General & Analytical Chemistry I	3
CHMG-142	General Education – Elective: General & Analytical Chemistry II	3
CHMG-145	General Education – Elective: General & Analytical Chemistry I Lab	1
CHMG-146	General Education – Elective: General & Analytical Chemistry II Lab	1
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Scientific Principles Perspective: University Physics I	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
Second Year		
CHME-230	Chemical Process Analysis	3
CHME-310	Applied Thermodynamics	3
CHME-320	Continuum Mechanics I	3
CHME-391	Chemical Engineering Principles Lab	2
CHMO-231	General Education – Elective: Organic Chemistry I	3
CHMO-235	General Education – Elective: Organic Chemistry Lab I	1
EGEN-099	Engineering Co-op Preparation	0
MATH-221	General Education – Elective: Multivariable and Vector Calculus	4
MATH-231	General Education – Elective: Differential Equations	3
STAT-205	General Education – Elective: Applied Statistics	3
	General Education – Global Perspective	3
	Open Elective	3
Third Year		
CHMA-231	General Education – Elective: Chemical Instrumental Analysis for Engineers	3
CHME-301	Analytical Techniques for Chemical Engineering I	3
CHME-321	Continuum Mechanics II	3
CHME-330	Mass Transfer Operations	3
CHME-499	Co-op (fall and summer)	0
	General Education – Social Perspective	3
	General Education – Immersion	3
Fourth Year		
CHME-302	Analytical Techniques for Chemical Engineering II	3
CHME-340	Reaction Engineering	4
CHME-350	Multiple Scale Material Science	3
CHME-491	Chemical Engineering Processes Lab (WI-PR)	2
CHME-499	Co-op (spring and summer)	0
	General Education – Immersion 2, 3	6
Fifth Year		
CHME-401	System Dynamics and Control	3
CHME-451	Analysis of MultiScale Processes	3
CHME-490	Design with Constraint	3
CHME-492	Advanced Design Capstone	3
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
	Professional Technical Electives	9
	Open Electives	6
Total Semester Credit Hours		**129**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accelerated dual degree options

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic advisor for more information.

BS in Chemical Engineering/MS in Science, Technology, and Public Policy
Throughout history, technology has been a major driver of social, political, and economic change. Societies around the globe employ public policies to solve problems and achieve their social, economic, and environmental objectives. The spheres of public policy and technology overlap as society is challenged to consider not only the role of new technologies in its quest for improved quality of life, but also how policies affect the development, emergence, and choice of new technologies. Because of the role engineers play in creating new technology, they increasingly have an important role in helping to shape public policy. Moreover, policies affecting how we as a society live and work—such as environmental, industrial, energy, and national security policy, to name a few—demand that engineers be prepared to integrate policy issues into their engineering practice.

This accelerated dual degree option allows students to earn a BS in chemical engineering and an MS in science, technology, and public policy in approximately five years. The program is a natural fit that enables qualified students enrolled in chemical engineering, who also have an interested in public policy issues, with an opportunity to pursue a graduate level degree in a field that combines their engineering and public policy interests.

Chemical Engineering, BS degree/Science, Technology and Public Policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHME-181	Chemical Engineering Insights I	1
CHME-182	Chemical Engineering Insights II	1
CHMG-141	General & Analytical Chemistry I	3
CHMG-142	General & Analytical Chemistry II	3
CHMG-145	General & Analytical Chemistry I Lab	1
CHMG-146	General & Analytical Chemistry II Lab	1
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Scientific Principles Perspective: University Physics I	4
YOPS-010	RIT 365: RIT Connections	0
	General Education – First Year Writing (WI)	3
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
Second Year		
CHME-230	Chemical Process Analysis	3
CHME-310	Applied Thermodynamics	3
CHME-320	Continuum Mechanics I	3
CHME-391	Chemical Engineering Principles Lab	2
CHMO-231	Organic Chemistry I	3
CHMO-235	Organic Chemistry Lab I	1
EGEN-099	Engineering Co-op Preparation	0
MATH-221	Multivariable and Vector Calculus	4
MATH-231	Differential Equations	3
STAT-205	Applied Statistics	3
	General Education – Global Perspective	3
	Open Elective	3
Third Year		
CHMA-231	Chemical Instrumental Analysis for Engineers	3
CHME-301	Analytical Techniques for Chemical Engineering I	3
CHME-321	Continuum Mechanics II	3
CHME-330	Mass Transfer Operations	3
CHME-499	Co-op (fall)	0
	General Education – Social Perspective	3
	General Education – Immersion 1	3
Fourth Year		
CHME-302	Analytical Techniques for Chemical Engineering II	3
CHME-340	Reaction Engineering	4
CHME-350	Multiple Scale Material Science	3
CHME-491	Chemical Engineering Processes Lab	2
CHME-499	Co-op (summer)	0
PHYS-212	University Physics II	4
PUBL-701	Graduate Policy Analysis	3
PUBL-702	Graduate Decision Analysis	3
STSO-710	Graduate Science and Technology Policy Seminar	3
	General Education – Immersion 1, 2	6
	Professional/Technical Elective	3
Fifth Year		
CHME-401	System Dynamics and Control	3
CHME-451	Analysis of MultiScale Processes	3
CHME-490	Design with Constraint	3
CHME-492	Advanced Design Capstone	3
PUBL-700	Readings in Public Policy	3
PUBL-703	Evaluation and Research Design	3
	Public Policy Electives	9
	General Education – Immersion 3	3
Choose one of the following:		6
PUBL-799	Public Policy Thesis	
PUBL-798	Comprehensive Exam plus 2 Graduate Electives	
Total Semester Credit Hours		**150**

Please see General Education Curriculum for more information.
(WI) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

BS in Chemical Engineering/MS in Materials Science and Engineering
In research and development, chemical engineers not only create new, more effective ways to manufacture chemicals, but also work collaboratively with chemists and material scientists to pioneer the development of new high-tech materials for specialized applications. High performance materials are needed across all industry sectors including aerospace, automotive, biomedical, electronic, environmental, space, and military applications.

This accelerated dual degree option allows students to earn a BS in chemical engineering and an MS in materials science in approximately five years. This option educates students to not only be able to scale up and manufacture materials (by virtue of their BS degree in chemical engineering), but also manipulate novel soft and hard materials on the bench scale as they are developed. Upon graduation, BS/MS students will be immediate contributors to the material science industries and will be well prepared for employment opportunities ranging from research and development to manufacturing.

Chemical Engineering, BS degree/Materials Science and Engineering (thesis option), MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHME-181	Chemical Engineering Insights I	1
CHME-182	Chemical Engineering Insights II	1
CHMG-141	General & Analytical Chemistry I	3
CHMG-142	General & Analytical Chemistry II	3
CHMG-145	General & Analytical Chemistry Lab I	1
CHMG-146	General & Analytical Chemistry Lab II	1
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Scientific Principles Perspective: University Physics I	4
YOPS-010	RIT 365: RIT Connections	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – First Year Writing (WI)	3
Second Year		
CHME-230	Chemical Process Analysis	3
CHME-310	Applied Thermodynamics	3
CHME-320	Continuum Mechanics I	3
CHME-391	Chemical Engineering Principles Lab	2
CHMO-231	Organic Chemistry I	3
CHMO-235	Organic Chemistry Lab I	1
EGEN-099	Engineering Co-op Preparation	0
MATH-221	Multivariable and Vector Calculus	4
MATH-231	Differential Equations	3
STAT-205	Applied Statistics	3
	General Education – Global Perspective	3
	Open Elective	3
Third Year		
CHMA-231	Chemical Instrumental Analysis for Engineers	3
CHME-301	Analytical Techniques for Chemical Engineering I	3
CHME-321	Continuum Mechanics II	3
CHME-330	Mass Transfer Operations	3
CHME-499	Co-op (fall)	0
	General Education – Social Perspective	3
	General Education – Immersion 1	3
Fourth Year		
CHME-302	Analytical Techniques for Chemical Engineering II	3
CHME-340	Reaction Engineering	4
CHME-350	Multiple Scale Material Science	3
CHME-491	Chemical Engineering Processes Lab	2
MTSE-705	Experimental Techniques	3
MTSE-790	Research & Thesis	3
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
	General Education – Immersion 2, 3	6
	Professional Technical Electives (MTSE)	9
Fifth Year		
CHME-401	System Dynamics and Control	3
CHME-451	Analysis of MultiScale Processes	3
CHME-490	Design With Constraint	3
CHME-492	Advanced Design Capstone	3
MTSE-601	Materials Science	3
MTSE-704	Theoretical Methods in Materials Science and Engineering	3
MTSE-790	Research & Thesis	6
	Professional Technical Elective (MTSE)	3
	Open Electives	6
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Chemical Engineering, BS degree/Materials Science and Engineering (project option), MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHME-181	Chemical Engineering Insights I	1
CHME-182	Chemical Engineering Insights II	1
CHMG-141	General & Analytical Chemistry I	3
CHMG-142	General & Analytical Chemistry II	3
CHMG-145	General & Analytical Chemistry Lab I	1
CHMG-146	General & Analytical Chemistry Lab II	1
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Scientific Principles Perspective University Physics I	4
YOPS-010	RIT 365: RIT Connections	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – First Year Writing (WI)	3
Second Year		
CHME-230	Chemical Process Analysis	3
CHME-310	Applied Thermodynamics	3
CHME-320	Continuum Mechanics I	3
CHME-391	Chemical Engineering Principles Lab	2
CHMO-231	Organic Chemistry I	3
CHMO-235	Organic Chemistry Lab I	1
EGEN-099	Engineering Co-op Preparation	0
MATH-221	Multivariable and Vector Calculus	4
MATH-231	Differential Equations	3
STAT-205	Applied Statistics	3
	General Education – Global Perspective	3
	Open Elective	3
Third Year		
CHMA-231	Chemical Instrumental Analysis for Engineers	3
CHME-301	Analytical Techniques for Chemical Engineering I	3
CHME-321	Continuum Mechanics II	3
CHME-330	Mass Transfer Operations	3
CHME-499	Co-op (fall)	0
	General Education – Social Perspective	3
	General Education – Immersion 1	3
Fourth Year		
CHME-302	Analytical Techniques for Chemical Engineering II	3
CHME-340	Reaction Engineering	4
CHME-350	Multiple Scale Material Science	3
CHME-491	Chemical Engineering Processes Lab	2
MTSE-705	Experimental Techniques	3
MTSE-777	Graduate Project	3
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
	General Education – Immersion 2, 3	6
	Professional Technical Electives (MTSE)	9
Fifth Year		
CHME-401	System Dynamics and Control	3
CHME-451	Analysis of MultiScale Processes	3
CHME-490	Design With Constraint	3
CHME-492	Advanced Design Capstone	3
MTSE-601	Materials Science	3
MTSE-704	Theoretical Methods in Materials Science and Engineering	3
	Professional Technical Electives (MTSE)	9
	Open Electives	6
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accreditation

The BS program in chemical engineering is accredited by the Engineering Accreditation Commission of ABET. Visit the college's accreditation page for information on enrollment and graduation data, program educational objectives, and student outcomes.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 4 years of math required; including pre-calculus or above
- Chemistry and physics required

Transfer Admission

Transfer course recommendations without associate degree

Pre-engineering courses such as calculus, calculus-based physics, chemistry, and liberal arts.

Appropriate associate degree programs for transfer

AS degree in engineering science

Computer Engineering, BS

www.rit.edu/study/computer-engineering-bs

Amlan Ganguly, Associate Professor
585-475-4082, axgeec@rit.edu

Program overview

In the computer industry, rapid innovation is the name of the game, and there is a great demand for computer engineers who can do it all—from designing high performance computer hardware components and software to developing next-generation intelligent, resilient and sustainable products and appliances that contain embedded systems.

As computer technology becomes more essential to commerce and daily life, companies will need computer engineers who possess a well-developed set of skills and who can quickly adapt to changes. To meet the challenges of the future, these companies will turn to computer engineers for innovative solutions and technological leadership. Graduates of RIT's computer engineering degree are well prepared to enter industry to meet these new challenges, and they are well positioned to continue their studies in high-quality graduate degree programs.

Educational objectives

The computer engineering department has established the following educational objectives for the computer engineering degree, which describe the accomplishments of its graduates during the first few years following graduation:

- Career focus–Graduates successfully contribute to the professional workforce typically by applying their knowledge in various areas of computer engineering related to hardware, software, and/or systems.
- Graduate study–Many graduates have pursued, are pursuing, or plan to pursue graduate study in computer engineering, related disciplines, or in business.
- Independent learning–Graduates are engaged in lifelong learning and stay current with advancements in their chosen field through independent learning and/or continuing education.
- Professionalism–Graduates conduct themselves in a professional and ethical manner and function as responsible members of society.

Plan of study

Studying computer engineering begins with the fundamental math, science, and technology courses that are essential to the curriculum. Emphasis is placed on selected areas of computer science, software engineering, and electrical engineering, including data structures, object-oriented programming languages, circuits, electronics, and principles of software engineering. Professional and ethical responsibility is gained through seminars and cooperative education experience. Upper-level computer engineering courses prepare students to integrate hardware and software by formulating complete system solutions. This is achieved through courses on computer architecture, digital systems, IC (integrated circuit) design, interfacing, computer networks, and digital signal processing.

All students are required to complete a two-semester senior design sequence during their last year of study and approximately one year of cooperative education experience.

Concentration areas

Concentration areas provide students with an opportunity to gain additional in-depth knowledge in an area of particular interest within computer engineering. Students can choose among the following concentration areas: software, high performance computing, computer architecture, integrated circuits and systems, networks and security, computer vision and machine intelligence, or signal processing, control and

embedded systems. Students interested in research are highly encouraged to choose a concentration area and consult with faculty members in the corresponding area.

Senior design capstone experience

Computer engineering students have the option to select between two tracks for a two-semester capstone design experience: computer engineering projects or multidisciplinary design projects.

Computer Engineering Projects–Computer engineering senior design teams typically consist of three or four computer engineering students. Students form teams and select their own project idea. Each team member is responsible for the design, implementation, and testing of a subsystem that corresponds to a project component. Past projects have focused on areas of autonomous and robotic systems, games and entertainment, imaging systems, security systems, interactive systems, and entrepreneurial projects.

Multidisciplinary Projects–Multidisciplinary design project teams typically consist of four to eight students from different engineering majors, including biomedical, computer, electrical, industrial engineering, and mechanical engineering. Students are assigned to projects before the start of the first course. Projects are initiated by industrial sponsors, faculty members engaged in research, or collaborative work with other universities and corporations. Teams may also propose their own project idea.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

The computer engineering degree requires students to complete four blocks (approximately one year) of cooperative education experience. After completing the first two years of course work, you'll spend the next two years alternating course work on campus with cooperative education experience. This employment not only adds real experience to your resume, but prepares you for more sophisticated academic work. Students have completed co-ops at companies as Motorola, Intel, Advanced Micro Devices, IBM, Hewlett Packard, Eastman Kodak Company, and for the federal government, as well as a host of smaller companies. Co-op has taken our students from the high-tech corridors of New England and California to businesses close to their hometowns. Students have worked on product development teams for companies like IBM, Intel, Hewlett-Packard, Lucent Technologies, and Kodak. They have also worked on software projects for smaller companies and the government.

During co-op experiences, computer engineering students have been on product development teams for new computers and electronic imaging systems as well as a variety of large software projects for industry and government.

Curriculum

Computer Engineering, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CMPE-110	Introduction to Computer Engineering	1
CMPE-160	Digital System Design I	3
CSCI-141	General Education – Elective: Computer Science I	4
CSCI-142	General Education – Elective: Computer Science II	4
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Scientific Principles Perspective: University Physics I	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Artistic Perspective	3
	General Education – Social Perspective	3
	General Education – Elective	3
Second Year		
CMPE-250	Assembly and Embedded Programming	3
CMPE-260	Digital System Design II	4
EEEE-281	Circuits I	3
EGEN-99	Engineering Co-op Preparation	0
MATH-190	General Education – Elective: Discrete Mathematics for Computing	3
MATH-219	General Education – Elective: Multivariable Calculus	3
MATH-231	General Education – Elective: Differential Equations	3
MATH-241	General Education – Elective: Linear Algebra	3
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
SWEN-261	Introduction to Software Engineering	3
	General Education – Ethical Perspective	3
Third Year		
CMPE-350	Computer Organization	3
CMPE-380	Applied Programming in C	3
CMPE-499	Co-op (spring and summer)	0
EEEE-282	Circuits II	3
EEEE-380	Digital Electronics	3
	General Education – Global Perspective	3
Fourth Year		
CMPE-460	Interface and Digital Electronics (WI-PR)	4
CMPE-480	Digital Signal Processing	3
CMPE-499	Co-op (fall and summer)	0
CMPE-550	Computer Architecture	3
MATH-251	General Education – Elective: Probability and Statistics I	3
	General Education – Immersion	3
Fifth Year		
CMPE-497	Multidisciplinary Senior Design I	3
CMPE-498	Multidisciplinary Senior Design II	3
CMPE-570	Data and Communication Networks	3
	General Education – Immersion 2, 3	6
	Professional Electives	6
	Open Electives	9
Total Semester Credit Hours		**129**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accelerated dual degree options

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

Computer Engineering, BS/MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CMPE-110	Introduction to Computer Engineering	1
CMPE-160	Digital System Design I	3
CSCI-141	General Education – Elective: Computer Science I	4
CSCI-142	General Education – Elective: Computer Science II	4
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Scientific Principles Perspective: University Physics I	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – Elective	3
	General Education – First-Year Writing (WI)	3
	General Education – Artistic Perspective	3
	General Education – Social Perspective	3
Second Year		
CMPE-250	Assembly and Embedded Programming	3
CMPE-260	Digital System Design II	4
EEEE-281	Circuits I	3
EGEN-99	Engineering Co-op Preparation	0
MATH-190	General Education – Elective: Discrete Mathematics for Computing	3
MATH-219	General Education – Elective: Multivariable Calculus	3
MATH-231	General Education – Elective: Differential Equations	3
MATH-241	General Education – Elective: Linear Algebra I	3
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
SWEN-261	Introduction to Software Engineering	3
	General Education – Ethical Perspective	3
Third Year		
CMPE-350	Computer Organization	3
CMPE-380	Applied Programming in C	3
CMPE-499	Co-op (fall and summer)	0
EEEE-282	Circuits II	3
EEEE-380	Digital Electronics	3
MATH-251	General Education – Elective: Probability and Statistics I	3
	General Education – Global Perspective	3
Fourth Year		
CMPE-460	Interface and Digital Electronics (WI-PR)	4
CMPE-480	Digital Signal Processing	3
CMPE-497	Multidisciplinary Senior Design I	3
CMPE-499	Co-op (summer)	0
CMPE-550	Computer Architecture	3
CMPE-610	Analytical Topics in Computer Engineering	3
Choose one of the following:		3
CMPE-630	Digital Integrated Circuit Design	
CMPE-660	Reconfigurable Computing	
CMPE-755	High Performance Architectures	
CMPE-670	Data and Communication Networks	3
CMPE-795	Graduate Seminar	0
	Professional Elective	3
	General Education – Immersion 1, 2	6
	Open Elective	3
Fifth Year		
CMPE-498	Multidisciplinary Senior Design II	3
	Graduate Electives	12
	General Education – Immersion 3	3
	Open Elective	3
Choose one of the following:		9
CMPE-790	Thesis	
CMPE-792	Graduate Project plus two additional Project Focus Electives	
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Computer Engineering, BS degree/Science, Technology and Public Policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CMPE-110	Introduction to Computer Engineering	1
CMPE-160	Digital System Design I	3
CSCI-141	Computer Science I	4
CSCI-142	Computer Science II	4
MATH-181	General Education - Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education - Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education - Scientific Principles Perspective: University Physics I	4
YOPS-010	RIT 365: RIT Connections	0
	General Education - First Year Writing (WI)	3
	General Education - Elective	3
	General Education - Artistic Perspective	3
	General Education - Social Perspective	3
Second Year		
CMPE-250	Assembly and Embedded Programming	3
CMPE-260	Digital System Design II	4
EEEE-281	Circuits I	3
EGEN-099	Engineering Co-op Preparation	0
MATH-190	Discrete Mathematics for Computing	3
MATH-219	Multivariable Calculus	3
MATH-231	Differential Equations	3
MATH-241	Linear Algebra	3
PHYS-212	General Education - Natural Science Inquiry Perspective : University Physics II	4
SWEN-261	Introduction to Software Engineering	3
	General Education - Ethical Perspective	3
Third Year		
CMPE-350	Computer Organization	3
CMPE-380	Applied Programming in C	3
CMPE-499	Co-op (spring)	0
EEEE-282	Circuits II	3
EEEE-380	Digital Electronics	3
	General Education - Global Perspective	3
Fourth Year		
CMPE-460	Interface and Digital Electronics	4
CMPE-480	Digital Signal Processing	3
CMPE-499	Co-op (summer)	0
CMPE-550	Computer Architecture	3
CMPE-570	Data and Communication Networks	3
MATH-251	Probability and Statistics I	3
PUBL-701	Graduate Policy Analysis	3
PUBL-702	Graduate Decision Analysis	3
	Graduate Professional Elective: Policy Elective	3
	Open Elective	3
	General Education - Immersion 1	3
Fifth Year		
Choose one of the following:		3
CMPE-495	Computer Engineering Senior Projects I	
CMPE-497	Multidisciplinary Senior Design I	
Choose one of the following:		3
CMPE-496	Computer Engineering Senior Projects II	
CMPE-498	Multidisciplinary Senior Design II	
PUBL-700	Readings in Public Policy	3
STSO-710	Graduate Science and Technology Policy Seminar	3
PUBL-703	Evaluation and Research Design	3
	Professional Elective/Graduate Policy Elective	3
	Graduate Elective	3
	General Education - Immersion 2, 3	6
	Open Elective	3
Choose one of the following:		6
PUBL-790	Public Policy Thesis	
PUBL-798	Comprehensive Exam plus 2 Graduate Electives	
Total Semester Credit Hours		**150**

Please see General Education Curriculum for more information.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accreditation

The BS program in computer engineering is accredited by the Engineering Accreditation Commission of ABET. Visit the college's accreditation page for information on enrollment and graduation data, program educational objectives, and student outcomes.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 4 years of math required; including pre-calculus or above
- Chemistry and physics required

Transfer Admission

Transfer course recommendations without associate degree

Pre-engineering courses such as calculus, calculus-based physics, chemistry, and liberal arts.

Appropriate associate degree programs for transfer

AS degree in engineering science

Electrical Engineering, BS

www.rit.edu/study/electrical-engineering-bs

Sohail Dianat, Professor
585-475-7115, sadeee@rit.edu

Program overview

Electrical engineers synthesize science, mathematics, technology, and application-oriented designs into world-class consumer products, timely microprocessors, state-of-the-art computers, advanced electronic components, and much more. From cutting-edge technology revolutions to real life applications, the innovations of electrical engineers continue to lead the future and elevate the standards in the marketplace. With a shortage of electrical engineering talent in the job market, the demand for graduates with an electrical engineering degree remains at an all time high.

Electrical engineering addresses the high-technology needs of business and industry by offering a rich academic program that includes analog and digital integrated circuits, digital signal processing, radiation and propagation, power electronics, control systems, communications, circuit theory, computer architecture, computer-aided design, embedded systems, solid-state devices, microelectromechanical systems (MEMs), and robotics.

RIT's electrical engineering degree prepares students for exciting careers within the varied electrical engineering and allied disciplines and for positions in business management. Graduates also have the foundation to pursue advanced study at the most prestigious graduate schools.

The curriculum, cooperative education program, and facilities are designed to accomplish the program's educational objectives. Since the ability to design is an essential part of electrical engineering, students are presented with challenging design problems in a number of courses, beginning with Freshman Practicum in the first year.

To strengthen students' applied knowledge, laboratories are an integral part of many courses. The department offers a number of classes in studio-style lecture labs, where the instructor presents the lecture in a fully instrumented room that allows immediate observation and implementation of important engineering ideas. Many of our alumni report that the college's facilities are comparable to the best in the industry.

A highlight of the applied engineering experience is the senior project. Students work on a challenging project under the tutelage of an experienced faculty advisor. While experiencing the satisfaction of completing an interesting project and exploring the latest in technology, students develop engineering management and project organization skills, learn to communicate their ideas effectively within a multidisciplinary team, and present their project and ideas to a diverse audience of students, faculty, and industrial partners.

Educational objectives

The electrical engineering faculty, in conjunction with its constituents, have established the following educational objectives. Graduates will:

- Have a strong foundation in mathematics and basic sciences, and core electrical engineering fundamental knowledge and abilities necessary for specialization in all areas of electrical engineering.
- Develop problem solving and design skills for devising and evaluating solutions to electrical engineering problems, including design of components, systems, and experiments.
- Be well-informed about present and emerging technologies significant to electrical engineering.
- Be well-prepared for graduate education.
- Embrace and foster an environment that encourages creativity and enthusiasm for life-long learning.

- Develop professional attributes that include communication skills, teamwork, ethics, and an appreciation for other disciplines, both technical and non-technical, in order to deal with the impact of technology in a global, societal, and organizational context.

Plan of study

The first two years of the curriculum are devoted to establishing a foundation in mathematics and the physical sciences, which is essential to the study of electrical engineering. In other courses, students learn about electrical engineering principles such as circuits and digital systems. Practicum courses introduce students to electrical engineering practice and computer-aided design (CAD) tools that are used throughout the five-year program.

In the third and fourth years, students focus on the subjects that form the core of electrical engineering. Courses in circuits, electronics, linear systems, electromagnetic fields, semiconductor devices, communication systems, control systems, and microelectromechanical systems are taught.

During the fifth year, students specialize in an area of professional interest. They complete a senior design project as part of the graduation requirements.

Students will also complete four blocks (approximately one year) of cooperative education experience.

Options

Students may develop a focus area in one of three options. Students complete all the required courses for the BS in electrical engineering and choose their free and professional electives from a specified set of courses in one of the following areas.

Clean and renewable energy

Because of the environmental impact, it has become critical that electrical energy be developed from sources that do not pollute the atmosphere, preferably from renewable sources like wind and solar energy. It is equally important that existing electrical generation and distribution systems become more efficient. In the future, research and development in clean and renewable energy will grow at a rate much faster than other areas. Both industry and the federal government are increasing their efforts and financial investment in this area.

Computer engineering

The computer engineering option is ideal for students interested in designing modern computing systems. Students gain knowledge in areas ranging from C programming, object-oriented programming, assembly language, microprocessor interfacing, and logic design to data structures and computer operating systems.

Robotics

The robotics option provides students with the theoretical and practical skills required to design robots and robotic devices. Students study advanced programming, robotic systems, principles of robotics, advanced robotics, kinematics and dynamics of robotics manipulators, mobile robots, locomotion types, and complete experiments using various arm and mobile robots. Advanced robotics courses include the dynamics of manipulators and the dynamics of mobile robots with advanced locomotion techniques and path planning.

Wireless communication

The wireless communication option has been discontinued and is not accepting new students. Currently enrolled students will not be affected by this change.

The wireless communications option is ideal for those who want to incorporate the theoretical and practical skills required for understanding, designing, and evaluating wireless communication systems. Wireless communications is a critical enabling technology for many modern products and services. Examples include: mobile telephony, remote Internet access, consumer electronics, medical devices, and location-based services. Students in the wireless communications option take an introductory course addressing wireless communications from a systems perspective. The course covers modern products and services enabled via wireless communication. In the two years that follow, students take a course sequence covering analog communication, digital data communication, and communication over wireless channels. This sequence builds a core of knowledge in the transmission of signals to carry information wirelessly in various practical scenarios. The sequence is complemented with a course covering basic principles in communication networks and the Internet.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the electrical engineering degree are required to complete four blocks (approximately one year) of cooperative education experience.

Curriculum

Electrical Engineering, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Elective: General Chemistry for Engineers	3
EEEE-105	Freshman Practicum	1
EEEE-120	Digital Systems I	3
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Scientific Principles Perspective: University Physics I	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Elective	3
Second Year		
CMPR-271	General Education – Elective: Computational Problem Solving for Engineers	3
EEEE-220	Digital Systems II	3
EEEE-260	Introduction to Semiconductor Devices	3
EEEE-281	Circuits I	3
EEEE-282	Circuits II	3
EEEE-346	Advanced Programming	3
EGEN-99	Engineering Co-op Preparation	0
MATH-221	General Education – Elective: Multivariable and Vector Calculus	4
MATH-231	General Education – Elective: Differential Equations	3
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
	General Education – Ethical Perspective	3
Third Year		
EEEE-353	Linear Systems	4
EEEE-374	EM Fields and Transmission Lines	4
EEEE-380	Digital Electronics	3
EEEE-499	Co-op (fall and summer)	0
MATH-381	General Education – Elective: Complex Variables	3
	General Education – Immersion	3
Fourth Year		
EEEE-414	Classical Control	3
EEEE-420	Embedded Systems Design	3
EEEE-480	Analog Electronics	4
EEEE-499	Co-op (spring and summer)	0
MATH-251	General Education – Elective: Probability and Statistics I	3
	Open Elective	3
Fifth Year		
EEEE-484	Communication Systems (WI-PR)	3
EEEE-497	Senior Design Project I	3
EEEE-498	Senior Design Project II	3
	Professional Electives	9
	General Education – Immersion 2, 3	6
	Open Electives	6
Total Semester Credit Hours		**129**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accelerated dual degree options

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

Electrical Engineering, BS/MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Elective: General Chemistry for Engineers	3
EEEE-105	Freshman Practicum	1
EEEE-120	Digital Systems I	3
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Scientific Principles Perspective: University Physics I	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – Elective	3
	General Education – First Year Writing (WI)	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Second Year		
CMPR-271	General Education – Elective: Computational Problem Solving for Engineers	3
EGEN-099	Engineering Co-op Preparation	0
EEEE-220	Digital Systems II	3
EEEE-260	Introduction to Semiconductor Devices	3
EEEE-281	Circuits I	3
EEEE-282	Circuits II	3
EEEE-346	Advanced Programming	3
MATH-221	General Education – Elective: Multivariable and Vector Calculus	4
MATH-231	General Education – Elective: Differential Equations	3
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
	General Education – Ethical Perspective	3
Third Year		
EEEE-353	Linear Systems	4
EEEE-374	EM Fields and Transmission Lines	4
EEEE-380	Digital Electronics	3
EEEE-499	Co-op (fall and summer)	0
MATH-381	General Education – Elective: Complex Variables	3
	General Education – Immersion I	3
Fourth Year		
EEEE-414	Classical Control	3
EEEE-420	Embedded Systems Design	3
EEEE-480	Analog Electronics	4
EEEE-484	Communication Systems (WI-PR)	3
EEEE-497	Senior Design Project I	3
EEEE-499	Co-op (summer)	0
EEEE-602	Random Signals and Noise	3
EEEE-707	Engineering Analysis	3
EEEE-795	Graduate Seminar	0
MATH-251	General Education – Elective:Probability and Statistics I	3
	General Education – Immersion 2	3
	Open Elective	3
Fifth Year		
EEEE-498	Senior Design Project II	3
EEEE-709	Advanced Engineering Mathematics	3
Choose one of the following:		6
EEEE-790	Thesis	
EEEE-792	Graduate Paper plus 1 Graduate Elective	
EEEE-795	Graduate Seminar	0
	Open Elective	6
	Professional Electives	9
	Graduate Electives	6
	General Education – Immersion 3	3
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Electrical Engineering, BS degree/Science, Technology and Public Policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Chemistry for Engineers	3
EEEE-105	Freshman Practicum	1
EEEE-120	Digital Systems I	3
MATH-181	General Education - Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education - Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education - Scientific Principles Perspective: University Physics I	4
YOPS-010	RIT 365: RIT Connections	0
	General Education - First Year Writing (WI)	3
	General Education - Artistic Perspective	3
	General Education - Global Perspective	3
	General Education - Social Perspective	3
	General Education - Elective	3
Second Year		
CMPR-271	Computational Problem Solving for Engineers	3
EEEE-220	Digital Systems II	3
EEEE-260	Introduction to Semiconductor Devices	3
EEEE-281	Circuits I	3
EEEE-282	Circuits II	3
EEEE-346	Advanced Programming	3
EGEN-099	Engineering Co-op Preparation	0
MATH-221	Multivariable and Vector Calculus	4
MATH-231	Differential Equations	3
PHYS-212	General Education - Natural Science Inquiry Perspective: University Physics II	4
	General Education - Ethical Perspective	3
Third Year		
EEEE-353	Linear Systems	4
EEEE-374	EM Fields and Transmission Lines	4
EEEE-380	Digital Electronics	3
EEEE-499	Co-op (fall)	0
MATH-381	Complex Variables	3
	General Education - Immersion 1	3
Fourth Year		
EEEE-414	Classical Control	3
EEEE-420	Embedded Systems Design	3
EEEE-480	Analog Electronics	4
EEEE-499	Co-op (summer)	0
MATH-251	Probability and Statistics I	3
PUBL-701	Graduate Policy Analysis	3
PUBL-702	Graduate Decision Analysis	3
	Professional Electives	6
	General Education - Immersion 1, 2	6
Fifth Year		
EEEE-484	Communication Systems (WI)	3
EEEE-497	Senior Design Project I	3
EEEE-498	Senior Design Project II	3
PUBL-700	Readings in Public Policy	3
PUBL-703	Evaluation and Research Design	3
STSO-710	Graduate Science and Technology Policy Seminar	3
	General Education - Immersion 3	3
	Public Policy Electives	6
	Open Elective	3
Choose one of the following:		6
PUBL-790	Public Policy Thesis	
PUBL-798	Comprehensive Exam plus 2 Graduate Electives	
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accreditation

The BS in electrical engineering program is accredited by the Engineering Accreditation Commission of ABET. Visit the college's accreditation page for information on enrollment and graduation data, program educational objectives, and student outcomes.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 4 years of math required; including pre-calculus or above
- Chemistry and physics required

Transfer Admission

Transfer course recommendations without associate degree

Pre-engineering courses such as calculus, calculus-based physics, chemistry, and liberal arts.

Appropriate associate degree programs for transfer

AS degree in engineering science

Engineering Exploration, Undeclared

www.rit.edu/study/engineering-exploration
Matthew Marshall, Associate Dean of Undergraduate Programs
585-475-7142, mmmeie@rit.edu

Program overview

If you are passionate about engineering and all it encompasses – from science, mathematics, innovation, and design to processes and operations – but aren't sure which major best matches your interests and career goals, the engineering exploration option is for you. Through a seminar offered in your first semester, you will gain an in-depth understanding of each engineering major, enabling you to identify the program that best meets your interests and career aspirations. You will have a full academic year to make an informed decision about the engineering career path that's best for you as you remain on pace to graduate on time.

The engineering exploration option is for students who would like additional time to fully explore RIT's portfolio of engineering majors before committing to a program of study. Students may choose a major anytime during the first year.

Plan of study

During your first semester, you'll take a one-credit course, Engineering Exploration Seminar, which provides an overview of RIT's engineering programs and the career opportunities in each field. Since each engineering program shares similar first-year course offerings, the course work you take as an engineering exploration student will transfer into all engineering programs without any loss of time toward graduation.

Students in the engineering exploration program are guaranteed admission into any engineering program in the Kate Gleason College, provided the student is in good academic standing and has successfully completed Calculus I.

Curriculum

Engineering Exploration, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181	Project-Based Calculus I	4
CHMG-131	General Chemistry for Engineering	3
Choose one of the following:		3
	First Year Writing Seminar	
	LAS Perspective	
EGEN-100	Engineering Exploration Seminar	1
	LAS Perspective Courses	6-9
MATH-182	Project-Based Calculus II	4
PHYS-211	University Physics I	4
	Engineering Course‡	1-6
ACSC-010	Year One	0
	Wellness Education*	0
Total Semester Credit Hours		**26-34**

Please see General Education Curriculum–Liberal Arts and Sciences (LAS) for more information.
(WI) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students choose one or two engineering courses in consultation with their adviser.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
- 4 years of math required; including pre-calculus or above
- Chemistry and physics required
- Biology required

Transfer Admission

Transfer course recommendations without associate degree
Pre-engineering courses such as calculus, calculus-based physics, chemistry, and liberal arts.

Appropriate associate degree programs for transfer
AS degree in engineering science

Industrial Engineering, BS

www.rit.edu/study/industrial-engineering-bs
Iris Rivero, Professor
585-475-3952, Iris.Rivero@rit.edu

Program overview

The industrial engineering degree is for students interested in optimizing, designing, and managing the processes by which goods are made and distributed. Industrial engineering also ensures that high-quality products and services are delivered in a cost-effective manner. Industrial engineers aid companies globally, balancing sustainable design with skillful construction of systems. Graduates of the industrial engineering degree are able to address big-picture design and engineering questions, such as how engineers can simultaneously increase efficiency and quality.

What is industrial engineering?

Industrial engineers design, optimize, and manage the process by which products are made and distributed across the world (i.e., global supply chain), or the way services are delivered in industries such as banking, health care, energy, or entertainment. Industrial engineers ensure that high-quality products and services are delivered in a cost-effective manner.

Industrial engineering is ideal for those who enjoy both technology and working with people. Industrial engineers frequently spend as much time interacting with other engineers and product users as they do at their desks and computers. Typical work involves developing applied models and simulations of processes to evaluate overall system efficiency.

A degree in industrial engineering offers students a significant opportunity for a flexible long-term career. Employers have consistently praised the quality of RIT's industrial engineering graduates, noting that the range of their abilities includes both strong technical knowledge and communication skills. Graduates have used their technical base as a springboard to careers in management, consulting, manufacturing, sales, health care, law, and education.

As described by the Institute of Industrial and Systems Engineers on the organization's website:

"Industrial engineering is about choices. Other engineering disciplines apply skills to very specific areas. IE gives practitioners the opportunity to work in a variety of businesses.

Many practitioners say that industrial engineering education offers the best of both worlds: an education in both engineering and business.

The most distinctive aspect of industrial engineering is the flexibility it offers. Whether it's shortening a roller coaster line, streamlining an operating room, distributing products worldwide, or manufacturing superior automobiles, these challenges share the common goal of saving companies money and increasing efficiencies.

As companies adopt management philosophies of continuous productivity and quality improvement to survive in the increasingly competitive world market, the need for industrial engineers is growing. Why? Industrial engineers are the only engineering professionals trained specifically to be productivity and quality improvement specialists.

Industrial engineers figure out how to do things better. They engineer processes and systems that improve quality and productivity. They work to eliminate waste of time, money, materials, energy and other commodities. This is why many industrial engineers end up being promoted into management positions.

Many people are misled by the term industrial engineer. It's not just about manufacturing. It also encompasses service industries, with many IEs employed in entertainment industries, shipping and logistics businesses, and health care organizations."

Industrial engineers are "big-picture" thinkers, much like systems integrators. IEs spend most of their time out in the work environment, using scientific approaches to solve today's problems while they develop solutions for the future.

What you'll study

Because of the flexible nature of the industrial engineering degree, students gain a breadth of knowledge in many different areas of industrial engineering, including advanced manufacturing, distribution/logistics, ergonomics/human factors, modeling/simulation, and sustainable design and development. Students may choose free and professional electives for this purpose.

The program's curriculum covers the principal concepts of engineering economics and project management, facilities planning, human performance, mathematical and simulation modeling, production control, applied statistics and quality, and contemporary manufacturing production processes that are applied to solve the challenges presented by the global environment and economy of today. The curriculum stresses the application of contemporary tools and techniques in solving engineering problems.

Educational objectives

Faculty from the department of industrial and systems engineering, in conjunction with its constituents, has established the following educational objectives for the industrial engineering major:

Systems integrators—Graduates will draw upon broad knowledge to develop integrated systems-based engineering solutions that include the consideration of realistic constraints within contemporary global, societal, and organizational contexts.

Lifelong learners—Graduates will develop engineering solutions using the skills and knowledge acquired through formal education and training, independent inquiry, and professional development.

Graduate education—Graduates will be well-prepared to pursue graduate degrees.

Engineering professionals—Graduates will work independently as well as collaboratively with others and demonstrate leadership, accountability, initiative, and ethical and social responsibility.

With rapidly changing work environments, students need a well-rounded education that will allow them to apply engineering principles to new situations.

Careers

In order to optimize processes and systems, industrial engineers apply their knowledge in a wide range of areas, including systems simulation modeling, quality, logistics and supply chain management, ergonomics and human factors, facilities layout, production planning and control, manufacturing, management information systems, and project management. Upon graduation, our students work for a wide array of fields (ranging from manufacturing and distribution/logistics to health care, energy and other services) and companies (including Boeing, IBM, Toyota, Xerox, Intel, General Electric, Hershey, Walt Disney World, Ortho-McNeil Pharmaceutical, Lockheed Martin, and Wegmans Food Markets, to name a few.)

Balance, as well as specialization, has allowed our graduates to pursue varied paths. Examples of the diversity, along with the roles in which an industrial engineer might function, are reflected in the following list of sample industrial engineering co-op assignments.

In manufacturing industries:

- Perform product life studies
- Lay out and improve work areas
- Design production processes to improve productivity
- Investigate and analyze the cost of purchasing new vs. repairing existing equipment
- Investigate delivery service, including scheduling, route modification, and material handling
- Create computer programs to track pricing policies and truck scheduling
- Perform downtime studies of various operations using time study and work sampling
- Develop and computerize a forecasting model
- Perform ergonomic studies and evaluations of workstations and product designs
- Participate in the design process of products and processes to ensure ease of manufacture, maintenance, and remanufacture or recycling

In service industries:

- Design information systems
- Monitor safety and health programs
- Manage hazardous and toxic materials storage and disposal programs
- Manage a facility's projects to ensure they are completed on time and on budget
- Conduct cost analysis of procedures to support decision making
- Schedule operations and manage information flow
- Design supply-ordering systems
- Improve processes in a hospital
- Evaluate waiting time and space utilization in an amusement park

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the industrial engineering degree are required to complete four blocks (approximately one year) of cooperative education experience.

Curriculum

Industrial Engineering, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Elective: General Chemistry for Engineers	3
ISEE-120	Fundamentals of Industrial Engineering	3
ISEE-140	Materials Processing	3
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Scientific Principles Perspective: University Physics I	4
YOPS-010	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Elective	3
Second Year		
ISEE-200	General Education – Elective: Computing for Engineers	3
ISEE-325	Engineering Statistics and Design of Experiments	3
ISEE-345	Engineering Economy	3
MATH-221	General Education – Elective: Multivariable and Vector Calculus	4
MATH-233	General Education – Elective: Linear Systems and Differential Equations	4
MATH-251	General Education – Elective: Probability and Statistics I	3
MECE-200	Fundamentals of Mechanics	4
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Third Year		
ISEE-301	Operations Research	4
ISEE-323	Systems and Facilities Planning	3
ISEE-330	Ergonomics and Human Factors (WI-PR)	4
ISEE-350	Engineering Management	3
ISEE-499	Co-op (fall and summer)	0
MECE-304	Fundamentals of Materials Science	2
MECE-306	Materials Science and Applications Laboratory	1
Fourth Year		
ISEE-420	Production Planning/Scheduling	3
ISEE-499	Co-op (spring and summer)	0
ISEE-510	Systems Simulation	3
ISEE-560	Applied Statistical Quality Control	3
	Professional Elective	3
	General Education – Immersion	3
Fifth Year		
ISEE-497	Multidisciplinary Senior Design I	3
ISEE-498	Multidisciplinary Senior Design II	3
ISEE-561	Linear Regression Analysis	3
	Professional Electives	6
	Open Electives	9
	General Education – Immersion 2, 3	6
Total Semester Credit Hours		**129**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accelerated 4+1 BS/MBA option

An accelerated 4+1 option is available for students who wish to earn a BS in industrial engineering and an MBA. The option is offered in conjunction with Saunders College of Business and allows students to obtain both degrees in five years of study.

Accelerated dual degree options

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

Industrial Engineering, BS degree/Industrial and Systems Engineering, ME degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Elective: General Chemistry for Engineers	3
ISEE-120	Fundamentals of Industrial Engineering	3
ISEE-140	Materials Processing	3
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Scientific Principles Perspective: University Physics I	4
YOPS-010	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Elective	3
Second Year		
ISEE-200	General Education – Elective: Computing for Engineers	3
ISEE-325	Engineering Statistics and Design of Experiments	3
ISEE-345	Engineering Economy	3
ISEE-499	Co-op (summer)	0
MATH-221	General Education – Elective: Multivariable and Vector Calculus	4
MATH-233	General Education – Elective: Linear Systems and Differential Equations	4
MATH-251	General Education – Elective: Probability and Statistics I	3
MECE-200	Fundamentals of Mechanics	4
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Third Year		
ISEE-301	Operations Research	4
ISEE-323	Systems and Facilities Planning	3
ISEE-330	Ergonomics and Human Factors (WI-PR)	4
ISEE-350	Engineering Management	3
ISEE-499	Co-op (fall, summer)	0
MECE-304	Fundamentals of Materials Science	2
MECE-306	Materials Science and Applications Laboratory	1
Fourth Year		
ISEE-420	Production Planning/Scheduling	3
ISEE-499	Co-op (summer)	0
ISEE-510	Systems Simulation	3
ISEE-560	Applied Statistical Quality Control	3
ISEE-760	Design of Experiments	3
	Professional Electives	9
	Open Electives	9
	General Education – Immersion 1, 2	6
Fifth Year		
ISEE-497	Multidisciplinary Senior Design I	3
ISEE-498	Multidisciplinary Senior Design II	3
ISEE-561	Linear Regression Analysis	3
ISEE-771	Engineering of Systems I	3
Choose one of the following:		3
ISEE-792	Engineering Capstone	
ISEE-794	Leadership Capstone plus 1 additional Graduate Elective	
	Graduate Electives	12
	General Education – Immersion 3	3
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Industrial Engineering, BS degree/Industrial and Systems Engineering, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Elective: General Chemistry for Engineers	3
ISEE-120	Fundamentals of Industrial Engineering	3
ISEE-140	Materials Processing	3
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Scientific Principles Perspective: University Physics I	4
YOPS-010	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – Elective	3
Second Year		
ISEE-200	General Education – Elective: Computing for Engineers	3
ISEE-325	Engineering Statistics and Design of Experiments	3
ISEE-345	Engineering Economy	3
ISEE-499	Co-op (summer)	0
MATH-221	General Education – Elective: Multivariable and Vector Calculus	4
MATH-233	General Education – Elective: Linear Systems and Differential Equations	4
MATH-251	General Education – Elective: Probability and Statistics I	3
MECE-200	Fundamentals of Mechanics	4
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Third Year		
ISEE-301	Operations Research	4
ISEE-323	Systems and Facilities Planning	3
ISEE-330	Ergonomics and Human Factors (WI-PR)	4
ISEE-350	Engineering Management	3
ISEE-499	Co-op (fall, summer)	0
MECE-304	Fundamentals of Materials Science	2
MECE-306	Materials Science and Applications Laboratory	1
Fourth Year		
ISEE-420	Production Planning/Scheduling	3
ISEE-499	Co-op (summer)	0
ISEE-510	Systems Simulation	3
ISEE-560	Applied Statistical Quality Control	3
ISEE-760	Design of Experiments	3
ISEE-795	Graduate Seminar (fall and spring)	0
	Professional Electives	9
	Open Electives	9
	General Education – Immersion 1, 2	6
Fifth Year		
ISEE-497	Multidisciplinary Senior Design I	3
ISEE-498	Multidisciplinary Senior Design II	3
ISEE-561	Linear Regression Analysis	3
ISEE-771	Engineering of Systems I	3
Choose one of the following:		6
ISEE-788	Project with Paper plus 1 additional Graduate Elective	
ISEE-790	Thesis	
ISEE-792	Engineering Capstone plus 1 additional Graduate Elective	
	Graduate Electives	9
	General Education – Immersion 3	3
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Industrial Engineering, BS degree/Sustainable Engineering, ME degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Elective: General Chemistry for Engineers	3
ISEE-120	Fundamentals of Industrial Engineering	3
ISEE-140	Materials Processing	3
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Scientific Principles Perspective: University Physics I	4
YOPS-010	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Elective	3
Second Year		
ISEE-200	General Education – Elective: Computing for Engineers	3
ISEE-325	Engineering Statistics and Design of Experiments	3
ISEE-345	Engineering Economy	3
ISEE-499	Co-op (summer)	0
MATH-221	General Education – Elective: Multivariable and Vector Calculus	4
MATH-233	General Education – Elective: Linear Systems and Differential Equations	4
MATH-251	General Education – Elective: Probability and Statistics I	3
MECE-200	Fundamentals of Mechanics	4
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Third Year		
ISEE-301	Operations Research	4
ISEE-323	Systems and Facilities Planning	3
ISEE-330	Ergonomics and Human Factors (WI-PR)	4
ISEE-350	Engineering Management	3
ISEE-499	Co-op (fall, summer)	0
MECE-304	Fundamentals of Materials Science	2
MECE-306	Materials Science and Applications Laboratory	1
Fourth Year		
ISEE-420	Production Planning/Scheduling	3
ISEE-499	Co-op (summer)	0
ISEE-510	Systems Simulation	3
ISEE-560	Applied Statistical Quality Control	3
	Professional Electives	9
	Open Electives	9
	General Education – Immersion 1, 2	6
Fifth Year		
ISEE-497	Multidisciplinary Senior Design I	3
ISEE-498	Multidisciplinary Senior Design II	3
ISEE-561	Linear Regression Analysis	3
ISEE-771	Engineering of Systems I	3
ISEE-785	Fundamentals of Sustainable Engineering	3
ISEE-786	Lifecycle Assessment	3
ISEE-792	Engineering Capstone	3
MECE-629	Renewable Energy Systems	3
	General Education – Immersion 3	3
	Technology Elective	3
	Social Context Elective	3
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Industrial Engineering, BS degree/Sustainable Engineering, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Elective: General Chemistry for Engineers	3
ISEE-120	Fundamentals of Industrial Engineering	3
ISEE-140	Materials Processing	3
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Scientific Principles Perspective: University Physics I	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – Elective	3
Second Year		
ISEE-200	General Education – Elective: Computing for Engineers	3
ISEE-325	Engineering Statistics and Design of Experiments	3
ISEE-345	Engineering Economy	3
ISEE-499	Co-op (summer)	0
MATH-221	General Education – Elective: Multivariable and Vector Calculus	4
MATH-233	General Education – Elective: Linear Systems and Differential Equations	4
MATH-251	General Education – Elective: Probability and Statistics I	3
MECE-200	Fundamentals of Mechanics	4
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Third Year		
ISEE-301	Operations Research	4
ISEE-323	Systems and Facilities Planning	3
ISEE-330	Ergonomics and Human Factors (WI-PR)	4
ISEE-350	Engineering Management	3
ISEE-499	Co-op Education (fall, summer)	0
MECE-304	Fundamentals of Materials Science	2
MECE-306	Materials Science and Applications Laboratory	1
Fourth Year		
ISEE-420	Production Planning/Scheduling	3
ISEE-499	Co-op (summer)	0
ISEE-510	Systems Simulation	3
ISEE-560	Applied Statistical Quality Control	3
ISEE-795	Graduate Seminar (fall and spring)	0
	Professional Electives	6
	Open Electives	9
	Technology Elective	3
	Social Context Elective	3
	General Education – Immersion 1, 2	6
Fifth Year		
ISEE-497	Multidisciplinary Senior Design I	3
ISEE-498	Multidisciplinary Senior Design II	3
ISEE-561	Linear Regression Analysis	3
ISEE-771	Engineering of Systems I	3
ISEE-785	Fundamentals of Sustainable Engineering	3
ISEE-786	Lifecycle Assessment	3
Choose one of the following:		6
ISEE-788	Project with Paper plus 1 additional Professional Elective	
ISEE-790	Thesis	
ISEE-792	Engineering Capstone plus 1 additional Professional Elective	
MECE-629	Renewable Energy Systems	3
	General Education – Immersion 3	3
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Industrial Engineering, BS degree/Engineering Management, ME degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Elective: General Chemistry for Engineers	3
ISEE-120	Fundamentals of Industrial Engineering	3
ISEE-140	Materials Processing	3
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Scientific Principles Perspective: University Physics I	4
YOPS-010	RIT 365: RIT Connections	0
	General Education – First Year Writing (WI)	3
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – Elective	3
Second Year		
ISEE-200	General Education – Elective: Computing for Engineers	3
ISEE-325	Engineering Statistics and Design of Experiments	3
ISEE-345	Engineering Economy	3
ISEE-499	Co-op (summer)	0
MATH-221	General Education – Elective: Multivariable and Vector Calculus	4
MATH-233	General Education – Elective: Linear Systems and Differential Equations	4
MATH-251	General Education – Elective: Probability and Statistics I	3
MECE-200	Fundamentals of Mechanics	4
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Third Year		
ISEE-301	Operations Research	4
ISEE-323	Systems and Facilities Planning	3
ISEE-330	Ergonomics and Human Factors (WI-PR)	4
ISEE-350	Engineering Management	3
ISEE-499	Co-op (fall, summer)	0
MECE-304	Fundamentals of Materials Science	2
MECE-306	Materials Science and Applications Laboratory	1
Fourth Year		
ISEE-420	Production Planning/Scheduling	3
ISEE-499	Co-op (summer)	0
ISEE-510	Systems Simulation	3
ISEE-560	Applied Statistical Quality Control	3
ISEE-760	Design of Experiments	3
	Professional Electives	6
	Open Electives	9
	Professional Elective/Engineering Management Elective	3
	General Education – Immersion 1, 2	6
Fifth Year		
ACCT-794	Cost Management in Technical Organizations	3
ISEE-497	Multidisciplinary Senior Design I	3
ISEE-498	Multidisciplinary Senior Design II	3
ISEE-561	Linear Regression Analysis	3
ISEE-750	Systems and Project Management	3
ISEE-771	Engineering of Systems I	3
Choose one of the following:		3
ISEE-792	Engineering Capstone	
ISEE-794	Leadership Capstone plus 1 additional Engineering Elective	
	Engineering Management Electives	6
	General Education – Immersion 3	3
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Industrial Engineering, BS degree/Science, Technology and Public Policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Elective: General Chemistry for Engineers	3
ISEE-120	Fundamentals of Industrial Engineering	3
ISEE-140	Materials Processing	3
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Scientific Principles Perspective: University Physics I	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Elective	3
Second Year		
ISEE-200	General Education – Elective: Computing for Engineers	3
ISEE-325	Engineering Statistics and Design of Experiments	3
ISEE-345	Engineering Economy	3
MATH-221	General Education – Elective: Multivariable and Vector Calculus	4
MATH-233	General Education – Elective: Linear Systems and Differential Equations	4
MATH-251	General Education – Elective: Probability and Statistics I	3
MECE-200	Fundamentals of Mechanics	4
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Third Year		
ISEE-301	Operations Research	4
ISEE-323	Systems and Facilities Planning	3
ISEE-330	Ergonomics and Human Factors (WI-PR)	4
ISEE-350	Engineering Management	3
ISEE-499	Co-op (fall, summer)	0
MECE-304	Fundamentals of Material Science	2
MECE-306	Materials Science and Applications Lab	1
Fourth Year		
ISEE-420	Production Planning/Scheduling	3
ISEE-460	Applied Statistical Quality Control	3
ISEE-499	Co-op (summer)	0
ISEE-510	Systems Simulation	3
PUBL-701	Graduate Policy Analysis	3
PUBL-702	Graduate Decision Analysis	3
	General Education – Immersion 1, 2, 3	9
	Professional Elective	3
	Professional Elective/Public Policy Elective	3
Fifth Year		
ISEE-497	Multidisciplinary Senior Design I	3
ISEE-498	Multidisciplinary Senior Design II	3
ISEE-561	Linear Regression Analysis	3
PUBL-700	Readings in Public Policy	3
PUBL-703	Evaluation and Research Design	3
STSO-710	Graduate Science and Technology Policy Seminar	3
	Open Electives	6
	Public Policy Electives	3
	Professional Elective/Public Policy Elective	3
Choose one of the following:		6
PUBL-790	Public Policy Thesis	
PUBL-798	Comprehensive Exam plus 2 Graduate Electives	
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
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Accreditation

The BS program in industrial engineering is accredited by the Engineering Accreditation Commission of ABET. Visit the college's accreditation page for information on enrollment and graduation data, program educational objectives, and student outcomes.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 4 years of math required; including pre-calculus or above
- Chemistry and physics required

Transfer Admission

Transfer course recommendations without associate degree

Pre-engineering courses such as calculus, calculus-based physics, chemistry, and liberal arts.

Appropriate associate degree programs for transfer

AS degree in engineering science

Integrated Electronics, Certificate

www.rit.edu/study/integrated-electronics-certificate

Sohail Dianat, Professor
585-475-7115, sadeee@rit.edu

Program overview

The certificate in integrated electronics offers a comprehensive curriculum in the design of state-of-the-art electronic circuits for professionals active in the electrical engineering field. Course work builds on an introductory understanding of semiconductor device physics and basic circuit theory. The design of analog and mixed-signal circuits are addressed in study focusing on issues and trade-offs involved in widely used circuits. In addition, the certificate offers an advanced in-depth understanding of all processes involved in designing a modern integrated circuit, including electronic design automation.

This certificate primarily targets people already active in the electrical engineering field and allows experienced technicians and physical designers to become more cross-functional and stronger contributors to multidisciplinary teams. The curriculum provides them with a path for professional growth.

Curriculum

Integrated Electronics, certificate, typical course sequence

COURSE		SEMESTER CREDIT HOURS
EEEE-285	Introduction to Circuit Theory	3
EEEE-380	Digital Electronics	3
EEEE-480	Analog Electronics	4
EEEE-726	Mixed-Signal IC Design	3
Total Semester Credit Hours		**13**

Mechanical Engineering, BS

www.rit.edu/study/mechanical-engineering-bs
Alan Nye, Professor
585-475-6121, ahneme@rit.edu

Program overview

Wherever there is motion or energy, mechanical engineers have played a role in the innovations that define modern life. RIT's mechanical engineering degree provides students with a broad academic base complemented by hands-on laboratory activities and cooperative education experience. Students may also choose to concentrate their studies with professional electives focusing on aerospace engineering, automotive engineering, energy and the environment, bioengineering, or manufacturing and design.

Mechanical engineering is perhaps the most comprehensive of the engineering disciplines. The mechanical engineer's interests encompass the design of automotive and aerospace systems, bioengineering devices, and energy-related technologies. The spectrum of professional activity for the mechanical engineering graduate runs from research through design and development to manufacturing and sales. Because of their comprehensive training and education, mechanical engineers often are called upon to assume management positions.

The mechanical engineering department offers professional courses in bioengineering, energy systems, applied mechanics, manufacturing, materials science, systems analysis, computer-aided graphics and design, robotics, and automotive and aerospace engineering. The department's laboratories are equipped to provide extensive experimentation in these areas. Laboratory facilities include a well-instrumented wind tunnel, a particle imaging velocimetry laser system for flow visualization, advanced heat transfer systems, robotics, a proton exchange membrane fuel cell, engine dynamometers, fluid flow loops, refrigeration systems, tensile testers, compression testers, torsion testers, hardness testers, X-ray diffractometer, atomic force microscope, dynamic system simulators, a spectrum analyzer, and a well-equipped machine shop.

Educational objectives

The objectives of the mechanical engineering degree are to prepare graduates to:

- practice mechanical engineering in support of the design of engineered systems through the application of the fundamental knowledge, skills, and tools of mechanical engineering.
- enhance their skills through formal education and training, independent inquiry, and professional development.
- work independently as well as collaboratively with others, while demonstrating the professional and ethical responsibilities of the engineering profession.
- successfully pursue graduate degrees at the master's and/or doctoral levels, should they choose.

Plan of study

The mechanical engineering degree provides students with a broad academic base complemented by hands-on laboratory activities and cooperative education experience. Students devote their first two years to the study of mathematics, physical sciences, liberal arts, and engineering sciences, while the third and fourth years emphasize engineering science, design, and systems.

A student may then specialize by choosing appropriate technical and free elective courses in an area of interest. Each of the listed professional electives includes a significant design project. In the fifth year, each student is required to complete the capstone design courses, Senior Design I and II (MECE-497, 498).

Students complete liberal arts general education courses in the various perspectives to round out their education. During the course of their studies, students must demonstrate writing competency of the English language by successfully completing a Contemporary Issues course offered by the mechanical engineering department.

Options

Students may select a number of course options to gain specialized study in a particular discipline of mechanical engineering. Options include aerospace engineering, automotive engineering, bioengineering, and energy and environment. Participation in one of these options is not required. However, they are offered for those students who seek to pursue a career in one of these specialized fields of mechanical engineering. Students must maintain a GPA of at least 2.0 within the option sequence of courses to remain in the option.

Students may elect to complete the major without an option and instead customize their academic study in support of their career plans. The mechanical engineering major is relatively flexible and allows students to pursue options, minors, and even multiple degrees.

Aerospace engineering
The aerospace engineering option allows for specialized study in the engineering aspects of air- and space-borne vehicles and starts with a course introducing students to the aerospace field. The sequence starts in the third year with students taking a variety of electives focused on aerospace. In addition, students are expected to work on an aerospace engineering design project in Multidisciplinary Senior Design I and II (MECE-497, 498) and to pursue co-op employment in a related field.

Automotive engineering
The automotive engineering option offers a series of specialized professional elective courses during the fourth and fifth years that provide an introduction to vehicle power plants, dynamics, and control systems. In addition, students are expected to work on an automotive senior design in the fifth year and to pursue co-op employment in a related field.

Bioengineering
The bioengineering option provides an introduction to engineering sciences and design based upon a foundation of biological sciences. The course sequence starts with a biological science elective, which counts as a free elective. Students are expected to work on a bioengineering design project in their fifth year and to pursue co-op employment in a related field.

Energy and environment
This option provides students with exposure to a wide range of opportunities and careers associated with energy-intensive systems and how they relate to the environment. This option increases the number of opportunities students have for careers in the fields of building energy systems, alternative and renewable energy, and direct energy conversion. Students are expected to work on an energy systems design project in senior design and to pursue co-op employment in a related field.

Activities and professional organizations

Students have an opportunity to participate in regional and national design competitions such as the Formula SAE Autosports Competition team, the SAE Aerodesign Club, and the Human-Powered Vehicle Competition team. They also are encouraged to participate in the student chapters of professional societies such as the American Society of Mechanical Engineers, the Society of Women Engineers, the National Society of Black Engineers, the Society of Hispanic Professional Engineers,

the American Institute of Aeronautics and Astronautics, and the Society of Automotive Engineers.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the mechanical engineering degree are required to complete four blocks (roughly one year) of cooperative education.

Curriculum

Mechanical Engineering, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MECE-102	Engineering Mechanics Laboratory	3
MECE-103	Statics	3
MECE-104	Engineering Design Tools	3
MECE-117	Introduction to Programming for Engineers	3
YOPS-010	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – Elective	3
Second Year		
EGEN-099	Engineering Co-op Preparation	0
MATH-219	General Education – Elective: Multivariable Calculus	3
MATH-231	General Education – Elective: Differential Equations	3
MECE-110	Thermodynamics I	3
MECE-203	Strength of Materials I	3
MECE-204	Strength of Materials I Laboratory	1
MECE-205	Dynamics	3
MECE-210	Fluid Mechanics I	3
MECE-211	Engineering Measurements Lab	2
	General Education – Global Perspective	3
	General Education – Scientific Principles Perspective	3
	General Education – Social Perspective	3
	General Education – Immersion	3
Third Year		
EEEE-281	Circuits I	3
MATH-326	General Education – Elective: Boundary Value Problems	3
MECE-305	Materials Science with Applications	3
MECE-306	Materials Science with Applications Laboratory	1
MECE-320	System Dynamics	3
MECE-499	Co-op (fall and summer)	0
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
Fourth Year		
MATH-241	General Education – Elective: Linear Algebra	3
MECE-301	Engineering Applications Laboratory	2
MECE-310	Heat Transfer I	3
MECE-348	Contemporary Issues (WI-PR)	3
MECE-499	Co-op (fall and summer)	0
	General Education – Scientific Principles Perspective	3
	ME Extended Core Elective	3
Fifth Year		
MECE-497	Multidisciplinary Sr. Design I	3
MECE-498	Multidisciplinary Sr. Design II	3
STAT-205	General Education – Elective: Applied Statistics	3
	ME Applied Elective	3
	ME Extended Core or Applied Elective	3
	General Education – Immersion 2, 3	6
	Open Electives	9
Total Semester Credit Hours		**129**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
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Accelerated dual degree options

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

Mechanical Engineering, BS/MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MECE-102	Engineering Mechanics Laboratory	3
MECE-103	Statics	3
MECE-104	Engineering Design Tools	3
MECE-117	Introduction to Programming for Engineers	3
YOPS-010	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – Elective	3
Second Year		
EGEN-099	Engineering Co-op Preparation	0
MATH-219	General Education – Elective: Multivariable Calculus	3
MATH-231	General Education – Elective: Differential Equations	3
MECE-110	Thermodynamics I	3
MECE-203	Strength of Materials I	3
MECE-204	Strength of Materials I Laboratory	1
MECE-205	Dynamics	3
MECE-210	Fluid Mechanics I	3
MECE-211	Engineering Measurements Lab	2
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Scientific Principles Perspective	3
	General Education – Immersion 1	3
Third Year		
EEEE-281	Circuits I	3
MATH-326	General Education – Elective: Boundary Value Problems	3
MECE-305	Materials Science with Applications	3
MECE-306	Materials Science with Applications Laboratory	1
MECE-320	System Dynamics	3
MECE-499	Cooperative Education (fall and summer)	0
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
Fourth Year		
MATH-241	General Education – Elective: Linear Algebra	3
MECE-301	Engineering Applications Laboratory	2
MECE-310	Heat Transfer I	3
MECE-348	Contemporary Issues (WI-PR)	3
MECE-499	Cooperative Education (summer)	0
MECE-707	Engineering Analysis	3
MECE-795	Graduate Seminar (fall and spring)	0
STAT-205	General Education – Elective: Applied Statistics	3
	General Education – Scientific Principles Perspective	3
	ME Extended Core Elective	3
	Graduate Focus Area Course	3
	Open Elective	3
	Graduate Electives	6
Fifth Year		
MECE-497	Multidisciplinary Sr. Design I	3
MECE-498	Multidisciplinary Sr. Design II	3
MECE-709	Advanced Engineering Mathematics	3
MECE-790	Thesis	6
MECE-795	Graduate Seminar	0
	General Education – Immersion 2, 3	6
	Graduate Focus Area Courses	6
	Graduate Electives	6
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Mechanical Engineering, BS/ME degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MECE-102	Engineering Mechanics Laboratory	3
MECE-103	Statics	3
MECE-104	Engineering Design Tools	3
MECE-117	Introduction to Programming for Engineers	3
YOPS-010	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Elective	3
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
Second Year		
EGEN-099	Engineering Co-op Preparation	0
MATH-219	General Education – Elective: Multivariable Calculus	3
MATH-231	General Education – Elective: Differential Equations	3
MECE-110	Thermodynamics I	3
MECE-203	Strength of Materials I	3
MECE-204	Strength of Materials I Laboratory	1
MECE-205	Dynamics	3
MECE-210	Fluid Mechanics I	3
MECE-211	Engineering Measurements Lab	2
	General Education – Global Perspective	3
	General Education – Scientific Principles Perspective	3
	General Education – Social Perspective	3
	General Education – Immersion 1	3
Third Year		
EEEE-281	Circuits I	3
MATH-326	General Education – Elective: Boundary Value Problems	3
MECE-305	Materials Science with Applications	3
MECE-306	Materials Science with Applications Laboratory	1
MECE-320	System Dynamics	3
MECE-499	Cooperative Education (fall and summer)	0
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
Fourth Year		
MATH-241	General Education – Elective: Linear Algebra	3
MECE-301	Engineering Applications Laboratory	2
MECE-310	Heat Transfer I	3
MECE-348	Contemporary Issues (WI-PR)	3
MECE-499	Cooperative Education (summer)	0
MECE-707	Engineering Analysis	3
MECE-730	Design Project Leadership	3
MECE-795	Graduate Seminar (fall and spring)	0
STAT-205	General Education – Elective: Applied Statistics	3
	General Education – Scientific Principles Perspective	3
	ME Extended Core Elective	3
	Open Elective	3
	Graduate Electives	6
Fifth Year		
MECE-497	Multidisciplinary Sr. Design I	3
MECE-498	Multidisciplinary Sr. Design II	3
MECE-709	Advanced Engineering Mathematics	3
MECE-795	Graduate Seminar	0
	General Education – Immersion 2, 3	6
	Open Elective	3
	Graduate Focus Area Courses	9
	Graduate Electives	6
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Mechanical Engineering, BS degree/Science, Technology and Public Policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181	General Education - Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education - Mathematical Perspective B: Project-Based Calculus II	4
MECE-102	Engineering Mechanics Laboratory	3
MECE-103	Statics	3
MECE-104	Engineering Design Tools	3
MECE-117	Introduction to Programming for Engineers	3
YOPS-010	RIT 365: RIT Connections	0
	General Education - First Year Writing (WI)	3
	General Education - Ethical Perspective	3
	General Education - Artistic Perspective	3
	General Education - Elective	3
Second Year		
EGEN-099	Engineering Co-op Preparation	0
MATH-219	Multivariable Calculus	3
MATH-231	Differential Equations	3
MECE-110	Thermodynamics I	3
MECE-203	Strength of Materials I	3
MECE-204	Strength of Materials I Laboratory	1
MECE-205	Dynamics	3
MECE-210	Fluid Mechanics I	3
MECE-211	Engineering Measurements Lab	2
	General Education - Global Perspective	3
	General Education - Social Perspective	3
	General Education - Scientific Principles Perspective	3
	General Education - Immersion 1	3
Third Year		
EEEE-281	Circuits I	3
MECE-305	Materials Science with Applications	3
MECE-306	Materials Science with Applications Laboratory	1
MECE-320	System Dynamics	3
MATH-326	Boundary Value Problems	3
MECE-499	Cooperative Education (fall, summer)	0
PHYS-212	General Education - Natural Science Inquiry Perspective: University Physics II	4
Fourth Year		
MATH-241	Linear Algebra	3
MECE-301	Engineering Applications Laboratory	2
MECE-310	Heat Transfer I	3
MECE-348	Contemporary Issues	3
MECE-499	Cooperative Education (summer)	0
PUBL-701	Graduate Policy Analysis	3
PUBL-702	Graduate Decision Analysis	3
STAT-205	Applied Statistics	3
STSO-710	Graduate Science and Technology Policy Seminar	3
	ME Extended Core Elective	3
	General Education - Immersion 1, 2	6
	General Education - Scientific Principles Perspective: Science Elective	3
Fifth Year		
MECE-497	Multidisciplinary Sr. Design I	3
MECE-498	Multidisciplinary Sr. Design II	3
PUBL-700	Readings in Public Policy	3
PUBL-703	Evaluation and Research Design	3
	Open Elective	3
	Applied Elective/Public Policy Electives	6
	Open Elective/Public Policy Elective	3
	General Education - Immersion 3	3
Choose one of the following:		6
PUBL-790	Public Policy Thesis	
PUBL-798	Comprehensive Exam plus 2 Graduate Electives	
Total Semester Credit Hours		**150**

Please see General Education Curriculum for more information.
(WI) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accreditation

The BS in mechanical engineering major is accredited by the Engineering Accreditation Commission of ABET. Visit the college's accreditation page for information on enrollment and graduation data, program educational objectives, and student outcomes.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 4 years of math required; including pre-calculus or above
- Chemistry and physics required

Transfer Admission

Transfer course recommendations without associate degree

Pre-engineering courses such as calculus, calculus-based physics, chemistry, and liberal arts.

Appropriate associate degree programs for transfer

AS degree in engineering science

Mechatronics Engineering, Certificate

www.rit.edu/study/mechatronics-engineering-certificate

Mark Smith,
585-475-7102, Mark.Smith@rit.edu

Program overview

The certificate in mechatronics engineering is designed for practicing mechanical and electrical engineers who aspire to become strong contributors to multidisciplinary design and product development teams working in the area of mechatronics. The certificate provides engineers with a solid foundation in the core principles of their complementary discipline and augments this foundation with focused study in mechatronics at the intersection of electrical and mechanical engineering. A significant laboratory experience completes the curriculum and facilitates the transfer of new cross-disciplinary knowledge to professional practice. Participants are positioned to drive innovation in technology and product development.

The certificate consists of 9 credit hours and includes two online courses in electrical and mechanical engineering plus an on-campus integrated laboratory applications course in mechatronics. The certificate may be completed in one academic year.

Curriculum

Mechatronics Engineering, certificate, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year*		
Choose one of the following:		3
EEEE-255	Foundations of Circuits and Electronics	
MECE-255	Foundations of Thermal and Mechanical Systems	
Choose one of the following:		3
EEEE-515	Embedded Systems for Mechatronics	
EEEE-615	Embedded Systems for Mechatronics	
MECE-515	Embedded Systems for Mechatronics	
MECE-615	Embedded Systems for Mechatronics	
Choose one of the following:		3
EEEE-625	Lab Applications in Mechatronics	
MECE-625	Lab Applications in Mechatronics	
Total Semester Credit Hours		**9**

Admission requirements

To be considered for admission to the certificate in mechatronics engineering, candidates must hold a baccalaureate degree in engineering (preferably mechanical or electrical engineering) from an accredited institution. No transfer credit is permitted.

Certain countries are subject to comprehensive embargoes under US Export Controls, which prohibit virtually ALL exports, imports, and other transactions without a license or other US Government authorization. Learners from Syria, Sudan, North Korea, the Crimea region of the Ukraine, Iran, and Cuba may not register for RIT online courses. Nor may individuals on the United States Treasury Department's list of Specially Designated Nationals or the United States Commerce Department's table of Deny Orders. By registering for RIT online courses, you represent and warrant that you are not located in, under the control of, or a national or resident of any such country or on any such list.

Microelectronic Engineering, BS

www.rit.edu/study/microelectronic-engineering-bs
Sean Rommel, Professor
585-475-4723, slremc@rit.edu

Program overview

Semiconductor and photonic devices impact virtually every aspect of human life, from communication, entertainment, and transportation, to health, solid-state lighting, and solar cells. There is an ever increasing need for talented engineers that not only understand the design of these amazing devices but can direct and optimize their fabrication. Microelectronic engineering is at the leading edge of science education. Integrated microelectronic or nanoelectronic circuits and sensors drive our global economy, increase our productivity, and help improve our quality of life. RIT's microelectronic engineering program is the only accredited bachelor of science degree of its kind in the U.S. and is considered a world leader in the education of semiconductor process engineers.

Semiconductor technology at the micro and nanometer scale remains a key driver for the world economy. Worldwide electronics sales topped one trillion dollars in 2017 and the semiconductor industry is a leader in this crucial manufacturing field. The education of a capable high-tech workforce is important for the nation's economic growth and long-term security.

Students in the microelectronic engineering degree are required to complete four blocks of cooperative education. Upon graduation, students are well prepared to enter industry or pursue graduate school. This major also prepares students to work in emerging technologies such as nanotechnology, microelectromechanical systems, photonics, photovoltaics, and microsystems.

With the worldwide semiconductor industry growing at an astounding pace, RIT graduates are a valuable resource to the industry. This major offers students an unparalleled opportunity to prepare for professional challenges and success in one of the leading modern areas of engineering. Faculty committed to quality engineering educations, state-of-the-art laboratories, strong industrial support, co-op opportunities with national companies, and smaller class sizes make this one of the most value-added programs in the nation.

Educational objectives

The educational objectives of the microelectronic engineering major are to produce graduates who have the following skills or characteristics:

- Sound knowledge of the fundamental scientific principles involved in the operation, design, and fabrication of integrated circuits.
- A comprehensive understanding of relevant technologies such as integrated circuit process integration and manufacturing. This includes nanolithography and the application of engineering principles to the design and development of current and future semiconductor technologies.
- A professional approach to problem-solving, using analytical, academic, and communication skills effectively, with special emphasis on working in teams.
- An enthusiasm for learning and the continuous improvement of skills throughout one's career, exemplified by learning about emerging technologies and adapting to and accepting change within the field.
- A desire to achieve leadership positions in industry or academia.
- A breadth of knowledge, including the multidisciplinary nature of microelectronic engineering as well as the broad social, ethical, safety, and environmental issues within which engineering is practiced.

One of the great challenges in integrated circuit manufacturing is the need to draw on scientific principles and engineering developments from such an extraordinarily wide range of disciplines. The design of microelectronic circuits requires a sound knowledge of electronics and circuit analysis. Optical lithography tools, which print microscopic patterns on wafers, represent one of the most advanced applications of the principles of Fourier optics. Plasma etching involves some of the most complex chemistry used in manufacturing today. Ion implantation draws upon understanding from research in high-energy physics. Thin films on semiconductor surfaces exhibit complex mechanical and electrical behavior that stretches our understanding of basic materials properties.

Scientists and engineers who work in the semiconductor field need a broad understanding of and the ability to seek out, integrate, and use ideas from many disciplines. The major provides the broad interdisciplinary background in electrical and computer engineering, solid-state electronics, physics, chemistry, materials science, optics, and applied math and statistics necessary for success in the semiconductor industry.

Plan of study

Students gain hands-on experience in the design, fabrication, and testing of the integrated circuits (microchips), the vital component in almost every advanced electronic product manufactured today. RIT's undergraduate microelectronics engineering laboratories, which include modern integrated circuit fabrication (clean room) and test facilities, are among the best in the nation. At present, the major is supported by a 150mm complementary metal oxide semiconductor line equipped with diffusion; ion implantation, plasma, and chemical vapor deposition (CVD) processes; chemical mechanical planarization; and device design, modeling, and test laboratories. The microlithography facilities include a ASML i-line and GCA g-line wafer steppers, and both optical and electron beam mask writers.

The curriculum begins with introductory courses in microelectronic engineering and nanolithography (nanopatterning) for integrated circuits. The first two years build a solid foundation in mathematics, physics, and chemistry. The fundamentals of statistics and their applications in the design of experiments, semiconductor device physics and operation, and integrated circuit technology are covered in the second year. This prepares students for their first cooperative education experience. The third year comprises the electrical engineering course work necessary for understanding semiconductor devices and integrated circuits. The fourth and fifth years are dedicated to optics, nanolithography systems and materials, semiconductor processing, professional electives, and a two-course capstone senior project. In the capstone course, students propose and conduct individual research/design projects and present their work at the Annual Microelectronic Engineering Conference, which is organized by the department and well-attended by industrial representatives.

A choice of professional electives and the senior project offer students an opportunity to build a concentration, such as advanced CMOS, VLSI chip design, analog circuit design, electronic materials science, microelectromechanical systems (MEMS), or nanotechnology within this unique interdisciplinary major. Two free elective courses allow students to develop an expertise in a related discipline.

Important issues such as technology development, ethics, societal impact, and global perspectives are built into the curriculum beginning with first-year courses. The major is laid out in a way that keeps students connected with their home department throughout the course of study.

Accreditation

The BS in microelectronic engineering major is accredited by the EAC Accreditation Commission of ABET, http://www.abet.org. Visit the college's accreditation page for information on enrollment and graduation data, program educational objectives, and student outcomes.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the microelectronic engineering degree are required to complete four blocks (roughly one year) of cooperative education. Co-ops may begin after the second year of study. Students find co-op employment at many of the major integrated circuits manufacturers across the United States.

Curriculum

Microelectronic Engineering, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Elective: General Chemistry for Engineers	3
CMPR-271	General Education – Elective: Computational Problem Solving for Engineers	3
EEEE-120	Digital Systems I	3
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MCEE-101	Introduction to Nanoelectronics	1
PHYS-211	General Education – Scientific Principles Perspective: University Physics I	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Elective	3
Second Year		
EEEE-281	Circuits I	3
EEEE-282	Circuits II	3
EGEN-99	Engineering Co-op Preparation	0
MATH-221	General Education – Elective: Multivariable and Vector Calculus	4
MATH-231	General Education – Elective: Differential Equations	3
MCEE-201	IC Technology	3
MCEE-205	General Education – Elective: Statistics and Design of Experiments	3
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Elective: Restricted STEM Elective	3
Third Year		
EEEE-380	Digital Electronics	3
MCEE-320	E&M Fields for Microelectronics	3
MCEE-360	Semiconductor Devices for Microelectronic Engineers	3
MCEE-499	Microelectronic Engineering Co-op (fall and summer)	0
MCEE-502	Semiconductor Process Integration	3
	General Education – Immersion	3
Fourth Year		
EEEE-353	Linear Systems	4
EEEE-480	Analog Electronics	4
MCEE-499	Microelectronic Engineering Co-op (spring and summer)	0
MCEE-503	Thin Films (WI-PR)	3
MCEE-505	Lithography Materials and Processes	3
	General Education – Immersion	3
Fifth Year		
MCEE-495	Senior Design I	3
MCEE-496	Senior Design II	3
MCEE-515	Nanolithography Systems	3
MCEE-550	CMOS Processing	4
	General Education – Immersion	3
	Open Electives	9
	Professional Electives	6
Total Semester Credit Hours		**129**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accelerated dual degree options

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

Microelectronic Engineering, BS degree/Materials Science and Engineering, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Elective: General Chemistry for Engineers	3
CMPR-271	General Education – Elective: Computational Problem Solving for Engineers	3
EEEE-120	Digital Systems I	3
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MCEE-101	Introduction to Nanoelectronics	3
PHYS-211	General Education – Scientific Principles Perspective: University Physics I	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education - Elective	3
Second Year		
EEEE-281	Circuits I	3
EEEE-282	Circuits II	3
MATH-221	General Education – Elective: Multivariable and Vector Calculus	4
MATH-231	General Education – Elective: Differential Equations	3
MCEE-201	IC Technology	3
MCEE-205	General Education – Elective: Statistics and Design of Experiments	3
PHYS-212	General Education – Natural Science Inquiry Perspective: University Physics II	4
PHYS-213	General Education – Elective: Modern Physics I	3
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
Third Year		
MCEE-320	E&M Fields for Microelectronics	3
MCEE-360	Semiconductor Devices for Microelectronic Engineers	3
EEEE-380	Digital Electronics	3
MCEE-499	Microelectronic Engineering Co-op	0
MCEE-599	Independent Study	1
MCEE-603	Thin Films (WI-PR)	3
	Open Elective	3
Fourth Year		
EEEE-353	Linear Systems	4
EEEE-480	Analog Electronics	4
MCEE-502	Semiconductor Process Integration	3
MCEE-505	Lithography Materials and Processes	3
MTSE-601	Materials Science	3
MTSE-704	Theoretical Methods in Materials Science and Engineering	3
MTSE-705	Experimental Techniques	3
Choose one of the following:		3
MTSE-790	Research & Thesis	
MTSE-777	Graduate Project	
	General Education – Social Perspective	3
	MTSE Graduate Elective	3
	Open Elective	3
Fifth Year		
MCEE-495	Senior Design I	3
MCEE-496	Senior Design II	3
MCEE-550	CMOS Processing	4
MCEE-515	Nanolithography Systems	3
Choose one of the following:		6
MTSE-790	Research & Thesis	
	MTSE Graduate Electives	
	Professional Electives (Graduate courses)	6
	General Education – Immersion 1, 2, 3	9
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Microelectronic Engineering, BS degree/Science, Technology and Public Policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Chemistry for Engineers	3
CMPR-271	Computational Problem Solving for Engineers	3
EEEE-120	Digital Systems I	3
MATH-181	General Education - Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education - Mathematical Perspective B: Project-Based Calculus II	4
MCEE-101	Introduction to Nanoelectronics	1
PHYS-211	General Education - Scientific Principles Perspective: University Physics I	4
YOPS-010	RIT 365: RIT Connections	0
	General Education - First Year Writing (WI)	3
	General Education - Ethical Perspective	3
	General Education - Artistic Perspective	3
	Open Elective	3
Second Year		
EEEE-281	Circuits I	3
EEEE-282	Circuits II	3
EGEN-099	Engineering Co-op Preparation	0
MATH-221	Multivariable and Vector Calculus	4
MATH-231	Differential Equations	3
MCEE-201	IC Technology	3
MCEE-205	Statistics and Design of Experiments	3
PHYS-212	General Education - Natural Science Inquiry Perspective: University Physics II	4
	General Education - Global Perspective	3
	General Education - Social Perspective	3
	Restricted STEM Elective	3
Third Year		
EEEE-380	Digital Electronics	3
MCEE-320	E&M Fields for Microelectronics	3
MCEE-360	Semiconductor Devices for Microelectronic Engineers	3
MCEE-499	Microelectronic Engineering Co-op (fall, summer)	0
MCEE-502	Semiconductor Process Integration	3
	General Education - Immersion 1	3
Fourth Year		
EEEE-353	Linear Systems	4
EEEE-480	Analog Electronics	4
MCEE-499	Microelectronic Engineering Co-op	0
MCEE-503	Thin Films	3
MCEE-505	Lithography Materials and Processes	3
PUBL-701	Graduate Policy Analysis	3
PUBL-702	Graduate Decision Analysis	3
	Graduate Professional Electives/Policy Electives	6
	General Education - Immersion 2	3
	Open Elective	3
Fifth Year		
MCEE-495	Senior Design I	3
MCEE-496	Senior Design II	3
MCEE-515	Nanolithography Systems	3
MCEE-550	CMOS Processing	4
PUBL-700	Readings in Public Policy	3
PUBL-703	Evaluation and Research Design	3
STSO-710	Graduate Science and Technology Policy Seminar	3
	Public Policy Elective	3
	General Education - Immersion 3	3
	General Education - Elective	3
Choose one of the following:		6
PUBL-790	Public Policy Thesis	
PUBL-798	Comprehensive Exam plus 2 Graduate Electives	
Total Semester Credit Hours		**150**

Please see General Education Curriculum for more information.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
- 4 years of math required; including pre-calculus or above
- Chemistry and physics required

Transfer Admission

Transfer course recommendations without associate degree
Pre-engineering courses such as calculus, calculus-based physics, chemistry, and liberal arts.

Appropriate associate degree programs for transfer
AS degree in engineering science

Faculty

Doreen Edwards, BS, South Dakota School of Mines and Technology; Ph.D., Northwestern University—Dean; Professor

Biomedical Engineering

Steven Day, BS, Ph.D., University of Virginia; Diploma, von Karman Institute for Fluid Mechanics (Belgium)—Department Head; Associate Professor

Iris Asllani, B.Sc., Nuclear Physics, University of Tirana (Albania); M.Sc., Ph.D., University of Washington—Assistant Associate Research Professor

Vinay Abhyankar, BS, University of Wisconsin; Ph.D., Binghamton University—Assistant Professor, Microfluidics, Tissue Engineering, Lab on chip Platforms

Edward E. Brown Jr., BS, University of Pennsylvania; MS, Ph.D., Vanderbilt University—Associate Professor

Jennifer Bailey, BS, Ph.D., Purdue University—Senior Lecturer

Thomas Gaborski, BS, Cornell University; MS, Ph.D., University of Rochester—Associate Professor

Blanca Lapizco-Encinas, BS, Instituto Tecnologico de Sonora (Mexico); MS, Instituto Tecnologico de Sonora Celaya (Mexico); Ph.D., University of Cincinnati—Professor

Cristian Linte, BS, University of Windsor (Canada); MS, Ph.D., University of Western Ontario (Canada)—Professor

Daniel B. Phillips, BS, State University of New York at Buffalo; MS, Ph.D., University of Rochester—Associate Professor

Michael Richards, BS, University of Rochester; Ph.D., Boston University—Assistant Professor

Cory Stiehl, BS, University of Rochester; Ph.D., University of Massachusetts, Amherst—Senior Lecturer

Karin Wuertz, BS, MS, University of Regensburg (Germany); MBA, University of Cumbria (UK); Ph.D., University of Ulm (Germany)—Kate Gleason Professor, Regenerative Medicine and Tissue Engineering, Inflammation, Mechanobiology

Zhe Zhi (Jenny) Zheng, BS, Xidian University (China); MS, Ph.D., Vanderbilt University—Assistant Professor, Intelligent Interactive Systems, Human-Machine Interaction, Human-Centered Computing, Computer Vision, Machine Learning, Pattern Recognition and Data Mining

Chemical Engineering

Steven J. Weinstein, BS, University of Rochester; MS, Ph.D., University of Pennsylvania—Department Head; Professor

Jario A. Diaz, BSE, National University of Columbia (Columbia); Ph.D., Purdue University—Assistant Professor

Karuna Koppula, B.Tech., Andhra University (India); MS, University of New Hampshire; Ph.D., Michigan State University—Senior Lecturer

Brian J. Landi, BS, MS, Ph.D., Rochester Institute of Technology—Associate Professor

Poornima Padmanabhan, B.Tech., Indian Institute of Technology (India); Ph.D., Cornell University—Assistant Professor

Alexander D. Roth, BS, ME, Cornell University; MS, The Ohio State University; Ph.D., Cleveland State University—Lecturer

Kenneth J. Ruschak, BS, Carnegie Mellon University; Ph.D., University of Minnesota—Research Professor

Patricia Taboada-Serrano, BS, Mayor de San Andres University (Bolivia); MS, Simon Bolivar University (Venezuela); Ph.D., Georgia Institute of Technology—Assistant Professor

Obioma Uche, BS, University of California, Berkeley; MS, Ph.D., Princeton University—Visiting Assistant Professor

Computer Engineering

Amlan Ganguly, B.Sc.Tech., Indian Institute of Technology (India); MS, Ph.D., Washington State University—Department Head; Associate Professor

Louis Beato, BS, MS, Rochester Institute of Technology—Lecturer

Andrés Kwasinski, M.Sc., Ph.D., University of Maryland at College Park—Associate Professor

Sonia Lopez Alarcon, B.Sc., Ph.D., Complutense University of Madrid (Spain)—Associate Professor

Alexander C. Loui, B.Sc., M.Sc., Ph.D., University of Toronto (Canada)—Lecturer

Marcin Lukowiak, M.Sc., Ph.D., Poznan University of Technology (Poland)—Professor

Roy W. Melton, B.Sc., M.Sc., Ph.D., Georgia Institute of Technology—Principal Lecturer

Cory Merkel, BS, MS, Ph.D., Rochester Institute of Technology—Assistant Professor

Raymond Ptucha, M.Sc., Ph.D., Rochester Institute of Technology—Professor

Andreas E. Savakis, B.Sc., MS, Old Dominion University; Ph.D., North Carolina State University—Professor

Muhammad E. Shaaban, BS, MS, University of Petroleum and Minerals (Saudi Arabia); Ph.D., University of Southern California—Associate Professor

Shanchieh J. Yang, B.Sc., National Chiao-Tung University (Taiwan); MS, Ph.D., University of Texas at Austin—Department Head; Professor

Electrical and Microelectronic Engineering

Ferat E. Sahin, BS, Istanbul Technical University (Turkey); MS, Ph.D., Virginia Polytechnic Institute and State University—Department Head; Professor

Mustafa A. G. Abushagur, BS, Tripoli University (Libya); MS, Ph.D., California Institute of Technology—Professor

Vincent Amuso, BS, Western New England University; MS, Syracuse University; Ph.D., Rensselaer Polytechnic Institute—Principal Lecturer

Carlos Barrios, BS, MS Rochester Institute of Technology-Visiting Lecturer

David A. Borkholder, BS, Rochester Institute of Technology; MS, Ph.D., Stanford University—Professor

Edward E. Brown Jr., BS, University of Pennsylvania; MS, Ph.D., Vanderbilt University—Associate Professor

Dale E. Ewbank, BS, MS, Ph.D., Rochester Institute of Technology—Senior Lecturer

Sohail A. Dianat, BS, Aria-Mehr University of Technology (Iran); MS, Ph.D., George Washington University—Professor

Lynn F. Fuller, BS, MS, Rochester Institute of Technology; Ph.D., State University of New York at Buffalo—Professor

Jamison Heard, BS, University of Evansville; MS, Ph.D., Vanderbilt University—Assistant Professor

Karl D. Hirschman, BS, MS, Rochester Institute of Technology; Ph.D., University of Rochester—Micron Technology Professor; Professor

Christopher R. Hoople, BS, Union College; Ph.D., Cornell University—Senior Lecturer

Jason Hoople, BS, MS , Rochester Institute of Technology, Ph.D., Cornell University—Visiting Lecturer

Mark Indovina, MS, Rochester Institute of Technology—Senior Lecturer

Michael A. Jackson, BS, MS, Ph.D., State University of New York at Buffalo—Associate Professor

Santosh K. Kurinec, BS, MS, Ph.D., University of Delhi (India)—Professor

Sergey E. Lyshevski, MS, Ph.D., Kiev Polytechnic Institute (Ukraine)—Professor

Panos P. Markopoulos, BS, MS, Technical University of Crete (Greece); Ph.D., University at Buffalo—Assistant Professor

James E. Moon, BS, Carnegie Mellon University; MBA, University of Rochester; MS, Ph.D., University of California at Berkeley—Professor

Parsian Katal Mohseni, BS, Ph.D., McMaster University (Canada)—Assistant Professor

P. R. Mukund, BS, MS, Ph.D., University of Tennessee—Professor

Kai Ni, BS, University of Science and Technology of China (China); MS, Ph.D., Vanderbilt University—Assistant Professor Nanoelectronic Devices, Neuromorphic Computing, Novel Computing Paradigms

Dorin Patru, BS, MS, Technical University of Cluj-Napoca (Romania); Ph.D., Washington State University—Associate Professor

Robert E. Pearson, BS, MS, Rochester Institute of Technology; Ph.D., State University of New York at Buffalo—Director, Microelectronic Engineering Program; Associate Professor

Daniel B. Phillips, BS, State University of New York at Buffalo; MS, Ph.D., University of Rochester—Associate Professor

Stefan Preble, BS, Rochester Institute of Technology; Ph.D., Cornell University—Associate Professor

Ivan Puchades, BS, MS, Ph.D., Rochester Institute of Technology—Assistant Professor

Majid Rabbani, BS, Aria-Mehr University of Technology (Iran); MS, Ph.D., University of Wisconsin-Madison—Visiting Professor

Sean L. Rommel, BS, Ph.D., University of Delaware—Director, Microelectronic Engineering Program, Professor

Eli Saber, BS, State University of New York at Buffalo; MS, Ph.D., University of Rochester—Professor

Ferat E. Sahin, BS, Istanbul Technical University (Turkey); MS, Ph.D., Virginia Polytechnic Institute and State University—Professor

George B. Slack, BS, Rochester Institute of Technology; MS, University of Rochester—Lecturer

Bruce W. Smith, BS, MS, Ph.D., Rochester Institute of Technology—Distinguished Professor

Gill R. Tsouri, B.Sc., M.Sc., Ph.D., Ben-Gurion University (Israel)—Professor

Jayanti Venkataraman, BS, MS, Bangalore University (India); Ph.D., Indian Institute of Science (India)—Professor

Bing Yan, BS, Renmin University of China (China); MS, Ph.D., University of Connecticut—Assistant Professor

Jing Zhang, BS, Huazhong University (China), Ph.D., Lehigh University—Assistant Associate Professor

Industrial and Systems Engineering

Iris V. Rivero, BS, MS, Ph.D., Pennsylvania State University—Department Head, Professor

Nasibeh Azadeh Fard, BS, Iran University of Science and Technology, MS, Ph.D., Virginia Polytechnic Institute and State University—Assistant Professor

John Bonzo, BS, ME, Rochester Institute of Technology—Lecturer

Robin R. Borkholder, BS, MS, State University of New York at Buffalo—Senior Lecturer

Denis R. Cormier, BS, University of Pennsylvania; MS, State University of New York at Buffalo; Ph.D., North Carolina State University—Earl W. Brinkman Professor

Patricia A. Cyr, BS, University of Pittsburgh; MS, Rochester Institute of Technology—Lecturer

Anthony Di Vasta, BS, MS, Rochester Institute of Technology—Visiting Lecturer

Marcos Esterman, BS, MS, Massachusetts Institute of Technology; Ph.D., Stanford University—Associate Professor

Michael E. Kuhl, BS, Bradley University; MS, Ph.D., North Carolina State University—Professor

Katie McConky, BS, MS, Rochester Institute of Technology; Ph.D., State University of New York at Buffalo—Associate Professor

Matthew M. Marshall, BS, Rochester Institute of Technology; MS, Ph.D., University of Michigan—Associate Professor

Rubén A. Proaño, BS, Universidad San Francisco de Quito (Ecuador); MS, Ph.D., University of Illinois at Urbana-Champaign—Associate Professor

Ehsan Rashedi, BS, MS, Sharif University of Technology (Iran); MS, Ph.D., Virginia Polytechnic Institute and State University—Assistant Professor

Brian K. Thorn, BS, Rochester Institute of Technology; MS, Ph.D., Georgia Institute of Technology—Professor

Yunbo "Will" Zhang, BS, Shandong University; MS, Huazhong University of Science & Technology; Ph.D., The Chinese Univeristy of Hong Kong—Assistant Professor

Marcos Esterman, BS, MS, Massachusetts Institute of Technology; Ph.D., Stanford University—Associate Professor

John T. Kaemmerlen, BS, ME, Rochester Institute of Technology—Principal Lecturer

Katie McConky, BS, MS, Rochester Institute of Technology; Ph.D., State University of New York at Buffalo—Assistant Professor

Matthew M. Marshall, BS, Rochester Institute of Technology; MS, Ph.D., University of Michigan—Associate Professor

Rubén A. Proaño, BS, Universidad San Francisco de Quito (Ecuador); MS, Ph.D., University of Illinois at Urbana-Champaign—Associate Professor

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Brian K. Thorn, BS, Rochester Institute of Technology; MS, Ph.D., Georgia Institute of Technology—Professor

Mechanical Engineering

Risa J. Robinson, BS, MS, Rochester Institute of Technology; Ph.D., State University of New York at Buffalo—Department Head; Professor

Margaret B. Bailey, BS, Pennsylvania State University; Ph.D., University of Colorado at Boulder; PE—Professor

Stephen Boedo, BA, State University of New York at Buffalo; MS, Ph.D., Cornell University—Professor

Robert Carter, BS, University of Maine; Ph.D., Cornell University—Lecturer

Agamemnon L. Crassidis, BS, MS, Ph.D., State University of New York at Buffalo—Professor

Steven Day, BS, Ph.D., University of Virginia—Associate Professor

Elizabeth A. DeBartolo, BS, Duke University; MS, Ph.D., Purdue University—Associate Professor

Ghazal Dehghani, BS, Sharif University of Technology (Iran); MS, University of Arizona—Visiting Lecturer

Ke Du, University of Science and Technology (China); MS, University of South Florida; Ph.D., Stevens Institute of Technology—Assistant Professor

Bernhard Fischer, MS, Technical University of Munich (Germany); Ph.D., Cranfield Institute of Technology (United Kingdom)—Lecturer

Gerald W. Fly, BS, MS, Massachusetts Institute of Technology—Lecturer

Alfonso Fuentes-Aznar, MS, University of Murcia (Spain); Ph.D., National University of Distance Education (Spain)—Associate Professor

Hany A. Ghoneim, BS, MS, Cairo University (Egypt); Ph.D., Rutgers University—Professor

Amitabha Ghosh, B.Tech., M.Tech., Indian Institute of Technology (India); Ph.D., Mississippi State University—Professor

Mario W. Gomes, BsE, Cornell University; MS, Georgia Institute of Technology; Ph.D., Cornell University—Senior Lecturer

Surendra K. Gupta, B.Tech., Indian Institute of Technology (India); MS, University of Notre Dame; Ph.D., University of Rochester—Professor

Edward C. Hensel, BS, Clarkson University; Ph.D., New Mexico State University—Professor; PE

William A. Humphrey, BS, MS, Case Western Reserve University—Senior Lecturer

Phillip Hutton, BS, University of Pittsburgh; MS, Old Dominion University; MS, Carnegie Mellon University; Ph.D., University of North Dakota—Lecturer

Omar Ibrahim, BS, MS, University of Mosul (Iraq), MS, Newcastle University (United Kingdom); Ph.D., Mississippi State University—Lecturer

Patricia Iglesias Victoria, BS, Ph.D., Polytechnic University of Cartagena (Spain)—Associate Professor

Sarilyn Ivancic, BS, MS, Ph.D., University of Rochester—Lecturer

Satish G. Kandlikar, BE, Marathwada University (India); M.Tech., Ph.D., Indian Institute of Technology (India)—James E. Gleason Professor

Mark H. Kempski, BS, Purdue University; MS, Ph.D., State University of New York at Buffalo—Professor

Jason R. Kolodziej, BS, MS, Ph.D., State University of New York at Buffalo—Associate Professor

Margaretha J. Lam, BS, MS, State University of New York at Buffalo; Ph.D., Virginia Polytechnic Institute and State University—Principal Lecturer

Kathleen Lamkin-Kennard, BS, Worcester Polytechnic Institute; MS, Ph.D., Drexel University—Associate Professor

Timothy P. Landschoot, BS, MS, Rochester Institute of Technology; MBA, University of Rochester—Principal Lecturer

Kate Leipold, BS, MS, Rochester Institute of Technology—Senior Lecturer

Rui Liu, BS, Beijing University (China); MS, Northeastern University; Ph.D., Georgia Institute of Technology—Assistant Professor

Alan H. Nye, BS, MS, Clarkson College; Ph.D., University of Rochester—Associate Department Head for Outreach; Professor

Ali Ogut, B.Ch.E., Hacettepe University (Turkey); MS, Ph.D., University of Maryland—Professor

Michael Schertzer, BS, MS, McMaster University (Canada); Ph.D., University of Toronto (Canada)—Associate Professor

Michael Schrlau, BS, University of Pittsburgh; Ph.D., University of Pennsylvania—Graduate Director; Associate Professor

Robert J. Stevens, BS, Swarthmore College; MS, North Carolina State University; Ph.D., University of Virginia—Associate Professor

John D. Wellin, BS, Rochester Institute of Technology; MS, University of Rochester—Senior Lecturer

Microsystems Engineering

Bruce W. Smith, BS, MS, Ph.D., Rochester Institute of Technology—Director; Intel Professor of Research and Technology; Professor

David Borkholder, BS, Rochester Institute of Technology; MS, Ph.D., Stanford University—Bausch & Lomb Professor of Microsystems Engineering

Parsian Katal Mohseni, BS, Ph.D., McMaster University (Canada)—Assistant Professor

Kai Ni, BS, University of Science and Technology of China; MS, Ph.D., Vanderbilt University—Assistant Professor

Stefan F. Preble, BS, Rochester Institute of Technology; Ph.D., Cornell University—Associate Professor

Distinguished Professorships

James E. Gleason Professorship in Mechanical Engineering

Established: 1967

Donor: Estate of James E. Gleason

Purpose: To provide a permanent memorial to Mr. James E. Gleason, who was president of Gleason Works from 1922-1947 and was awarded 36 patents for his many inventions in bevel gear design and manufacturing James E. Gleason served on the RIT Board of Trustees for 65 years (1899 until 1964), including 20 years as its chairman, and was an enthusiastic supporter of the relocation of RIT to the Henrietta campus. The professorship is targeted to strengthen RIT in the filed in which he received his education.

Held by: Satish G. Kandlikar

Kate Gleason Professorship

Established: 1999

Donor: Gleason Foundation

Purpose: To build upon the tradition of Kate Gleason as a role model for women in engineering by supporting the College's continuing commitment to diversity, its strategic goals and overall mission. Among her many notable achievements, Kate Gleason was the first woman admitted to study engineering at Cornell University, the first woman elected to full membership in the American Society of Mechanical Engineers, the first woman bank president in the US.

Held by: Jing Zhang, Iris Rivero, Karin Wuertz

Earl W. Brinkman Professor of Machining and Manufacturing

Established: 1995

Donor: Brinkman Family Charitable Trust and an anonymous foundation

Purpose: To support a professorship in engineering and create a lasting memorial to Earl W. Brinkman, an innovator and leader in the screw machine industry. Mr. Brinkman started in the industry at the age of 17, worked his way up the ranks to become Chief Engineer of the Davenport Machine Company in Rochester, N.Y., in 1937, and became president of the company from 1996 until his retirement in 1979, after devoting 53 years to the company.

Held by: Denis R. Cormier

Bausch and Lomb Endowed Chair in Microsystems Engineering

Established: 2007

Donor: Bausch and Lomb Foundation

Purpose: To support a professorship in Microsystems Engineering and aid in the development of microsystems technologies for health care and biomedical applications to enhance the quality of life for future generations.

Held by: David A. Borkholder

Micron Professorship

Established: 2007

Purpose: As a global leader in the design, development, and fabrication of flash memory devices, Micron Corp. provides annual support for a faculty member, and related research and teaching activities, to enhance the body of knowledge in semiconductor fabrication technologies and manufacturing.

Held by: Karl D. Hirschman

College of Engineering Technology

S. Manian Ramkumar, Dean
www.rit.edu/engineeringtechnology

Programs of study

	Civil Engineering Technology, BS	104
#	Computer Engineering Technology, BS	106
	Electrical Engineering Technology, BS	108
#	Electrical Mechanical Engineering Technology, BS	109
	Engineering Technology Exploration, Undeclared	112
#	Environmental Sustainability, Health and Safety, BS	113
#	Mechanical Engineering Technology, BS	116
	Media Arts and Technology, BS	119
	Packaging Science, BS	120
#	Robotics and Manufacturing Engineering Technology, BS	122

Accelerated dual degree available

Admission requirements
For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the indovidual program descriptions and the Undergraduate Admission section of this bulletin.

Financial aid and scholarships
Please refer to the Financial Aid and Scholarships section of this bulletin for information regarding financial aid, scholarships, loans, and grants.

Accreditation
The following degree programs are accredited by the Engineering Technology Accreditation Commission of ABET (abet.org): civil engineering technology, computer engineering technology, electrical engineering technology, electrical/mechanical engineering technology, manufacturing engineering technology, and mechanical engineering technology.

The College of Engineering Technology provides programs that stress technology in a variety of environments and improve the careers of traditional and nontraditional students. Modern technology, whether in the development, integration, or implementation stages, is a focal point in each of the college's programs. This technology may be used to provide productive manufacturing and distribution of durable and consumable goods, the proper flow of information worldwide, the protection of the environment, or the enhancement of customer satisfaction in the service sector.

Through its dynamic program offerings, the college is committed to preparing graduates to be innovative, technologically advanced, and entrepreneurial. Degree programs are offered at the baccalaureate and master's degree levels. A number of minors are available. The college also includes the departments of military science (Army ROTC) and aerospace studies (Air Force ROTC), and the Center for Electronic Manufacturing Assembly (CEMA).

Please visit the college's website–**www.rit.edu/engineeringtechnology**–for in depth information on academics, faculty, facilities, research initiatives, advising services, and more.

Civil Engineering Technology, BS

www.rit.edu/study/civil-engineering-technology-bs
Marilyn Bullard,
585-475-2183, mabite@rit.edu

Program overview

Solving problems and providing solutions to society's growing infrastructure needs are what civil engineering technology graduates do best. You'll learn to design bridges and buildings, analyze traffic flow, manage the construction of complex structures, and address environmental issues such as clean drinking water, and more. The civil engineering degree provides the practical theory and skills you'll need to analyze and design systems; plan and prepare design and construction documents; utilize software to produce drawings, reports, and quantity estimates; select appropriate engineering materials, and develop cost estimates.

In the first two years of the program, technical subjects are taught concurrently with mathematics and science, helping you to understand applications while studying scientific fundamentals. In labs, you'll use experimental methods to solve engineering challenges and put theory and technology to work. Elective courses enable students to choose from a wide range of course options to further enhance their program of study and prepare them to achieve their career goals. RIT's program allows you to specialize while obtaining a broad background. Students can specialize in one of three discipline-specific areas – structural design, construction management, or water resources. With a bachelor of science degree in civil engineering technology, you'll be prepared to take the Fundamentals of Engineering exam, the first step in becoming licensed as a professional engineer. Graduates work in engineering roles in a variety of public agencies and private companies centered around civil engineering design and construction management.

What You'll Study

The bachelor of science in civil engineering technology is designed to support the growing need for engineers to design and retrofit new and existing facilities, including buildings, roads, bridges, and water supply and sewer systems. Students will gain practical theory, knowledge, and skills to become experts in applying today's technology to the solution of civil engineering and construction problems. The program begins by providing students with a foundation in structural mechanics, physics, calculus, and the liberal arts. The third and fourth years expand on the fundamental courses with more advanced course work in structural design, water, and wastewater treatment, transportation systems, foundation engineering, and additional liberal arts courses. Students choose free electives and civil professional electives to round out their major. Professional electives include sequences in structural design, construction management, geotechnical engineering, transportation engineering, and water resources management. Several electives also are available from other technical disciplines. The student's academic and faculty advisors can assist in determining the best choices for career goals and objectives. RIT's program allows you to specialize while obtaining a broad background in civil engineering and construction management. Students also acquire over a year of on-the-job experience through cooperative education.

RIT's program offers state-of-the-art equipment and sophisticated laboratories that allow for plenty of hands-on experience. You'll have access to laboratories and equipment for soil mechanics, construction materials, surveying, water and wastewater analysis and treatment, hydraulic systems, and mechanics. You'll also have access to our Design and Drafting Laboratory with state-of-the-practice hardware and software such as AutoCAD, Revit, STAAD, HydroCAD, Civil3D, and much more.

In the first two years of the program, technical subjects are taught concurrently with mathematics and science, helping you to understand applications while studying scientific fundamentals. In labs, you'll use experimental methods to solve engineering challenges and put theory and technology to work. Elective courses enable students to choose from a wide range of course options to further enhance their program of study and prepare them to achieve their career goals. RIT's program allows you to specialize while obtaining a broad background. Students can specialize in one of three discipline-specific areas – structural design, construction management, or water resources. With a bachelor of science degree in civil engineering technology, you'll be prepared to take the Fundamentals of Engineering exam, the first step in becoming licensed as a professional engineer. Graduates work in engineering roles in a variety of public agencies and private companies centered around civil engineering design and construction management.

The major includes two technical electives and two free electives that can be used to gain additional depth or breadth in civil engineering or construction management. In addition, students may choose to utilize electives to pursue a minor outside of the civil engineering technology major or a professional option within the major.

Professional options

While choosing an option is not required, to gain a deep understanding in one particular focus area, students may choose to pursue one of three professional options in construction management, structural design, or water resources. Professional options consist of three courses chosen by the student.

Construction management–This option is ideal for students who have an interest in courses related to the business, management, and technical aspects related to construction.

Structural design–This option provides a focus on structural design and the use of different types of structures and materials. It also introduces related design codes.

Water resources–This option is for students who have an interest in courses related to water treatment, wastewater treatment, hydrology, and the environment.

Graduates

Graduate from the civil engineering technology program are found working in consulting engineering firms; construction and construction management companies; and government agencies at the local, regional, and national level. Many graduates pursue advanced degrees, and a large number have gained registration in several states as professional engineers. Some manage their own consulting firms.

Industrial Advisory Board

The Industrial Advisory Board is comprised of local and regional industry leaders from consulting, construction, and the municipal market. These advisory board members share their professional and technical expertise to enhance the engineering technology program and strengthen its development.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the civil engineering technology program are required to complete four co-op blocks. This typically includes one spring, one fall, and two summer blocks. You'll alternate periods of full-time study with full-time paid work experience in your career field. In some circumstanc-

es, other forms of experiential education (e.g., study abroad, research, military service) may be used to fulfill part of the co-op requirement. Each student is assigned a co-op advisor to assist in identifying and applying to co-op opportunities.

Curriculum

Civil Engineering Technology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CVET-140	Materials of Construction	2
CVET-141	Materials of Construction Laboratory	1
CVET-150	Computer Aided Design and Drafting	2
CVET-180	Civil Engineering Graphics	2
CVET-181	Civil Engineering Graphics Lab	1
CVET-210	Statics	3
MATH-111	General Education – Mathematical Perspective A: Precalculus	3
MATH-171	General Education – Mathematical Perspective B: Calculus A	3
PHYS-111	General Education – Scientific Principles Perspective: College Physics I	4
PHYS-112	General Education – Elective: College Physics II	4
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar (WI)	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
Second Year		
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	3
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab	1
CVET-160	Surveying	3
CVET-161	Surveying Laboratory	1
CVET-170	Elements of Building Construction	3
CVET-220	Strength of Materials	4
CVET-230	Elementary Structures	3
CVET-240	Elementary Soil Mechanics	3
CVET-241	Elementary Soil Mechanics Lab	1
MATH-172	General Education – Elective: Calculus B	3
MATH-211	General Education – Elective: Elements of Multivariable Calculus and Differential Equations	3
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
Third Year		
COMM-142	General Education – Elective: Introduction to Technical Communication	3
CVET-250	Hydraulics	3
CVET-251	Hydraulics Lab	1
CVET-300	Land Development Computer Applications	2
CVET-332	Structural Analysis with STAAD	4
CVET-499	Civil Engineering Technology Co-op (spring, summer)	0
ENGT-299	Career Seminar	0
	General Education – Social Perspective	3
Fourth Year		
CHMG-142	General Education – Elective: General & Analytical Chemistry II	3
Choose one of the following course sequences:		6
CVET-431	Structural Design–Steel	
CVET-432	Structural Design–Reinforced Concrete	
	Open Electives	
CVET-350	Highway Design	2
CVET-351	Highway Design Lab	1
CVET-437	Principles of Dynamics in Civil Engineering Technology	2
CVET-440	Foundation Engineering	3
CVET-450	Principles of Water and Wastewater Treatment	3
CVET-499	Civil Engineering Technology Co-op (summer)	0
	General Education – Elective	3
	Open Elective	3
	General Education – Immersion 1, 2	6
Fifth Year		
CVET-499	Civil Engineering Technology Co-op (fall)	0
CVET-500	Civil Engineering Technology Capstone (WI-PR)	3
	Technical Elective	3
	Open Elective	3
	General Education – Elective	3
	General Education – Immersion	3
Total Semester Credit Hours		**128**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Professional options

Construction Management

Choose two of the following:	
CVET-461	Construction Cost Estimating I
CVET-462	Construction Project Management
CVET-464	Construction Planning, Scheduling and Control
Choose one additional course from above or below:	
CVET-424	Building Information Modeling with Revit
CVET-465	Contracts and Specifications
CVET-505	Sustainable Building Design & Construction
ESHS-225	Construction Safety

Structural Design

Required Courses	
CVET-431	Structural Design–Steel
CVET-432	Structural Design–Reinforced Concrete
Choose two of the following:	
CVET-433	Structural Timber Design
CVET-434	Design of Highway Bridges
CVET-435	Prestressed Concrete
CVET-436	Masonry Structures

Water Resources

Choose three of the following:	
CVET-423	GIS for CETEMS
CVET-451	Design of Water & Wastewater Treatment Facilities
CVET-452	Groundwater Hydraulics
CVET-453	Stormwater Management

Accreditation

The civil engineering technology major is accredited by the Engineering Technology Accreditation Commission of ABET.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended
- Chemistry or physics required; biology recommended
- Technology electives desirable

Transfer Admission

Transfer course recommendations without associate degree

Courses in mathematics, science, engineering science, and engineering technology

Appropriate associate degree programs for transfer

Civil, construction, environmental, architectural, transportation, or surveying technology; engineering science

Computer Engineering Technology, BS

www.rit.edu/study/computer-engineering-technology-bs
Jeanne Christman, Associate Professor
585-475-6609, jxciee@rit.edu

Program overview

The computer engineering technology degree is designed to meet industry's ever-increasing need for computer engineers with an in-depth knowledge of hardware and software design. You will gain a solid foundation of engineering principles through intensive classroom and laboratory experiences. Examples of the types of applications utilizing embedded systems include medical diagnostic equipment, digital cameras, missile guidance systems, anti-lock brakes, scanners, copiers, autonomous vehicles, network routers, and smartphones. The embedded systems designer must be proficient in hardware design, programming, and problem-solving.

The major enables graduates to design embedded systems for applications such as medical diagnostic equipment, digital cameras, missile guidance systems, anti-lock brakes, scanners, copiers, autonomous vehicles, network routers, and smartphones. The embedded systems designer must be proficient in hardware design, programming, and problem-solving. The major is designed to meet industry's ever-increasing need for engineers with an in-depth knowledge of hardware and software design. The curriculum bridges the gap between hardware and software by providing a solid foundation in each and integrating them with intensive classroom and laboratory experiences.

From a software perspective, students gain experience in cutting-edge development with programming languages currently used in industry. Students learn industry standards for application software development, the process for creating development application code, and master state-of-the-art problem-solving techniques. Students utilize embedded "C" real-time operating systems programming in numerous courses.

The hardware focus of the curriculum is on digital systems design and development. From low-level gate design to high-end microprocessors students gain an architectural understanding of computer systems. The curriculum includes in-depth design and analysis of combinational logic, sequential logic and state machines, micro-controller systems, and microprocessor systems. Students perform FPGA development and design in a hardware description language using industry standard computer-aided engineering tools.

A capstone experience in the fifth year enables students to integrate what they've learned throughout the curriculum in a team environment. Past capstone projects include autonomous rovers and self-guided drones.

Plan of study

The emphasis on hardware and software design, along with a solid foundation in math, science, and the liberal arts, produces graduates who are well-prepared to enter the workforce as design engineers or pursue advanced degrees. Required cooperative education ensures you graduate with real, hands-on engineering experience in the field. Computer engineering technology majors will gain an in-depth knowledge and a breadth of experience that inspires them to pursue successful careers in their chosen professional field and embark on a path of lifelong learning.

Options

Students who wish to specialize in a particular area of industry, or those who desire to pursue a personal interest, may elect to use electives to complete a four-course option in audio or telecommunications.

Program educational objectives

The program's educational objectives are to produce graduates who are prepared with the depth of knowledge, breadth of experiences and an attitude of professionalism that enable them to:

- Pursue successful careers in their chosen professional field.
- Pursue professional development to enhance their undergraduate degree and advance their careers.
- Attain increasing levels of responsibility and leadership in their chosen field.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the computer engineering technology degree are required to complete four co-op blocks. This typically includes one spring, one fall, and two summer blocks. You'll alternate periods of full-time study with full-time paid work experience in your career field. In some circumstances, other forms of experiential education (e.g., study abroad, research, military service) may be used to fulfill part of the co-op requirement. Each student is assigned a co-op advisor to assist in identifying and applying to co-op opportunities.

Curriculum

Computer Engineering Technology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CPET-121	General Education – Elective: Computational Problem Solving I	3
CPET-133	Introduction to Digital and Microcontroller Systems	3
EEET-111	DC Circuits	3
EEET-112	DC Circuits Lab	1
EEET-121	AC Circuits	3
EEET-122	AC Circuits Lab	1
MATH-111	General Education – Elective: Precalculus	3
MATH-171	General Education – Mathematical Perspective A: Calculus A	3
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar (WI)	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Elective	3
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
Second Year		
CPET-233	Digital Systems Design	3
CPET-253	Microcontroller Systems	3
CPET-281	Networking Technologies	3
EEET-213	Electronic Devices	3
MATH-172	General Education – Mathematical Perspective B: Calculus B	3
MATH-211	General Education – Elective: Elements of Multivariable Calculus and Differential Equations	3
PHYS-111	General Education – Scientific Principles Perspective: College Physics I	4
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Natural Science Inquiry Perspective	4
Third Year		
CPET-321	General Education – Elective: Computational Problem Solving II	3
CPET-499	Cooperative Education Computer Engineering Technology (spring and summer)	0
EEET-299	EET Career Orientation	1
EEET-331	Signals, Systems and Transforms	3
EEET-332	Signals, Systems & Transforms Lab	1
STAT-145	General Education – Elective: Introduction to Statistics I	3
	General Education – Immersion 1	3
	Open Elective	3

COURSE		SEMESTER CREDIT HOURS
Fourth Year		
CPET-343	Hardware Description Language	3
CPET-461	Real Time Operating Systems	3
CPET-499	Cooperative Education Computer Engineering Technology (summer)	0
CPET-561	Embedded Systems Design I	4
EEET-425	Digital Signal Processing (WI)	4
	General Education – Immersion 2, 3	6
	Technical Electives	6
	Open Electives	6
Fifth Year		
CPET-499	Cooperative Education Computer Engineering Technology (fall)	0
CPET-563	Embedded Systems Design II	3
	General Education – Elective	4
	Open Elective	3
	Technical Elective	3
Total Semester Credit Hours		**126**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Options

Students may choose to use their three technical electives and four open electives to complete an option in audio or telecommunications.

Audio

EEET-261	Fundamentals of Audio Engineering
EEET-361	Modern Audio Production
Choose two of the following:	
CPET-421	Applied Audio Programming
EEET-451	3D Audio: Theory and Practice
EEET-461	Introduction to Acoustics
EEET-561	Audio Power Amplifier

Telecommunications

CPET-281	Networking Technologies
EEET-313	Communication Electronics
EEET-525	Wireless RF Systems
EEET-531	Fiber Optics Technology

Accelerated dual degree option

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic advisor for more information.

Computer Engineering Technology, BS degree/Computer science, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CPET-121	General Education – Elective: Computational Problem Solving I	3
CPET-133	Introduction to Digital and Microcontroller Systems	3
EEET-111	DC Circuits	3
EEET-112	DC Circuits Lab	1
EEET-121	AC Circuits	3
EEET-122	AC Circuits Lab	1
MATH-111	General Education – Elective: Precalculus	3
MATH-171	General Education – Mathematical Perspective A: Calculus A	3
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar (WI)	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Elective	3
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
Second Year		
CPET-233	Digital Systems Design	3
CPET-253	Microcontrollers Systems	3
CPET-281	Networking Technologies	3
EEET-213	Electronic Devices	3
MATH-172	General Education – Mathematical Perspective B: Calculus B	3
MATH-211	General Education – Elective: Elements of Multivariable Calculus and Differential Equations	3
PHYS-111	General Education – Scientific Principles Perspective: College Physics I	4
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Natural Science Inquiry Perspective	4
Third Year		
CPET-321	General Education – Elective: Computational Problem Solving II	3
CPET-499	Cooperative Education – Computer Engineering Technology (spring/summer)	0
EEET-299	EET Career Orientation	1
EEET-331	Signals, Systems and Transforms	3
EEET-332	Signals, Systems and Transforms Lab	1
STAT-145	General Education – Elective: Introduction to Statistics I	3
	General Education - Immersion 1	3
	Open Elective	3
Fourth Year		
CPET-343	Hardware Description Language	3
CPET-461	Real Time Operating Systems	3
CPET-499	Cooperative Education: Computer Engineering Technology (summer)	0
CPET-561	Embedded Systems Design I	4
CSCI-665	Foundations of Algorithms	3
EEET-425	Digital Signal Processing (WI-PR)	4
	General Education – Immersion 2, 3	6
	Open Elective	3
	Technical Electives	6
Fifth Year		
CPET-499	Cooperative Education – Computer Engineering Technology (fall)	
CPET-563	Embedded Systems Design II	3
	Open Elective	3
	Technical Elective	3
	General Education – Elective	4
Sixth Year		
CSCI-610	Fundamentals of Computer Graphics	3
CSCI-630	Foundations of Artificial Intelligence	3
CSCI-631	Foundations of Computer Vision	3
CSCI-790	Computer Science MS Thesis	6
CSCI-799	Computer Science Graduate Independent Study	6
Total Semester Credit Hours		**147**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accreditation

The computer engineering technology major is accredited by the Engineering Technology Accreditation Commission of ABET.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended
- Chemistry or physics required; biology recommended
- Technology electives desirable

Transfer Admission

Transfer course recommendations without associate degree

Courses in computer science, math, science, engineering science, and engineering technology

Appropriate associate degree programs for transfer

Computer technology, electrical or electronic technology, or computer science

Electrical Engineering Technology, BS

www.rit.edu/study/electrical-engineering-technology-bs

James Lee, Associate Professor
585-475-2899, jhleme@rit.edu

Program overview

Electrical engineering technology is designed to meet industry's ever-increasing need for engineers with an in-depth understanding of electrical and electronics theory. The degree provides students with the ability to specialize in specific areas of the discipline. Graduates work as engineers in a variety of industries including automotive, medical devices, power and energy, audio, telecommunications, and more.

What you'll study

The BS in electrical engineering technology degree provides students with a foundation in circuits, analog, and digital electronics, physics, and calculus. The third and fourth years expand on fundamental courses with more advanced courses in advanced circuits and electronics, transform methods, control systems, analog, and digital electronics, and applied differential equations. Students are able to choose from multiple electives to round out their degree. Electives include sequences in power systems, electronic communications, embedded systems, telecommunications, networking, and optics. Electives are also available in other technical disciplines, and the student's academic advisor can assist in determining the best choices to meet career goals and objectives. The major provides a viable option for students who have already completed an associate degree and wish to complete a bachelor of science degree.

Core courses are introduced in the first year of study to provide students with a solid foundation in circuits, analog and digital electronics, computer programming, and calculus. The curriculum expands in later years to feature advanced study in advanced circuits and electronics, transform methods, control systems, analog, and digital electronics, and applied differential equations. Elective courses enable students to choose from a wide range of course options to further enhance their program of study and prepare them to archive their career goals. The major provides a viable option for students who have already completed an associate degree and wish to complete a bachelor of science degree.

A solid foundation in math, science, and the liberal arts, coupled with specialization in students' particular areas of interest prepares graduates to immediately enter the workforce as design engineers or pursue advanced degrees. Electrical engineering technology majors will gain in-depth knowledge and a breadth of experience that inspire them to pursue successful careers in their chosen professional field and embark on a path of lifelong learning.

Students will also complete required cooperative education experiences designed to provide real, hands-on engineering experience in industry.

Options

Students who wish to specialize in a particular area of industry, or those who desire to pursue a personal interest, may elect to use electives to complete a four-course option in audio or telecommunications.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the electrical engineering technology degree are required to complete four co-op blocks. This typically includes one spring, one fall, and two summer blocks. You'll alternate periods of full-time study with full-time paid work experience in your career field. In some circumstances, other forms of experiential education (e.g., study abroad, research, military service) may be used to fulfill part of the co-op requirement. Each student is assigned a co-op advisor to assist in identifying and applying to co-op opportunities.

Curriculum

Electrical Engineering Technology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CPET-121	General Education – Elective: Computational Problem Solving I	3
CPET-133	Introduction to Digital and Microcontroller Systems	2
EEET-111	DC Circuits	3
EEET-112	DC Circuits Lab	1
EEET-121	AC Circuits	3
EEET-122	AC Circuits Lab	1
MATH-111	General Education – Elective: Precalculus	3
MATH-171	General Education – Mathematical Perspective A: Calculus A	3
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar (WI)	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Elective	3
Second Year		
CPET-233	Digital Systems Design	3
CPET-253	Microcontroller Systems	3
EEET-213	Electronic Devices	3
EEET-223	Advanced Electronics	4
MATH-172	General Education – Mathematical Perspective B: Calculus B	3
MATH-211	General Education – Elective: Elements of Multivariable Calculus and Differential Equations	3
PHYS-111	General Education – Scientific Principles Perspective: College Physics I	4
	General Education- Global Perspective	3
	General Education – Social Perspective	3
	General Education – Natural Science Inquiry Perspective	4
Third Year		
EEET-241	Electrical Machines and Transformers	2
EEET-242	Electrical Machines and Transformers Lab	1
EEET-299	Career Orientation	1
EEET-331	Signals, Systems and Transforms	3
EEET-332	Signals, Systems and Transforms Lab	1
EEET-499	Cooperative Education – Electrical Engineering Technology (spring, summer)	0
STAT-145	General Education – Elective: Introduction to Statistics I	3
	General Education – Immersion 1	3
	Open Elective	3
Fourth Year		
EEET-313	Communications Electronics	3
EEET-425	Digital Signal Processing (WI-PR)	4
EEET-427	Control Systems	4
EEET-499	Cooperative Education – Electrical Engineering Technology (summer)	0
	General Education – Elective	3
	Technical Elective	3
	Mechanical Manufacturing Engineering Technology Elective	3
	General Education – Immersion 2, 3	6
	Open Electives	6
Fifth Year		
EEET-433	Transmission Lines	3
EEET-499	Cooperative Education – Electrical Engineering Technology (fall)	0
	General Education – Elective	4
	Open Elective	3
	Technical Elective	3
Total Semester Credit Hours		**127**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Options

Students may choose to use their two technical electives and two free electives to complete an option in audio or telecommunications.

Audio

EEET-261	Fundamentals of Audio Engineering
EEET-361	Modern Audio Production
Choose two of the following:	
CPET-421	Applied Audio Programming
EEET-451	3D Audio: Theory and Practice
EEET-461	Introduction to Acoustics
EEET-561	Audio Power Amplifiers

Telecommunications

CPET-481	Networking Technologies
EEET-313	Communication Electronics
EEET-525	Wireless RF Systems
EEET-531	Fiber Optics Technology

Accreditation

The electrical engineering technology major is accredited by the Engineering Technology Accreditation Commission of ABET.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended
- Chemistry or physics required; biology recommended
- Technology electives desirable

Transfer Admission

Transfer course recommendations without associate degree

Courses in mathematics, science, engineering science, and engineering technology

Appropriate associate degree programs for transfer

Electrical technology, electronic technology, engineering science

Electrical Mechanical Engineering Technology, BS

www.rit.edu/study/electrical-mechanical-engineering-technology-bs

Beth Carle, Professor
585-475-6752, easmet@rit.edu

This program is no longer accepting new student applications.

Program overview

With the increased complexity of products and production design, which includes the integration of software, electronics with mechanical and electrical components (mechatronics), there is a growing need for professionals who have a strong foundation in the electrical, mechanical, programming and manufacturing disciplines. The electrical mechanical engineering technology major prepares students for careers in engineering disciplines where the integration of mechanical, electrical, programming and manufacturing disciplines is important. Students develop skills that explore the fundamentals of mechanics, electrical circuits, and microprocessors, mathematics, materials technology, computer-aided engineering, and design. The electromechanical engineering major will develop well-rounded electrical mechanical engineers as lifelong learners with the ability to adapt, grow, and succeed in mechatronics, electromechanical engineering environment, or similar highly competitive workplaces.

With both the increased complexity of product design and the merger of mechanical and electrical aspects of design, there is a growing need for professionals who have a strong foundation in the electrical, mechanical, and manufacturing disciplines. Graduates from the electrical mechanical engineering technology program are able to effectively bridge the gap between coworkers with more specialized backgrounds.

The electromechanical engineering degree prepares graduates for professional careers in the broad field of engineering technology, where the integration of mechanical, electrical, and manufacturing disciplines is important. We also provide the maximum amount of flexibility in transfer from other RIT programs and a variety of two-year programs, including engineering science and engineering technology.

What You'll Study

Students develop skills in courses that explore the fundamentals of mechanics, electrical circuits, and microprocessors, mathematics, materials technology, computer-aided engineering, and design. Later, course work focuses on both mechanical and electrical analysis and design. The major includes two technical electives and two free electives and includes a substantial amount of laboratory and project work. Teamwork, technical writing, and computer use are emphasized throughout the curriculum, which includes the presentation of industry-relevant team projects.

The major will develop well-rounded electrical mechanical engineers as lifelong learners with the ability to adapt, grow, and succeed in mechatronics, electromechanical engineering environment, or similar highly competitive workplace. The required cooperative education experience prepares students to step into professional positions after graduation and be immediately productive in careers focused on mechatronics development, electromechanical system design, and analysis, alternative energy, or system engineering.

Get Involved

Activities and Professional Organizations

Students have an opportunity to participate in regional and national design competitions such as the Society of Automotive Engineers (SAE) BAJA team, SAE Clean Snowmobile Challenge team, Formula SAE Racing and SAE Formula Electric teams. Students are also encouraged to participate in the student chapters of professional societies such as the Institute of Electrical and Electronics Engineers, the American Society of Mechanical Engineers, the Society of Manufacturing Engineers, the Society of Woman Engineers, the National Society of Black Engineers, Society of Hispanic Professional Engineers, and Society of Automotive Engineers.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the electrical mechanical engineering technology program are required to complete four co-op blocks. This typically includes one spring, one fall, and two summer blocks. You'll alternate periods of full-time study with full-time paid work experience in your career field. In some circumstances, other forms of experiential education (e.g., study abroad, research, military service) may be used to fulfill part of the co-op requirement. Each student is assigned a co-op advisor to assist in identifying and applying to co-op opportunities.

Curriculum

Electrical Mechanical Engineering Technology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Scientific Principles Perspective: General Chemistry for Engineers	3
EEET-111	DC Circuits	3
EEET-112	DC Circuits Lab	1
MATH-171	General Education – Mathematical Perspective A: Calculus A	3
MATH-172	General Education – Mathematical Perspective B: Calculus B	3
MCET-101	Fundamentals of Engineering	3
MCET-110	Foundations of Metals	2
MCET-111	Characterization of Metals Lab	1
MFET-105	Machine Tools Lab	1
MFET-120	Manufacturing Processes	3
PHYS-111	General Education – Natural Science Inquiry Perspective: College Physics I	4
UWRT-150	General Education – First-Year Writing: FYW: Writing Seminar (WI)	3
YOPS-10	RIT 365: RIT Connections	0
Choose one of the following:		3
COMM-142	General Education – Elective: Introduction to Technical Communication	
COMM-221	General Education – Elective: Public Relations Writing	
COMM-253	General Education – Elective: Communication	
ENGL-360	General Education – Elective: Written Argument	
ENGL-361	General Education – Elective: Technical Writing	
TCOM-325	General Education – Elective: Business Communication	
Second Year		
CPET-121	General Education – Elective: Computational Problem Solving I	3
EEET-121	AC Circuits	3
EEET-122	AC Circuits Lab	1
EEET-225	Electronic Amplifiers	2
EEET-226	Electronic Amplifiers Laboratory	1
EMET-290	Mechanics for Mechatronics	3
ENGT-95	Career Seminar	0
MATH-211	General Education – Elective: Elements of Multivariable Calculus and Differential Equations	3
MCET-150	Engineering Communication and Tolerancing	3
MCET-220	Principles of Statics	3
PHYS-112	General Education – Elective: College Physics II	4
STAT-145	General Education – Elective: Introduction to Statistics I	3
	General Education – Artistic Perspective	3
Third Year		
EEET-247	Microprocessors and Digital Systems	2
EEET-248	Microprocessors and Digital Systems Laboratory	1
EMET-499	EMET Co-op (spring, summer)	0
MCET-210	Foundations of Non-Metallic Materials	2
MCET-211	Characterization of Non-Metallic Materials Lab	1
MFET-340	Automation Control Systems	2
MFET-341	Automation Control Systems Lab	1
STAT-146	General Education – Elective: Introduction to Statistics II	4
	General Education – Ethical Perspective	3
Fourth Year		
EEET-241	Electrical Machines and Transformers	2
EEET-242	Electrical Machines and Transformers Lab	1
EEET-427	Control Systems	4
EMET-419	Experimental Methods for EMET (WI)	3
EMET-499	EMET Co-op (summer)	0
MCET-430	Thermal Fluid Science I	3
MCET-530	Thermal Fluid Science II	3
MFET-436	Engineering Economics	3
	General Education – Global Perspective	3
	General Education – Elective	3
	General Education – Immersion 1, 2	6
Fifth Year		
EMET-499	EMET Co-op (fall)	0
	General Education – Social Perspective	3
	General Education – Immersion 3	3
	Open Electives	6
	Technical Elective	3
Total Semester Credit Hours		**127**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accelerated dual degree option

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

Electrical Mechanical Engineering Technology, BS degree/ Manufacturing and Mechanical Systems Integration, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Scientific Principles Perspective: General Chemistry for Engineers	3
EEET-111	DC Circuits	3
EEET-112	DC Circuits Lab	1
MATH-171	General Education – Mathematical Perspective A: Calculus A	3
MATH-172	General Education – Mathematical Perspective B: Calculus B	3
MCET-101	Fundamentals of Engineering	3
MCET-110	Foundations of Metals	2
MCET-111	Characterization of Metals Lab	1
MFET-105	Machine Tools Lab	1
MFET-120	Manufacturing Processes	3
PHYS-111	General Education – Natural Science Inquiry Perspective: College Physics I	4
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar (WI)	3
YOPS-10	RIT 365: RIT Connections	0
Choose one of the following:		3
COMM-142	General Education – Elective: Introduction to Technical Communication	
COMM-221	General Education – Elective: Public Relations Writing	
COMM-253	General Education – Elective: Communication	
ENGL-361	General Education – Elective: Technical Writing	
ENGL-360	General Education – Elective: Written Argument	
TCOM-325	General Education – Elective: Business Communication	
Second Year		
CPET-121	General Education – Elective: Computational Problem Solving I	3
EEET-121	AC Circuits	3
EEET-122	AC Circuits Lab	1
EEET-225	Electronic Amplifiers	2
EEET-226	Electronic Amplifiers Laboratory	1
EMET-290	Mechanics for Mechatronics	3
EMET-499	EMET Co-op (summer)	0
ENGT-95	Career Seminar	0
MATH-211	General Education – Elective: Elements of Multivariable Calculus and Differential Equations	3
MCET-150	Engineering Communication and Tolerancing	3
MCET-220	Principles of Statics	3
PHYS-112	General Education – Elective: College Physics II	4
STAT-145	General Education – Elective: Introduction to Statistics I	3
	General Education – Artistic Perspective	3
Third Year		
EEET-247	Microprocessors and Digital Systems	2
EEET-248	Microprocessors and Digital Systems Laboratory	1
EMET-419	Experimental Methods for EMET (WI-PR)	3
EMET-499	EMET Co-op (summer)	0
MCET-210	Foundations of Non-Metallic Materials	2
MCET-211	Characterization of Non-Metallic Materials Lab	1
MCET-430	Thermal Fluid Science I	3
MCET-530	Thermal Fluid Science II	3
MFET-650	Manufacturing and Mechanical Systems Fundamentals (Counts as Undergraduate Technical Elective)	3
MFET-730	Six Sigma for Design and Manufacturing	3
STAT-146	General Education – Elective: Introduction to Statistics II	4
	General Education – Ethical Perspective	3
	MMET Concentration Course (Counts as Undergraduate Open Elective)	3
Fourth Year		
EEET-241	Electrical Machines and Transformers	2
EEET-242	Electrical Machines and Transformers Lab	1
EEET-427	Control Systems	4
EMET-499	EMET Co-op (summer)	0
GRCS-701	Research Methods	3
MFET-340	Automation Control Systems	2
MFET-341	Automation Control Systems Lab	1
MFET-436	Engineering Economics	3
STAT-670	Design of Experiments	3
	MMET Concentration Course (Counts as Undergraduate Open Elective)	3
	General Education – Elective	3
	General Education – Global Perspective	3
	General Education – Immersion 1	3
Fifth Year		
DECS-744	Project Management	3
	MMET Concentration Course	3
	MMET Elective Course	3
Choose one of the following:		3
ACCT-603	Accounting for Decision Makers	
ACCT-706	Cost Management	
Choose one of the following:		3
MFET-788	MMSI Thesis Planning	
	MMET Elective Course	
Choose one of the following:		3
MFET-797	MMSI Capstone Project	
MFET-790	MMSI Thesis	
	MMET Elective and Comprehensive Exam	
	General Education – Immersion 2, 3	6
	General Education – Social Perspective	3
Total Semester Credit Hours		**154**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accreditation

The electrical mechanical engineering technology major is accredited by the Engineering Technology Accreditation Commission of ABET.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended
- Chemistry or physics required; biology recommended
- Technology electives desirable

Transfer Admission

Transfer course recommendations without associate degree

Courses in mathematics, science, engineering science, and engineering technology

Appropriate associate degree programs for transfer

Electrical or mechanical technology, electronic technology, engineering science

Engineering Technology Exploration, Undeclared

www.rit.edu/study/engineering-technology-exploration

Mike Eastman, Professor
585-475-7787, mgeiee@rit.edu

Program overview

If you are passionate about engineering, science, technology, or manufacturing but aren't ready to commit to a specific major, the engineering technology exploration option will give you an opportunity to explore your interests. Throughout your first year, you'll take foundation courses that will introduce you to multiple areas of the engineering core, allowing time to sample some of the foundational courses in a variety of programs. You'll also gain an in-depth understanding of each engineering technology major, enabling you to identify the program that best meets your interests and career aspirations. Ultimately, you'll gain a better understanding of the career path you want to pursue.

Students interested in the fields of engineering technology or packaging science should consider the engineering technology exploration option. Students spend up to one year exploring these majors while earning course credit that can be applied to any of the programs.

Plan of study

During the first semester, students complete basic technical skills courses in the electrical, computer, civil, packaging science, or mechanical disciplines. They also participate in Engineering Technology Exploration Seminar (ENGT-110), a course that explores the unique characteristics of each engineering technology, and packaging science discipline. After the first semester, students are expected to select a major or begin focusing their studies on a particular discipline (e.g.: civil, computer, electrical, electrical mechanical, environmental management and safety, mechanical, manufacturing, or packaging science). Students in the exploration option will take courses at different times than the students who declared their major in their first year. However, in most cases, students will begin their third year on track with other students in their major.

Curriculum

Engineering technology exploration, typical course sequence

COURSE		SEMESTER CREDIT HOURS
Fall Semester		
ENGT-110	Engineering Technology Exploration Seminar	1
EEET-111	DC Circuits	3
EEET-112	DC Circuits Lab	1
MCET-101	Fundamentals of Engineering	3
MFET-105	Machine Tools Lab	1
	First Year Writing	3
	LAS Perspective	3
ACSC-010	Year One	0
	Wellness Education*	0
Spring Semester		
Choose two courses from the following majors:		
	Electrical Engineering Technology	
	Mechanical Engineering Technology	
	Electrical/Mechanical Engineering Technology	
	Computer Engineering Technology	
	Civil Engineering Technology	
	Environmental Sustainability, Health and Safety	
	Packaging Science	
	LAS Perspectives	3
Choose one of the following:		4
MATH 171	Calculus A	
	Math Sequence	
PHYS-111	LAS: College Physics I	4
Total Semester Credit Hours		**32**

Please see General Education Curriculum–Liberal Arts and Sciences (LAS) for more information.

* Please see Wellness Education Requirements for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended
- Chemistry or physics required; biology recommended
- Technology electives desirable

Environmental Sustainability, Health and Safety, BS

www.rit.edu/study/environmental-sustainability-health-and-safety-bs
Josh Goldowitz, Professor
585-475-7018, jxgctp@rit.edu

Program overview

The environmental sustainability, health and safety BS degree prepares you to work as an environmental sustainability, health and safety project and program specialist and manager for organizations in industry and government. This environmental management degree teaches you to be a champion of environmental sustainability and health and safety in industry and society. Our graduates help industries produce goods and services without contaminating the environment, without subjecting the workers to hazardous conditions and chemicals, and using less energy and fewer precious resources. The major is focused on responsibility and accountability for environmental, health and safety impacts of human activities and being good stewards of the products we make and the services we provide. Our graduates work for environmental protection organizations, Fortune 100 companies, environmental consultancies, universities, and government agencies such as the EPA, OSHA, and NYSDEC.

You will be prepared to eliminate, reduce, and control the release of pollutants into the environment and to manage health and safety hazards associated with an organization's activities, products, and services. You will gain a diverse skill set based on a strong foundation in basic sciences; applied environmental, health and safety science and technology; sustainability and social responsibility, and the basic tools of team building, effective communication, and leadership. Program graduates develop solutions for real-life environmental, health and safety problems, and drive organizations towards environmental sustainability.

Make a difference right away

The most rewarding aspect of an environmental sustainability, health and safety career is that you can start making a difference right away. There is just so much that can be done at every level of effort that you'll feel good about your contribution from the first day on the job. And, you don't have to wait until graduation to begin helping the environment. Environmental sustainability, health and safety students start their first cooperative education jobs in the spring of their third year. Our co-op students are especially helpful to the organizations for which they work because they are qualified and ready to take on some of the many environmental projects that the organizations seem never to have the time to otherwise get done.

Program educational objectives

Program mission statement: Create and maintain a high-quality, practitioner-oriented educational program in the forefront of environmental sustainability, health and safety principles and practices that will allow our graduates to be successful environmental, health and safety practitioners who can lead their organizations toward sustainability.

The program educational objectives of the environmental sustainability, health and safety program are to produce graduates who are prepared with the depth of knowledge, breadth of experiences and an understanding of professionalism that will enable them to:

1. Attain professional employment in the field of environmental sustainability, health and safety or any other closely related field.
2. Pursue additional education and/or attain professional certification (Examples: CHMM, CSP, QEP, etc.)
3. Attain increasing levels of responsibility and leadership in their chosen field.
4. Participate in organizations or activities that serve the environmental sustainability, health and safety profession and/or contribute to the ESHS of the community.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the environmental sustainability, health and safety degree are required to complete four co-op blocks. This typically includes one spring, one fall, and two summer blocks. You'll alternate periods of full-time study with full-time paid work experience in your career field. In some circumstances, other forms of experiential education (e.g., study abroad, research, military service) may be used to fulfill part of the co-op requirement. Each student is assigned a co-op advisor to assist in identifying and applying to co-op opportunities.

Curriculum

Environmental Sustainability, Health and Safety, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	3
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab	1
CHMG-142	General Education – Elective: General & Analytical Chemistry II	3
CHMG-146	General Education – Elective: General & Analytical Chemistry II Lab	1
ESHS-100	Environmental Sustainability, Health and Safety Seminar	3
ESHS-150	Principles of Environmental Sustainability, Health and Safety	3
MATH-161	General Education – Mathematical Perspective A: Applied Calculus	4
PHYS-111	General Education – Scientific Principles Perspective: College Physics I	4
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar (WI)	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
Second Year		
BIOL-101	General Education – Elective: General Biology I	3
BIOL-103	General Education – Elective: General Biology I Lab	1
ESHS-200	General Education – Elective: Environmental Geology	3
ESHS-201	Environmental Monitoring and Measurement I	2
ESHS-250	Introduction to Hydrology	3
ESHS-251	Environmental Monitoring and Measurement II	2
ESHS-290	Social Responsibility and Environmental Sustainability (WI)	3
ESHS-310	Solid and Hazardous Waste Management	3
ESHS-320	Occupational Safety	3
PHYS-112	General Education – Elective: College Physics II	4
TCOM-327	Environmental, Health and Safety Professional Communication	3
Third Year		
ENGT-95	Career Seminar	0
ESHS-330	Industrial Wastewater Management	3
ESHS-499	ESHS Co-op (spring, summer)	0
ESHS-511	Occupational Health	3
ESHS-512	Occupational Health Lab	1
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	3
	General Education – Elective	3
	General Education – Immersion 1	3
Fourth Year		
BIOL-102	General Education – Elective: General Biology II	3
BIOL-104	General Education – Elective: General Biology II Lab	1
ESHS-460	EHS Accident Causation and Prevention	3
ESHS-480	EHS Law	3
ESHS-499	ESHS Co-op (summer)	0
ESHS-525	Air Emissions Management	3
	Open Electives	6
	Professional Electives	6
	General Education – Immersion 2, 3	6
Fifth Year		
ESHS-499	ESHS Co-op (fall)	0
ESHS-515	Corporate EHS Management	3
ESHS-590	Capstone Project	3
	General Education – Social Perspective	3
	Open Electives	6
Total Semester Credit Hours		**126**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Options

Environmental sustainability

Complete 9 credits from the following courses:	
ESHS-350	Greenhouse Gas Management
ESHS-360	Sustainable World Water Supply
ESHS-544	Remedial Investigation & Corrective Action
ESHS-565	Sustainable Product Stewardship

Occupational health and safety

Complete 9 credits from the following courses:	
ESHS-225	Construction Safety
ESHS-501	Fire Protection
ESHS-530	Mechanical and Electrical Safeguarding
ESHS-565	Sustainable Product Stewardship

Surveying and geospatial analysis

Complete 10 credits from the following courses:	
CVET-160	Surveying
CVET-161	Surveying Laboratory
CVET-423	GIS for CETEMS
ISTE-382	Maps, Mapping and Geospatial Technologies

Accelerated dual degree options

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

Environmental Sustainability, Health and Safety, BS degree/ Environmental Health and Safety Management, MS degree (project option), typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	3
CHMG-142	General Education – Elective: General & Analytical Chemistry II	3
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab	1
CHMG-146	General Education – Elective: General & Analytical Chemistry II Lab	1
ESHS-100	Environmental Sustainability, Health and Safety Seminar	3
ESHS-150	Principles of Environmental Sustainability, Health and Safety	3
MATH-161	General Education – Mathematical Perspective A: Applied Calculus	4
PHYS-111	General Education – Scientific Principles Perspective: College Physics I	4
UWRT-150	General Education – First-Year Writing: FYW: Writing Seminar (WI)	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
Second Year		
BIOL-101	General Education – Elective: General Biology I	3
BIOL-103	General Education – Elective: General Biology I Lab	1
ENGT-95	Career Seminar	0
ESHS-200	General Education – Elective: Environmental Geology	3
ESHS-201	Environmental Monitoring and Measurement I	2
ESHS-251	Environmental Monitoring and Measurement II	2
ESHS-250	Introduction to Hydrology	3
ESHS-290	Social Responsibility and Environmental Sustainability (WI)	3
ESHS-310	Solid and Hazardous Waste Management	3
ESHS-320	Occupational Safety	3
PHYS-112	General Education – Elective: College Physics II	4
TCOM-327	Environmental, Health and Safety Professional Communication	3
Third Year		
BIOL-102	General Education – Elective: General Biology II	3
BIOL-104	General Education – Elective: General Biology II Lab	1
ESHS-330	Industrial Wastewater Management	3
ESHS-480	EHS Law	3
ESHS-511	Occupational Health	3
ESHS-512	Occupational Health Lab	1
ESHS-525	Air Emissions Management	3
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	3
	General Education – Elective	3
	Open Elective	3
	General Education – Immersion 1, 2	6
Fourth Year		
ESHS-460	EHS Accident Causation and Prevention	3
ESHS-515	Corporate EHS Management	3
ESHS-720	Environmental, Health and Safety Management	3
GRCS-701	Research Methods	3
	Professional Electives	9
	General Education – Immersion 3	3
	General Education – Social Perspective	3
	Open Elective	3
Fifth Year		
ESHS-740	EHS Management System Design	3
ESHS-755	Corporate Social Responsibility	3
ESHS-760	Integrating EHS Management	3
ESHS-780	EHS Internal Auditing	3
ESHS-797	Graduate Project	3
	Professional Electives (Graduate)	9
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Environmental Sustainability, Health and Safety, BS degree/ Environmental Health and Safety Management, MS degree (thesis option), typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	3
CHMG-142	General Education – Elective: General & Analytical Chemistry II	3
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab	1
CHMG-146	General Education – Elective: General & Analytical Chemistry II Lab	1
ESHS-100	Environmental Sustainability, Health and Safety Seminar	3
ESHS-150	Principles of Environmental Sustainability, Health and Safety	3
MATH-161	General Education – Mathematical Perspective A: Applied Calculus	4
PHYS-111	General Education – Scientific Principles Perspective: College Physics I	4
UWRT-150	General Education – First-Year Writing: FYW: Writing Seminar (WI)	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
Second Year		
BIOL-101	General Education – Elective: General Biology I	3
BIOL-103	General Education – Elective: General Biology I Lab	1
ENGT-95	Career Seminar	0
ESHS-200	General Education – Elective: Environmental Geology	3
ESHS-201	Environmental Monitoring and Measurement I	2
ESHS-250	Introduction to Hydrology	3
ESHS-251	Environmental Monitoring and Measurement II	2
ESHS-290	Social Responsibility and Environmental Sustainability (WI)	3
ESHS-310	Solid and Hazardous Waste Management	3
ESHS-320	Occupational Safety	3
PHYS-112	General Education – Elective: College Physics II	4
TCOM-327	Environmental, Health and Safety Professional Communication	3
Third Year		
BIOL-102	General Education – Elective: General Biology II	3
BIOL-104	General Education – Elective: General Biology II Lab	1
ESHS-330	Industrial Wastewater Management	3
ESHS-480	EHS Law	3
ESHS-511	Occupational Health	3
ESHS-512	Occupational Health Lab	1
ESHS-525	Air Emissions Management	3
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	3
	General Education – Immersion 1, 2	6
	General Education – Elective	3
	Open Elective	3
Fourth Year		
ESHS-460	EHS Accident Causation and Prevention	3
ESHS-515	Corporate EHS Management	3
ESHS-720	Environmental, Health and Safety Management	3
GRCS-701	Research Methods	3
	General Education – Immersion 3	3
	General Education – Social Perspective	3
	Open Electives	9
	Professional Elective	3
Fifth Year		
ESHS-740	EHS Management System Design	3
ESHS-755	Corporate Social Responsibility	3
ESHS-760	Integrating EHS Management	3
ESHS-780	EHS Internal Auditing	3
ESHS-788	Thesis Planning	3
ESHS-790	Thesis	3
	Professional Electives (Graduate)	6
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended
- Chemistry or physics required; biology recommended
- Technology electives desirable

Transfer Admission

Transfer course recommendations without associate degree

Math through Calculus I, micro and macroeconomics, introductory courses in biology, chemistry, and physics

Appropriate associate degree programs for transfer

Biology, chemistry, or environmental sciences; business or public administration; liberal arts with math/science

Mechanical Engineering Technology, BS

www.rit.edu/study/mechanical-engineering-technology-bs

Beth Carle, Professor
585-475-6752, easmet@rit.edu

Program overview

From consumer products to high-performance automobiles, aerospace systems, bioengineered devices, and energy technologies, mechanical engineering technology has an enormous influence on our society. Understanding how products and machinery work, as well as how to design, manufacture, or use technology to develop mechanical systems is the focus of the mechanical engineering technology degree.

Mechanical engineering technology involves understanding how products and machinery work and how to design, make or use them. From aerospace systems (rockets, jets, drones) to high-performance automobiles (electric vehicles, autonomous driving), smartphones and robotics, mechanical engineering technology have changed society for the better.

What You'll Study

In the mechanical engineering technology degree, you will study the foundations of mechanics, materials, and energy. You will learn technical skills such as computer-aided design (CAD), generative design, materials characterization, mechanical system analysis and design, thermal-fluid system design, and product design and development. You will learn to apply these principles and skills to the various fields of mechanical engineering technology--such as product and machine design, power generation, energy management, and advanced manufacturing--through laboratories and design projects. Full-time students gain valuable industrial experience through the required cooperative education program. Students may select an option in robotics and automation or product design.

The major develops well-rounded engineers as lifelong learners with the ability to adapt, grow, and succeed in a highly competitive workplace. The required cooperative education experience enables students to be well-prepared to step into professional positions after graduation and be immediately productive in jobs that include product development, machine design, and analysis, alternative energy, manufacturing engineering, or systems engineering.

Concentrations

Students select a concentration in one of the following areas: product development, machine design, and analysis, alternative energy, materials engineering, thermofluids engineering, or heating/ventilating/air conditioning (HVAC). Some students may wish to customize their own concentration based on their career objectives or personal interests.

Get Involved

Activities and Professional Organizations

Students have an opportunity to participate in regional and national design competitions such as the Society of Automotive Engineers (SAE) BAJA team, SAE Clean Snowmobile Challenge team, Formula SAE Racing and SAE Formula Electric teams. Students are also encouraged to participate in the student chapters of professional societies such as the American Society of Mechanical Engineers, the Society of Manufacturing Engineers, the Society of Woman Engineers, the National Society of Black Engineers, Society of Hispanic Professional Engineers, and Society of Automotive Engineers.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the mechanical engineering technology degree are required to complete four co-op blocks. This typically includes one spring, one fall, and two summer blocks. You'll alternate periods of full-time study with full-time paid work experience in your career field. In some circumstances, other forms of experiential education (e.g., study abroad, research, military service) may be used to fulfill part of the co-op requirement. Each student is assigned a co-op advisor to assist in identifying and applying to co-op opportunities.

Curriculum

Mechanical Engineering Technology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Scientific Principles Perspective: General Chemistry for Engineers	3
MATH-171	General Education – Mathematical Perspective A: Calculus A	3
MATH-172	General Education – Mathematical Perspective B: Calculus B	3
MCET-101	Fundamentals of Engineering	3
MCET-110	Foundations of Metals	2
MCET-111	Characterization of Metals Lab	1
MCET-150	Engineering Communication and Tolerancing	3
MFET-105	Machine Tools Lab	1
MFET-120	Manufacturing Processes	3
PHYS-111	General Education – Natural Science Inquiry Perspective: College Physics I	4
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar (WI)	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Elective	3
Second Year		
EEET-215	Circuits and Electronics	2
EEET-216	Circuits and Electronics Laboratory	1
ENGT-95	Career Seminar	0
MATH-211	General Education – Elective: Elements of Multivariable Calculus and Differential Equations	3
MCET-210	Foundations of Non-Metallic Materials	2
MCET-211	Characterization of Non-Metallic Materials Lab	1
MCET-220	Principles of Statics	3
MCET-221	Strength of Materials	4
PHYS-112	General Education – Elective: College Physics II	4
STAT-145	General Education – Elective: Introduction to Statistics I	3
Choose one of the following:		3
COMM-142	Introduction to Technical Communication	
COMM-221	Public Relations Writing	
COMM-253	Communication	
ENGL-360	Written Argument	
ENGL-361	Technical Writing	
TCOM-325	Business Communication	
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
Third Year		
MCET-320	Mechanical Dynamics with Applications	3
MCET-330	Fluid Mechanics & Fluid Power	3
MCET-499	MCET Co-op (spring, summer)	0
STAT-146	General Education – Elective: Introduction to Statistics II	4
	General Education – Artistic Perspective	3
	General Education – Social Perspective	3
Fourth Year		
MCET-400	Experimental Methods for MCET	3
MCET-430	Thermal Fluid Science I	3
MCET-450	Mechanical Analysis & Design I (WI)	3
MCET-499	MCET Co-op (summer)	0
MCET-530	Thermal Fluid Science II	3
MCET-550	Mechanical Analysis & Design II	3
MCET-551	Mechanical Analysis & Design II Lab	1
	General Education – Elective	3
	Open Electives	6
	General Education – Immersion 1, 2	6
Fifth Year		
MCET-499	MCET Co-op (fall)	0
MCET-535	Thermal Fluid Systems Project	2
	Technical Electives	6
	Open Electives	6
	General Education – Immersion 3	3
Total Semester Credit Hours		**128**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Options

Robotics and Automation

Complete 9 credits from the following courses:	
MFET-340	Automation Control Systems
MFET-341	Automation Control Systems Lab
MFET-345	Electronics Manufacturing
MFET-346	Electronics Manufacturing Lab
MFET-585	Robots & Automation
MFET-586	Robots & Automation lab

Product Design Option

Complete 9 credits from the following courses:	
MCET-582	Robust Design
MCET-583	Plastics Product Design
MCET-586	Product Innovation
MCET-595	Applied Finite Element Analysis
MFET-460	Integrated Design for Manufacture & Assembly
MFET-650	Manufacturing and Mechanical Systems Fundamentals

Accelerated dual degree option

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic advisor for more information.

Mechanical Engineering Technology, BS degree/Manufacturing and Mechanical Systems Integration, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Scientific Principles Perspective: General Chemistry for Engineers	3
MATH-171	General Education – Mathematical Perspective A: Calculus A	3
MATH-172	General Education – Mathematical Perspective B: Calculus B	3
MCET-101	Fundamentals of Engineering	3
MCET-110	Foundations of Metals	2
MCET-111	Characterization of Metals Lab	1
MCET-150	Engineering Communication and Tolerancing	3
MFET-105	Machine Tools Lab	1
MFET-120	Manufacturing Processes	3
PHYS-111	General Education – Natural Science Inquiry Perspective: College Physics I	4
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar (WI)	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Elective	3

COURSE		SEMESTER CREDIT HOURS
Second Year		
EEET-215	Circuits and Electronics	2
EEET-216	Circuits and Electronics Laboratory	1
ENGT-95	Career Seminar	0
MATH-211	General Education – Elective: Elements of Multivariable Calculus and Differential Equations	3
MCET-210	Foundations of Non-Metallic Materials	2
MCET-211	Characterization of Non-Metallic Materials Lab	1
MCET-220	Principles of Statics	3
MCET-221	Strength of Materials	4
MCET-499	MCET Co-op (summer)	0
PHYS-112	General Education – Elective: College Physics II	4
STAT-145	General Education – Elective: Introduction to Statistics I	3
Choose one of the following:		3
COMM-142	General Education – Elective: Introduction to Technical Communication	
COMM-221	General Education – Elective: Public Relations Writing	
COMM-253	General Education – Elective: Communication	
ENGL-360	General Education – Elective: Written Argument	
ENGL-361	General Education – Elective: Technical Writing	
TCOM-325	General Education – Elective: Business Communication	
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
Third Year		
MCET-320	Mechanical Dynamics with Applications	3
MCET-430	Thermal Fluid Science I	3
MCET-499	MCET Co-op (summer)	0
MCET-530	Thermal Fluid Science II	3
MFET-650	Manufacturing and Mechanical Systems Fundamentals (Counts as Undergraduate Technical Elective)	3
MFET-730	Six Sigma for Design and Manufacturing	3
STAT-146	General Education – Elective: Introduction to Statistics II	4
	General Education – Social Perspective	3
	MMET Concentration Course (Counts as Undergraduate Technical Elective)	3
	Open Elective	3
	General Education – Immersion 1	3
Fourth Year		
MCET-330	Fluid Mechanics & Fluid Power	3
MCET-400	Experimental Methods for MCET	3
MCET-450	Mechanical Analysis & Design I (WI)	3
MCET-499	MCET Co-op (summer)	0
MCET-535	Thermal Fluid Systems Project	2
MCET-550	Mechanical Analysis & Design II	3
MCET-551	Mechanical Analysis & Design II Lab	1
MFET-600	MMSI Graduate Seminar	0
STAT-670	Design of Experiments	3
	General Education – Artistic Perspective	3
	General Education – Immersion 2	3
	General Education – Elective	3
	MMET Concentration Course	3
Fifth Year		
DECS-744	Project Management	3
	MMET Concentration Course	3
	MMET Elective	3
	Open Electives	9
	General Education – Immersion 3	3
Choose one of the following:		3
ACCT-603	Accounting for Decision Makers	
ACCT-706	Cost Management	
Choose one of the following:		3
	MMET Elective	
MFET-788	MMSI Thesis Preparation	
Choose one of the following:		3
MFET-797	MMSI Capstone Project	
MFET-790	MMSI Thesis	
	MMSI Elective and Comprehensive Exam	
Total Semester Credit Hours		**155**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Options

Robotics and Automation

Complete 9 credits from the following courses:	
MFET-340	Automation Control Systems
MFET-341	Automation Control Systems Lab
MFET-345	Electronics Manufacturing
MFET-346	Electronics Manufacturing Lab
MFET-585	Robots & Automation
MFET-586	Robots & Automation lab

Accreditation

The mechanical engineering technology major is accredited by the Engineering Technology Accreditation Commission of ABET.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended
- Chemistry or physics required; biology recommended
- Technology electives desirable

Transfer Admission

Transfer course recommendations without associate degree

Courses in mathematics, science, engineering science, and engineering technology

Appropriate associate degree programs for transfer

Electrical or mechanical technology, electronic technology, engineering science

Media Arts and Technology, BS

www.rit.edu/study/media-arts-and-technology-bs

Barbara Birkett, Research Professor
585-475-2889, babppr@rit.edu

Program overview

Graphic communications–including advertising, publications, packaging, and signage delivered through print and digital communications, package printing, and so much more–represents a vibrant industry that is ideal for students interested in applied technology with a creative flair. Brand owners, marketers, and content creators need to reach audiences to effectively communicate their information and messages. RIT's media arts and technology degree prepares students to manage content from concept through distribution across multiple platforms, including print, web, mobile, and social media. In the media arts and technology major, a breadth of cross-channel graphic media production skills are taught, preparing students for leadership roles in graphic communications. Students who possess an interest in computer graphics, color science, imaging, and business will learn the skills necessary for success in a dynamic and robust industry.

Media arts and technology is a unique major that reflects the convergence of technologies that allow content to be created, formatted, stored, and then shared via computer-based publications, printed material, online services, and various forms of interactive media. This approach enables our students to build skills not only in traditional publishing but also in database management, new media production, networking, and mobile communications. The major is designed to provide students with the ability to use various content types across multiple output media.

The major also allows students to explore other areas of study, including advertising and media strategy, contemporary publishing, content management, digital imaging and premedia, print production, print quality, and 3D computer graphics.

As part of the curriculum, students will participate in two cooperative education experiences with a related business, learning the ropes of the graphics and publishing industries. These full-time, paid work experiences within the industry assist students in their ultimate job search. Upon graduation, students are well-prepared to work with photographers, graphic designers, advertisers, and publishers to create cross-media communications that inform, entertain, and persuade. Graduates have found positions in advertising production, digital imaging, print production, and web design and development.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the media arts and technology degree are required to complete cooperative education.

Curriculum

Media Arts and Technology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MAAT-101	Cross Media Foundations	3
MAAT-106	Typography and Page Design	3
MAAT-206	Print Production	3
MAAT-271	Webpage Production I	3
MAAT-272	Webpage Production II	3
MATH-101	General Education – Mathematical Perspective A: College Algebra	3
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar (WI)	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Electives	6
Second Year		
MAAT-10	Co-op Orientation	0
MAAT-107	Imaging	3
MAAT-223	Production Workflow	3
MAAT-301	Database Publishing	3
MAAT-302	Professional and Technical Writing (WI)	3
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	3
STAT-146	General Education – Elective: Introduction to Statistics II	3
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	Open Elective	3
Third Year		
MAAT-306	Information Architecture Publishing	3
MAAT-307	Media Business Management	3
	General Education – Natural Science Inquiry Perspective‡	3
	General Education – Scientific Principles Perspective‡	3
	General Education – Immersion 1, 2	6
	General Education – Elective‡	3
	General Education – Elective	3
	Professional/Technical Electives	6
Fourth Year		
MAAT-401	Team Project	3
	General Education – Immersion 3	3
	General Education – Electives	9
	Professional/Technical Electives	6
	Open Electives	9
Total Semester Credit Hours		**121**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
Students are required to complete a minimum of 20 weeks of cooperative education. This may be completed as two summer terms or one academic semester and one summer term.
‡ Students will satisfy this requirement by taking either a 3 or 4 credit lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and the lab portions to satisfy the requirement. The lecture section alone will not fulfill the requirement. Please see an adviser for a complete list of eligible courses.

Professional/Technical Electives

COURSE	
MAAT-355	Media Law
MAAT-356	Strategies in Multimedia
MAAT-359	Media Distribution and Transmission
MAAT-368	Gravure and Flexography
MAAT-376	Lithographic Process
MAAT-377	Advanced Retouching and Restoration
MAAT-446	Magazine Publishing
MAAT-541	Digital Print Processes
MAAT-544	Color Management Systems
MAAT-550	Topics in Media Arts, Sciences and Technology
MAAT-551	Lab Topics Media Arts, Sciences & Technology
MAAT-558	Package Printing
MAAT-563	Building Profit into Media Projects
MAAT-566	Typography Research
MAAT-571	Digital Asset Management

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required
- Chemistry or physics required

Transfer Admission

Transfer course recommendations without associate degree

Courses in liberal arts, college math, physics and chemistry, business

Appropriate associate degree programs for transfer

Transfer from associate degree programs considered on an individual basis

Packaging Science, BS

www.rit.edu/study/packaging-science-bs

Erin Aaron,
585-475-2278, eeaast@rit.edu

Program overview

Packaging is increasingly related to total marketing concepts. It has an even greater dependence on new developments in materials and processes. Therefore, the industry requires management personnel with creativity and a strong background in business, engineering, and science.

The packaging science degree prepares students for employment in areas such as package development, sales, purchasing, structural design, production, research, and marketing. The major was developed as a result of a close and long-established relationship between the packaging industry and RIT. This multi-billion-dollar industry exhibits dynamic growth and provides employment for thousands of professionals with wide-ranging skills and expertise.

The packaging science program at RIT is one of the most unique and respected in the country. One of only a handful in the nation to offer the program, the discipline provides students exposure to laboratory experience and real-life problem-solving. Embedded in the program is required cooperative education experience in industry. RIT is the only university in the country that requires all packaging science students to complete two blocks of cooperative education, which allows students to develop their professional skills, expand their real-world experience, and most importantly, broaden their industry contacts. Graduates are rewarded with highly developed skills, extensive materials background, and initiative knowledge of their application.

RIT's packaging science program was first established in 1972. It is an interdisciplinary degree that leads to either a bachelors or masters of science. RIT's relationship with industry leaders and the skills students obtain in development, sales, and purchasing results in professional careers within this multi-billion dollar industry. This relationship, along with the faculty being packaging professionals, ensures that students acquire the most current technological knowledge base.

Program Characteristics

The program is:

1. Career oriented-graduates are ready to enter directly into a position of responsibility.
2. Interdisciplinary-students become familiar with the many facets of packaging through courses in several RIT colleges.
3. Adaptable to a modified cooperative plan scheduled at the students' convenience, following the development of appropriate skills.
4. Representative of industry needs, content developed with the assistance of an industry advisory board, consultants from the industry and educational specialists.

Industry Advisory Board

The Industry Advisory Board contributes professional and technical expertise to the packaging science degree, which strengthens and develops the curriculum to reflect the dynamics and growth of the industry.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the packaging science degree are required to complete two co-op blocks. This typically includes one spring, one fall, and two summer blocks. You'll alternate periods of full-time study with full-time paid work experience in your career field. In some circumstances, other forms of experiential education (e.g., study abroad, research, military service) may be used to fulfill part of the co-op requirement. Each student is assigned a co-op advisor to assist in identifying and applying to co-op opportunities.

Curriculum

Packaging Science, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-123	General Education – Elective: Chemistry of Materials	3
CHMG-141	General Education – Elective: General & Analytical Chemistry I	3
CHMG-145	General Education – Elective: General & Analytical Chemistry I Lab	1
MATH-171	General Education – Mathematical Perspective A: Calculus A	3
MATH-172	General Education – Mathematical Perspective B: Calculus B	3
PACK-101	Introduction to Packaging	1
PACK-151	Packaging Design I	3
PACK-152	Packaging Design II	3
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar (WI)	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
Second Year		
CHMG-201	General Education – Elective: Introduction to Organic Polymer Technology	3
PACK-95	Career Seminar	0
PACK-211	Packaging Metals & Plastics	3
PACK-212	Packaging Paper & Glass	3
PACK-311	Containers I	3
PACK-312	Containers II	3
PHYS-111	General Education – Natural Science Inquiry Perspective: College Physics I	4
STAT-145	General Education – Elective: Introduction to Statistics I	3
	General Education – Environmental Elective†	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Third Year		
MEDG-106	General Education – Scientific Principles Perspective: Microbiology of Health and Disease	3
MKTG-230	Principles of Marketing	3
PACK-420	Technical Communications (WI)	3
PACK-421	Packaging for Distribution	3
PACK-422	Dynamics and Protective Packaging	3
PACK-430	Packaging Regulations	3
STAT-146	General Education – Elective: Introduction to Statistics II	4
	General Education – Immersion 1	3
	General Education – Elective	3
	Packaging Elective	3
Fourth Year		
PACK-470	Food Packaging	3
PACK-481	Packaging for Marketing and End Use	3
Choose one of the following:		3
DECS-310	Operations Management	
PACK-471	Packaging Supply Chain	
Choose one of the following:		3
MAAT-368	Gravure and Flexography	
MAAT-541	Digital Print Processes	
MAAT-558	Package Printing	
	Packaging Electives	6
	General Education – Immersion 2, 3	6
	Open Electives	6
Total Semester Credit Hours		**121**

Please see General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
Students must complete two blocks of cooperative education in addition to course work.
† Students may choose one of the following environmental elective courses: Concepts of Environmental Science (ENVS-101), Environment and Society (STSO-220), or Environmental Policy (STSO-421).

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended
- Chemistry or physics required; biology recommended
- Technology electives desirable

Transfer Admission

Transfer course recommendations without associate degree

Courses in business, mathematics, science, liberal arts, statistics, or computer science

Appropriate associate degree programs for transfer

Business administration, marketing, management, graphic arts, engineering science, liberal arts with math/science

Robotics and Manufacturing Engineering Technology, BS

www.rit.edu/study/robotics-and-manufacturing-engineering-technology-bs
Beth Carle, Professor
585-475-6752, easmet@rit.edu

Program overview

Thanks to innovations in industrial productivity and technology, the demand for well-prepared robotics and manufacturing engineers is only increasing. The robotics and manufacturing engineering technology major prepares you to meet the demand for professionals well-versed in advanced manufacturing technologies, which includes robotics, computer-aided design (CAD), computer numerical control (CNC), microprocessor controls, computer-aided manufacturing (CAM), flexible manufacturing systems, assembly automation, and electronics manufacturing. Students in the robotics and manufacturing engineering technology degree acquire skills in a wide variety of disciplines vital to industries seeking to contain costs and improve efficiency. Right now, robotics and manufacturing engineers are needed faster than students can complete degree programs, resulting in outstanding employment opportunities for our graduates.

This program's major thrust is on advanced manufacturing, emphasizing robotics, automated manufacturing and computer integrated manufacturing (CIM), with technical concentrations in design and assembly modeling, design for manufacture and assembly, data acquisition and instrumentation, quality control, lean six sigma, manufacturing management, plastics processing, and electronics packaging. The subjects covered in the core curriculum include traditional and non-traditional manufacturing processes, materials technology, computer-aided design, computer-aided manufacturing, controls for manufacturing automation (PLC), microprocessors, robotics, electrical and electronics principles, surface mount electronics packaging fundamentals, quality control, engineering economics, and production and operations management. The uniqueness of this program is in its combination of technical and management courses at the undergraduate level and also its emphasis on project-based hands-on practical education.

Plan of study

The robotics and manufacturing engineering technology major is designed with the aid and consultation of professionals in the field and emphasizes computer-integrated manufacturing and production system development. Courses cover traditional and non-traditional manufacturing processes, fundamentals of electronics and microprocessors, computer-aided design and manufacturing, computer numerical control, robotics, materials requirements planning, design for manufacturing and assembly, surface-mount electronics manufacturing and assembly, flexible manufacturing systems, quality control, engineering economics, plastics manufacturing, manufacturing management, and lean manufacturing.

The major prepares students for professional employment in the fields of industrial robotics, production systems design, development, and manufacturing. Designed to provide the skills necessary for applying emerging manufacturing technologies, the major develops well-rounded manufacturing engineers who are lifelong learners with the ability to adapt, grow, and succeed in a highly competitive workplace. Required cooperative education enhances these skills by allowing students to gain valuable experience working in the manufacturing industry.

Activities and Professional Organizations

Students have an opportunity to participate in regional and national design competitions such as the Society of Automotive Engineers (SAE) BAJA team, SAE Clean Snowmobile Challenge team, Formula SAE Racing, and SAE Formula Electric teams. Students are also encouraged to participate in the student chapters of professional societies such as the Society of Manufacturing Engineers (SME), the Society of Woman Engineers (SWE), the National Society of Black Engineers (NSBE), Society of Hispanic Professional Engineers (SHPE), and Society of Automotive Engineers (SAE).

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the robotics and manufacturing engineering technology program are required to complete four co-op blocks. This typically includes one spring, one fall, and two summer blocks. You'll alternate periods of full-time study with full-time paid work experience in your career field. In some circumstances, other forms of experiential education (e.g., study abroad, research, military service) may be used to fulfill part of the co-op requirement. Each student is assigned a co-op advisor to assist in identifying and applying to co-op opportunities.

Curriculum

Robotics and Manufacturing Engineering Technology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Scientific Principles Perspective: General Chemistry for Engineers	3
MATH-171	General Education – Mathematical Perspective A: Calculus A	3
MATH-172	General Education – Mathematical Perspective B: Calculus B	3
MCET-101	Fundamentals of Engineering	3
MCET-110	Foundations of Metals	2
MCET-111	Characterization of Metals Lab	1
MCET-150	Engineering Communication and Tolerancing	3
MFET-105	Machine Tools Lab	1
MFET-120	Manufacturing Processes	3
PHYS-111	General Education – Natural Science Inquiry Perspective: College Physics I	4
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar (WI)	3
YOPS-10	RIT 365: RIT Connections	0
Choose one of the following:		3
COMM-142	General Education – Elective: Introduction to Technical Communication	
COMM-221	General Education – Elective: Public Relations Writing	
COMM-253	General Education – Elective: Communication	
ENGL-360	General Education – Elective: Written Argument	
ENGL-361	General Education – Elective: Technical Writing	
TCOM-325	General Education – Elective: Business Communication	
Second Year		
CPET-121	General Education – Elective: Computational Problem Solving I	3
EEET-215	Circuits and Electronics	2
EEET-216	Circuits and Electronics Laboratory	1
ENGT-95	Career Seminar	0
EMET-290	Mechanics for Mechatronics	3
MATH-211	General Education – Elective: Elements of Multivariable Calculus and Differential Equations	3
MCET-210	Foundations of Non-Metallic Materials	2
MCET-211	Characterization of Non-Metallic Materials Lab	1
MCET-220	Principles of Statics	3
MFET-340	Automation Control Systems	2
MFET-341	Automation Control Systems Lab	1
PHYS-112	General Education – Elective: College Physics II	4
STAT-145	General Education – Elective: Introduction to Statistics I	3
	General Education – Ethical Perspective	3
Third Year		
EEET-247	Microprocessors and Digital Systems	2
EEET-248	Microprocessors and Digital Systems Laboratory	1
MCET-330	Fluid Mechanics & Fluid Power	3
MFET-499	MFET Co-op (spring, summer)	0
MFET-545	Electronics Manufacturing	3
STAT-146	General Education – Elective: Introduction to Statistics II	4
	General Education – Global Perspective	3
Fourth Year		
MFET-420	Quality Engineering Principles	3
MFET-436	Engineering Economics	3
MFET-450	Lean Production & Supply Chain Operations	3
MFET-460	Integrated Design for Manufacture & Assembly	3
MFET-499	MFET Co-op (summer)	0
MFET-585	Robots & Automation	2
MFET-586	Robots & Automation Lab	1
	General Education – Immersion 1, 2	6
	General Education – Artistic Perspective	3
	General Education – Social Perspective	3
	General Education – Elective	3
Fifth Year		
MFET-499	MFET Co-op (fall)	0
MFET-580	Production Systems Design (WI)	3
MFET-590	Production Systems Development	3
	Open Electives	6
	General Education – Immersion 3	3
Total Semester Credit Hours		**124**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accelerated dual degree option

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

Manufacturing Engineering Technology, BS degree/Manufacturing and Mechanical Systems Integration, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Scientific Principles Perspective: General Chemistry for Engineers	3
MATH-171	General Education – Mathematical Perspective A: Calculus A	3
MATH-172	General Education – Mathematical Perspective B: Calculus B	3
MCET-101	Fundamentals of Engineering	3
MCET-110	Foundations of Metals	2
MCET-111	Characterization of Metals Lab	1
MCET-150	Engineering Communication and Tolerancing	3
MFET-105	Machine Tools Lab	1
MFET-120	Manufacturing Processes	3
PHYS-111	General Education – Natural Science Inquiry Perspective: College Physics I	4
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar (WI)	3
YOPS-10	RIT 365: RIT Connections	0
Choose one of the following:		3
COMM-142	General Education – Elective: Introduction to Technical Communication (WI)	
COMM-221	General Education – Elective: Public Relations Writing (WI)	
COMM-253	General Education – Elective: Communication (WI)	
ENGL-360	General Education – Elective: Written Argument (WI)	
ENGL-361	General Education – Elective: Technical Writing (WI)	
TCOM-325	General Education – Elective: Business Communication (WI)	
Second Year		
CPET-121	General Education – Elective: Computational Problem Solving I	3
EEET-215	Circuits and Electronics	2
EEET-216	Circuits and Electronics Laboratory	1
EMET-290	Mechanics for Mechatronics	3
ENGT-95	Career Seminar	0
MATH-211	General Education – Elective: Elements of Multivariable Calculus and Differential Equations	3
MCET-210	Foundations of Non-Metallic Materials	2
MCET-211	Characterization of Non-Metallic Materials Lab	1
MCET-220	Principles of Statics	3
MCET-221	Strength of Materials	4
PHYS-112	General Education – Elective: College Physics II	4
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
Third Year		
EEET-247	Microprocessors and Digital Systems	2
EEET-248	Microprocessors and Digital Systems Laboratory	1
MFET-340	Automation Control Systems	2
MFET-341	Automation Control Systems Lab	1
MFET-450	Lean Production & Supply Chain Operations	3
MFET-460	Integrated Design for Manufacture & Assembly	3
MFET-499	MFET Co-op (summer)	0
MFET-545	Electronics Manufacturing	3
MFET-650	Manufacturing and Mechanical Systems Fundamentals (Counts as Undergraduate Open Elective)	3
MFET-730	Six Sigma for Design and Manufacturing	3
STAT-145	General Education – Elective: Introduction to Statistics I	3
STAT-146	General Education – Elective: Introduction to Statistics II	4
	General Education – Social Perspective	3
Fourth Year		
MCET-330	Fluid Mechanics & Fluid Power	3
MFET-420	Quality Engineering Principles	3
MFET-436	Engineering Economics	3
MFET-499	MFET Co-op (summer)	0
MFET-580	Production Systems Design (WI-PR)	3
MFET-585	Robots & Automation	2
MFET-586	Robots & Automation Lab	1
MFET-590	Production Systems Development	3
MFET-600	MMSI Graduate Seminar	0
STAT-670	Design of Experiments	3
	General Education – Immersion 1	3
	MMET Concentration Courses	6

COURSE		SEMESTER CREDIT HOURS
Fifth Year		
DECS-744	Project Management	3
Choose one of the following:		3
ACCT-603	Accounting for Decision Makers	
ACCT-706	Cost Management	
Choose one of the following:		3
MFET-788	MMSI Thesis Planning	
	MMET Elective Course	
Choose one of the following:		3
MFET-797	MMSI Capstone Project	
MFET-790	MMSI Thesis	
	MMET Elective and Comprehensive Exam	
	Open Elective	3
	General Education – Immersion 2, 3	6
	General Education – Elective	3
	MMET Concentration Course	3
	MMET Elective Course	3
Total Semester Credit Hours		**154**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accreditation

The robotics and manufacturing engineering technology major is accredited by the Engineering Technology Accreditation Commission of ABET.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended
- Chemistry or physics required; biology recommended
- Technology electives desirable

Transfer Admission

Transfer course recommendations without associate degree

Courses in mathematics, science, engineering science, and engineering technology

Appropriate associate degree programs for transfer

Manufacturing, mechanical, drafting and design, robotics, or electromechanical technology; engineering science

Faculty

S. Manian Ramkumar, BE, PSG, College of Technology-Bharathiar (India); ME, Rochester Institute of Technology; Ph.D., State University of New York at Binghamton—Dean

Linda A. Tolan, BS, State University College at Geneseo; MS, Rochester Institute of Technology; Ph.D., Andrews University; NCC—Senior Associate Dean for Curriculum Innovation, Human Resources and Engagement; Professor

Michael Eastman, BS, MS, Rochester Institute of Technology, Ph.D., University at Buffalo—Associate Dean for Academic Programs and Continuous Improvement; Professor

Rebecca L. Sumner, AB, Franklin and Marshall College; MA, Ph.D., University of Rochester—Assistant Dean for Research Development

Civil Engineering Technology

Yewande Abraham, BS, MS, Cardiff University (United Kingdom); Ph.D., Pennsylvania State University—Assistant Professor

Amanda Bao, BS, MS, Tianjin University (China); Ph.D., University of Colorado at Boulder—Associate Professor

Harry G. Cooke, BS, Northwestern University; MSCE, University of Texas; Ph.D., Virginia Polytechnic Institute and State University; PE—Associate Professor

G. Todd Dunn, BS, Dartmouth College; MSCE, University of California; PE—Associate Professor Emeritus

Abdullah Faruque, B.Sc., Bangladesh University of Engineering and Technology (India); M.A.Sc., Ph.D., University of Windsor (Canada); PE—Associate Professor

Robert E. McGrath Jr., BCE, Rensselaer Polytechnic Institute; MSCE, Syracuse University; PE—Professor Emeritus

Mark Pitterman, MCE, Odessa Marine Engineers Institute (Ukraine)—Professor Emeritus

Rizk Sinada, BS, MS, Rochester Institute of Technology—Lecturer

Maureen S. Valentine, BSCE, Tufts University; MECE, Virginia Polytechnic Institute and State University; PE—Professor

Scott B. Wolcott, BS, MS, State University of New York at Buffalo; PE—College of Engineering Technology Faculty Associate for Study Abroad Initiatives; Professor

Teresa Wolcott, BS, State University of New York at Buffalo; MS, Rochester Institute of Technology—Principle Lecturer

Gretchen L. Wainwright, BS, MS, Rensselaer Polytechnic Institute; PE—College of Engineering Technology Undergraduate Coordinator; Principle Lecturer

Environmental Sustainability, Health and Safety

J. Grant Esler, BS, Boston University; MPH, University of Michigan; CIH, CPE, CSP—Visiting Lecturer

Josh Goldowitz, BS, State University of New York at Binghamton; MS, University of Arizona—Undergraduate Program Coordinator; Professor

Lisa Greenwood, BS, Rochester Institute of Technology; MS, University of New Haven; Ph.D., State University of New York College of Environmental Science and Forestry—Assistant Professor

John Morelli, BS, Syracuse University; MS, Ph.D., State University of New York College of Environmental Science and Forestry; PE—Professor Emeritus

Joseph M. Rosenbeck, BS, MS, Central Missouri State University; CSP—Graduate Program Director; Professor

Jennifer L. Schneider, BA, Roberts Wesleyan College; MS, University of Rochester; Ph.D., University of Massachusetts; CIH—Eugene H. Fram Chair in Applied Critical Thinking; Professor

Electrical, Computer, and Telecommunications Engineering Technology

W. David Baker, BSEE, Monmouth College; MS, Rochester Institute of Technology—Professor Emeritus

Miguel Bazdresch, BE, Western Institute of Technology and Higher Studies (Mexico); ME, National Polytechnic Institute (Mexico); Ph.D., National Higher School of Telecommunications (France)—Associate Professor

Jeanne Christman, BS, Clarkson University; MS, University of Texas at Dallas; Ph.D., University at Buffalo—Associate Department Chair; Associate Professor

Richard C. Cliver, BS, Rochester Institute of Technology; MSEE, University of Rochester—Associate Professor

Steven A. Ciccarelli, BS, MS, Rochester Institute of Technology—Associate Professor

Holly Dickens, BS, MS, Rochester Institute of Technology—Lecturer

Thomas Dingman, BS, MS, Rochester Institute of Technology—Professor Emeritus

Clark Hochgraf, BS, State University of New York at Buffalo; Ph.D., University of Wisconsin at Madison—Associate Professor

Mark J. Indelicato, BEEE, Manhattan College; MS, Polytechnic University—Associate Professor

William P. Johnson, BA, Kings College; BSEE, MSEE, Syracuse University; JD, University at Buffalo Law School—Graduate Program Director; Professor Emeritus

Daniel S. Kaputa, BS, MS, Ph.D., University at Buffalo—Assistant Professor

Sungyoung Kim, BE, Sogang University (Korea); MM, Ph.D., McGill University (Canada)—Associate Professor

Warren L. G. Koontz, BSEE, University of Maryland; MSEE, Massachusetts Institute of Technology; Ph.D., Purdue University—Professor Emeritus

James H. Lee, BS, California Polytechnic State University; MS, Ph.D., Texas A&M University; PE—Acting Department Chair; Associate Professor

Yangming Li, BS, MS, Hefei University of Technology (China); Ph.D., University of Science and Technology of China (China)—Assistant Professor

Drew Maywar, BS, MS, Ph.D., University of Rochester—Professor

Shola Olabisi, MS, Ph.D., University at Buffalo—Assistant Professor

David M. Orlicki, BS, Michigan State University; MS, Rochester Institute of Technology; Ph.D., Massachusetts Institute of Technology—Principle Lecturer

Carol Richardson, BSEE, University of Wyoming; MSEE, Union College—Professor Emerita

John T. Schueckler, AAS, State University College at Canton; BS, Rochester Institute of Technology; MS, Rensselaer Polytechnic Institute—Senior Lecturer

George H. Zion, BS, MS, Rochester Institute of Technology; Ph.D., University at Buffalo—Professor

Manufacturing and Mechanical Engineering Technology

Ronald F. Amberger, BME, Rensselaer Polytechnic Institute; ME, Pennsylvania State University; PE—Professor Emeritus

Martin Anselm, BS, State University College at Geneseo; MS, Clarkson University; Ph.D., Binghamton University—Associate Professor

Beth A. Carle, BSE, University of Pittsburgh; MS, Ph .D ., University of Illinois; EIT Professional Certification—Program Director for Undergraduate Studies—Professor

Anthony J. Chirico III, BS, University of Buffalo; MS, Rochester Institute of Technology—Lecturer

Elizabeth M. Dell, BSME, General Motors Institute; MS, University of Michigan—Advance RIT Director; Professor

Robert D. Garrick, BSEE, GMI Engineering and Management Institute; MBA, Rochester Institute of Technology; MS, University of Rochester; Ph.D., University of South Carolina—Interim Department Chair; Professor

Martin Gordon, BSME, MSME, MBA, State University of New York at Buffalo; PE—Professor

Spencer H. Kim, BS, Hanyang University (South Korea); MS, Ph.D., University of Illinois—Associate Professor

Georgios Koutsimanis, M.Sc., Aristotle University of Thessaloniki (Greece)—Lecturer

William Leonard, AAS, State University College at Canton; BS, MS, Rochester Institute of Technology—Associate Professor

Christopher Lewis, BS, Pennsylvania College of Technology; MS, University of Texas; Ph.D., University of Rochester—Assistant Professor

Ti-Lin Liu, MS, Tsinghua University (China)—Associate Professor

Carl A. Lundgren, BS, Rensselaer Polytechnic Institute; MBA, University of Rochester—Professor Emeritus

Michael P. Medlar, BS, MS, Rochester Institute of Technology—Senior Lecturer

Robert A. Merrill, BS, Clarkson College; MS, Northeastern University; PE—Professor Emeritus

Mark W. Olles, AAS, Monroe Community College; BS, Rochester Institute of Technology; Ph.D., University of Tennessee—Associate Professor

Jennifer Mallory O'Neil, BS, University of Rochester; Ph.D., Purdue University—Assistant Professor

Michael J. Parthum Sr., BS, MS, Rochester Institute of Technology—Associate Professor

Alan D. Raisanen, BS, Drake University; Ph.D., University of Minnesota—Associate Professor

Brian Rice, BS, University of Buffalo; MS, Ph.D., University of Rochester—Assistant Professor

Michael J. Slifka, AAS, Niagara County Community College; BS, MS, Rochester Institute of Technology—Senior Lecturer

John A. Stratton, BS, Rochester Institute of Technology; MS, Rensselaer Polytechnic Institute; PE—Professor Emeritus

Renae Veneziano, MS, Rochester Institute of Technology—Lecturer

Larry A. Villasmil, BSME, Universidad del Tachira (Venezuela); MSME, Ph.D., Texas A&M University—Associate Professor

Packaging Science

Carlos A. Diaz-Acosta, BS, MS, Universidad de los Andes (Colombia); Ph.D., Michigan State University—Associate Professor

Kyle Dunno, BS, MS, Ph.D., Clemson University—Assistant Professor

Changfeng Ge, BSME, MSME, Tongji University (China); Ph.D., University of Dortmund (Germany)—Graduate Program Director; Professor

Daniel L. Goodwin, BS, MS, Ph.D., Michigan State University—Professor Emeritus

Deanna M. Jacobs, BS, State University College at Plattsburgh; MA, State University College at Geneseo; MS, Rochester Institute of Technology—Professor Emeritus

Daniel P. Johnson, BS, MS, Rochester Institute of Technology—Department Chair; Professor

Karen L. Proctor, BS, Michigan State University; MBA, Rochester Institute of Technology—Undergraduate Program Coordinator; Professor

Alexis Rich, MS, Rochester Institute of Technology—Lecturer

School of Graphic Media Science and Technology

Barbara Birkett, BA, Aquinas College; MBA, Rochester Institute of Technology; CPA, Maryland; Ph.D., Capella University— Paul and Louise Miller Endowed Professor

Robert Y. Chung, BA, Eastern Washington State University; MS, Rochester Institute of Technology—Professor Emeritus

Twyla Cummings, BS, MS, Wright State University; Ph.D., The Union Institute and University—Dean of Graduate Education; Professor

Gregory D'Amico, BA, State University of New York at Stony Brook; MA, Ph.D., New York University—Gravure Endowed Research Professor

Christine Heusner, BA, Elmira College; MFA, Rochester Institute of Technology—Senior Lecturer

Irma Abu-Jumah, BS, Dr. Jose Matias Delgado University (El Salvador); MS, Rochester Institute of Technology—Lecturer

Bruce Myers, BFA, Montclair State University; MS, Ph.D., New York University— Department Chair, Undergraduate Program Director, BS Media Arts and Technology; Associate Professor

Reserve Officer's Training Corps

Army ROTC

MAJ James Stampfer, BS, State University College at Brockport; MA, Webster University—Assistant Professor

MAJ Ryan Crosby, BA, University of New Hampshire; MS, University of Kansas—Professor

MSGT David T. Frey—Senior Military Science Instructor

LTC Eric Harrison, BS, University of North Georgia; MPM, Georgetown University—Assistant Professor

SFC Palmer Utley—Military Science Instructor

Air Force ROTC

Lt Col Jason Turner, BS, Rensselaer Polytechnic Institute; MMAS, Air Command and Staff College—Professor

Capt Austin Fox, BS, United States Air Force Academy—Assistant Professor

Capt Zachary Deats, BS, Rochester Institute of Technology—Assistant Professor

Distinguished Professorships

Russell C. McCarthy Professorship in Engineering Technology

Established: 1979

Donor: The Russell C . McCarthy endowed chair was created in 1980 by a group of six donors to augment the creation of the RIT School of Applied Industrial Studies . The endowed chair now resides in the College of Applied Science and Technology and reports to the college dean .

Purpose: To build relationships between the college and industrial and professional communities worldwide that share the college's interests, goals, and values .

Held by: open

College of Health Sciences and Technology

Richard L. Doolittle, Interim Dean
rit.edu/healthsciences

Programs of study

	Biomedical Sciences, BS	127
	Diagnostic Medical Sonography (Ultrasound), BS	130
	Diagnostic Medical Sonography (Ultrasound), Certificate	132
	Dietetics and Nutrition, BS	133
	Echocardiography (Cardiac Ultrasound), Certificate	136
	Exercise Science, BS	137
	Exercise Science, Certificate	139
	Health Systems Administration, Certificate	140
	Nutritional Sciences, BS	141
#	Physician Assistant, BS	143

Accelerated BS/MS option required.

RIT's College of Health Sciences and Technology responds to the growing need for well-educated professionals in the health care field. The United States faces a looming shortage of many types of health care professionals, including nurses, physicians, dentists, pharmacists, and allied health workers. The college, housed in the Institute of Health Sciences and Technology, serves as an independent academic and research entity designed to provide a focused, interdisciplinary, and systems approach to innovative health care education, applied/translational research, and community outreach. The institute incorporates three major thrusts: the College of Health Sciences and Technology, the Health Science Research Center, and the Health Science Community Collaboration and Outreach Center.

Please visit the college's website–**www.rit.edu/healthsciences**–for in depth information on academics, faculty, facilities, research initiatives, and more.

Admission requirements

For more information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the individual program descriptions and the Undergraduate Admission section of this bulletin.

Financial aid and scholarships

Please refer to the Financial Aid and Scholarships section of this bulletin for information regarding financial aid, scholarships, loans, and grants.

Accreditation

The college offers several professional programs, which are all fully accredited through national accrediting organizations.

The diagnostic medical sonography program (ultrasound) is accredited by the Commission on Accreditation of Allied Health Education Programs (caahep.org) upon the recommendation of the Joint Review Committee on Education in Diagnostic Medical Sonography (JRC-DMS), 25400 U.S. Hwy 19N, Suite 158, Clearwater, FL 33763, (727) 210-2350, www.caahep.org.

The physician assistant program is accredited through the Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA).

The nutrition management program is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics

Biomedical Sciences, BS

www.rit.edu/study/biomedical-sciences-bs
Robert Osgood, Associate Professor
585-475-7902, rcoscl@rit.edu

Program overview

The biomedical sciences degree prepares students for advanced study in various areas of health care (e.g. medicine, dentistry, nursing, public health) or research. The diverse curriculum includes a broad array of elective courses and offers students career-relevant experiential learning opportunities where they can apply the knowledge they gain in the classroom to real-world experiences. Comprehensive academic and faculty advising is complemented by a pre-medical/pre-health professions advising system that provides guidance to students in their selection of course work and in completing the requirements necessary for admission to advanced degree programs.

The bachelor of science degree in biomedical sciences consists of a life sciences core combined with a broad range of flexible elective options. The life sciences core provides students with a strong grounding in mathematics and science with a complement of liberal arts in preparation for a particular career path (e.g., entry into medical/dental school, graduate studies, or direct entry into a research position in an applied area of biomedical science). The program offers excellent undergraduate preparation for career fields such as medicine (allopathic and osteopathic), biomedical research, exercise science, pathology, pharmacy, pharmacology and drug development, toxicology, neuroscience, and genetic counseling. Recent graduates have gone on for advanced degrees in physician assistant, chiropractic medicine, nurse practitioner and prosthetic science. In consultation with an academic advisor and using a basic course schedule as a guideline, students may select from elective courses relevant to one of these career fields, or design their own set of science track electives approved by one of the program's academic advisors.

Students may also choose to use up to six elective credits to engage in undergraduate research or independent study with a faculty mentor. These opportunities are not limited to the biomedical sciences faculty and laboratories. Many of our students participate in highly interdisciplinary research with faculty from the College of Science, the Kate Gleason College of Engineering, the Golisano College of Computing and Information Sciences, and other centers and colleges at RIT. We strongly encourage students to explore the world beyond RIT–through study abroad, community service, experiential learning, and summer research internships. In addition, institute electives provide an excellent opportunity to pursue a secondary field of study through a minor in one of more than 100 areas of study. The program's goal is to prepare students to develop the multidisciplinary skills, self-confidence, and cross-disciplinary literacy that allows them to thrive in the dynamic, rapidly changing world of biomedicine and biomedical sciences.

Program Goals and Learning Outcomes

The biomedical sciences major has outlined the following program goals and student learning outcomes:

Develop an integrative understanding of the human body in preparation for careers in health care and biomedical sciences, including research.

- Students will master foundational knowledge of the systems and physiology of the human body.

Develop critical and analytical thinking skills.

- Students will apply knowledge to complex issues in human health and/or development.

Develop a basic understanding of the physical sciences examining mechanisms and processes across a broad range of scale.

- Students will demonstrate knowledge of key basic physics and chemistry concepts.

Expand awareness of a broad array of career options and activities in human medicine, biomedical research, and allied health professions.

- Students will acquire knowledge of different medical care and delivery systems (US and other nations), and of the role of health-related and clinical research in addressing health issues.

Careers

Employment opportunities in the biomedical sciences continue to grow and develop—driven in part by advances in biotechnology and the need for more research and better treatments for current and emerging health care and public policy challenges, including diabetes, cancer, infectious diseases, and neurological disorders. Courses are designed to provide the knowledge base and the technical skills necessary to address these challenges and are required in a broad spectrum of medical and health care related careers.

Premedical and Health Professions Advisory Program

Medical schools and graduate programs in the health professions (e.g., physician assistant, physical therapy, occupational therapy, etc.) welcome applications from students majoring in a wide range of academic programs. Acceptance into these programs requires the completion of pre-med requirements such as course work in biological and physical sciences, a strong academic record, pertinent experiences in the field, and key intrapersonal and interpersonal capabilities. Learn more about how RIT's Premedical and Health Professions Advisory Program can help you become a competitive candidate for admission to graduate programs in the medical and health professions.

Experiential Learning

A broad and demanding curriculum is the foundation for the career areas supported by the biomedical sciences degree. Yet, all of these areas also require some element of learning that occurs outside of the classroom. Hands-on, experiential learning allows students to explore new areas of study, solidify career goals, and acquire critical extracurricular credentials that increase the competitiveness of graduate and medical school applications and significantly enhance employment opportunities after graduation.

The program strongly encourages students to actively seek out new experiences and to expand their expertise to areas outside of the traditional classroom. These opportunities may include paid employment on campus, study abroad, volunteer work and community service, K-12 outreach and enrichment, professional career shadowing and career-relevant employment, on-campus undergraduate research, Research Experiences for Undergraduates (REUs), summer research internships, and other paid cooperative education programs. Students receive collaborative advising from faculty and staff in order to systematically build towards their own career goals. In addition, the RIT/Rochester Regional Health Alliance is dedicated to innovation in medical care, education, and research for the betterment of individuals in both respective institutions and the greater Rochester community. RIT is Rochester Regional Health's official academic affiliate and Rochester Regional Health is the university's official affiliated clinical partner.

Curriculum

Biomedical Sciences, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-121	General Education – Elective: Introductory Biology I	4
BIOL-122	General Education – Elective: Introductory Biology II	4
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	3
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab	1
CHMG-142	General Education – Scientific Principles Perspective: General & Analytical Chemistry II	3
CHMG-146	General Education – Elective: General & Analytical Chemistry II Lab	1
MATH-161	General Education – Mathematical Perspective A: Applied Calculus	4
MEDS-242	Cell Structure & Function	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Elective	3
	General Education – First-Year Writing (WI)	3
Second Year		
BIOL-202	Molecular Biology	4
MEDS-250	General Education – Elective: Human Anatomy and Physiology I	4
MEDS-251	General Education – Elective: Human Anatomy and Physiology II	4
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	3
	General Education – Elective: Chemistry Sequence Course 1*	4
	Chemistry Sequence Course 2*	3
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
Third Year		
	Program Elective Requirements	12
	Professional Electives	9
	Professional Elective (WI-PR)	3
	General Education – Social Perspective	3
	General Education – Immersion 1	3
Fourth Year		
	Program Elective Requirements	6
	Professional Electives	6
	Open Electives	12
	General Education – Immersion 2, 3	6
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.

(WI-PR) Refers to a writing intensive course within the major.

Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

* Students must choose one of the chemistry sequences below depending on their anticipated career path. For those interested in the pursuit of most allied health career paths: (CHMO-231 Organic Chemistry I, CHMO-235 Organic Chemistry Lab I and CHMB-240 Biochemistry for Health Sciences) or (CHMO-231 Organic Chemistry I, CHMO-235 Organic Chemistry Lab I and CHMB-402 Biochemistry I). For those applying to medical/dental, DPT, PharmD, graduate (research-focused MS/PhD): CHMO-231 Organic Chemistry I, CHMO-235 Organic Chemistry Lab I, CHMO-232 Organic Chemistry II and CHMO-236 Organic Chemistry Lab II.

Electives

Biomedical sciences program electives

Each student must choose a minimum of two courses from each category (for a minimum total of 18 SCH) of Program Electives below. One course cannot be used more than once to this requirement. Additional courses from the list below of from the list of professional electives may be used to meet professional elective requirements.

Medical foundations

COURSE	
MEDS-417	Clinical Microbiology
MEDS-418	Clinical Microbiology Lab
MEDS-422	Endocrinology
MEDS-425	Introduction to Neuroscience
MEDS-520	Histology & Histopathology
MEDS-530	Human Immunology

Medicine and disease

COURSE	
MEDS-245	Medical Genetics
MEDS-313	Introduction to Infectious Diseases
MEDS-421	Parasitology
MEDS-430	Epidemiology
MEDS-515	Medical Pathophysiology

Medicine and health

COURSE	
EXSC-320	Coaching Healthy Behavior
MEDS-402	Biomedical Ethics
Choose one of the following:	
MEDS-360	Placebo, Suggestion, Research and Health
MEDS-361	Applied Psychophysiology and Self-Regulation
Choose one of the following:	
MEDS-311	Diagnosing the Criminal Mind
MEDS-426	Addiction Pharmacology
Choose one of the following:	
NUTR-215	Contemporary Nutrition
NUTR-300	Sports Nutrition

Biomedical sciences professional electives

COURSE	
BIOL-265	Evolutionary Biology
BIOL-302	Cell Biology
BIOL-303	Cell Physiology
BIOL-306	Food Microbiology
BIOL-308	Biology of Cancers
BIOL-314	Tissue Culture
BIOL-321	Genetics
BIOL-322	Developmental Biology
BIOL-340	Genomics
BIOL-365	Introduction to Population Genetics
BIOL-375	Advanced Immunology
BIOL-412	Human Genetics
BIOL-415	Virology
BIOL-420	Bacterial-Host Interactions: Microbiomes of the World
BIOL-427	Microbial and Viral Genetics
BIOL-428	Eukaryotic Gene Regulation and Disease
BIOL-450	Genetic Engineering
BIOL-601	Genetic Diseases and Disorders
CHMA-261	Instrumental Analysis
CHMB-240	Biochemistry for Health Sciences
CHMB-402	Biochemistry I
CHMB-405	Biochemistry Lab
CHMO-231	Organic Chemistry I
CHMO-232	Organic Chemistry II
CHMO-235	Organic Chemistry I Lab
CHMO-236	Organic Chemistry II Lab
EXSC-205	Sports Physiology & Life Fitness
EXSC-206	Fitness Prescription
EXSC-207	Exercise for Special Populations
EXSC-280	Strength Training for Performance
EXSC-320	Coaching Healthy Behavior
EXSC-410	Kinesiology
EXSC-430	Theory of Athletic Injury
EXSC-480	Training High Performance Athletes
EXSC-550	Exercise Physiology
MEDS-201	Language of Medicine
MEDS-240	History of Medicine
MEDS-245	Medical Genetics
MEDS-290	Biomedical Research
MEDS-300	Premedical Studies Seminar
MEDS-310	Introduction to Pharmacology
MEDS-311	Diagnosing the Criminal Mind
MEDS-313	Introduction to Infectious Diseases
MEDS-333	Patient Care
MEDS-345	Care-Based Genetic Counseling
MEDS-355	Introduction to Global Health
MEDS-356	Field Studies in Molecular Epidemiology
MEDS-360	Placebo, Suggestion, Research and Health
MEDS-361	Applied Psychophysiology and Self-Regulation
MEDS-370	Community Healthcare
MEDS-402	Biomedical Ethics
MEDS-403	US Healthcare
MEDS-411	Researching the Criminal Mind
MEDS-415	Pathophysiology of Organ Systems I
MEDS-416	Pathophysiology of Organ Systems II
MEDS-417	Clinical Mircobiology
MEDS-418	Clinical Mircobiology Lab
MEDS-421	Parasitology
MEDS-422	Endocrinology
MEDS-425	Introduction to Neuroscience
MEDS-426	Addiction Pharmacology
MEDS-430	Epidemiology
MEDS-440H	Cardiac Imaging
MEDS-470	Examining the Clinical Experience
MEDS-475	Health Coach Practicum
MEDS-490	Human Gross Anatomy
MEDS-499	Biomedical Sciences Co-op
MEDS-501	Human Development
MEDS-510	Biomedical Research
MEDS-511	Interdisciplinary Research
MEDS-515	Medical Pathophysiology
MEDS-518	Oral Microbiology
MEDS-520	Histology & Histopathology
MEDS-530	Human Immunology
MEDS-599	Biomedical Independent Study
NUTR-215	Contemporary Nutrition
NUTR-300	Sports Nutrition
PHYS-111	College Physics I
PHYS 112	College Physics II

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math is required. Pre-calculus is recommended
- Biology and Chemistry required

Transfer Admission

Transfer course recommendations without associate degree

Courses in liberal arts, sciences, and math

Appropriate associate degree programs for transfer

AS degree in biology or liberal arts with biology option

Diagnostic Medical Sonography (Ultrasound), BS

www.rit.edu/study/diagnostic-medical-sonography-ultrasound-bs
Hamad Ghazle, Professor
585-475-2241, hhgscl@rit.edu

Program overview

Imagine the possibilities that can result from attending a nationally-ranked ultrasound program that houses a modern, state-of-the-art scanning suite where classes are taught by outstanding faculty who are leaders in their field. The outcome is a first-rate educational experience, complete with a year of on-site clinical training, that sets you a path for success in a dynamic health care field.

Ultrasound has revolutionized the field of medicine. It offers a unique opportunity in the diagnosis, evaluation, and treatment of medical diseases and conditions without the use of surgery, injection of dyes, or radiation. Diagnostic medical sonography is a noninvasive, nontoxic diagnostic medical imaging modality in which high-frequency sound waves are used to produce images of the human body. Ultrasound is readily used to image the heart, blood flow, and abdominal organs as well as the developing fetus and male/female reproductive organs. But ultrasound has found itself to be a critical health care tool beyond radiology, OB/GYN, vascular, and cardiology. It is now used in areas such as emergency medicine, orthopedics, sports medicine, ophthalmology, rheumatology, pain medicine, intensive care, and more. The profession has grown rapidly in the last 20 years and is expected to continue to grow over the next several decades. Evaluation of the job market, advancements in medical technology, and a survey of current employers all indicate a strong demand for well-trained sonographers.

Plan of study

The diagnostic medical sonography degree is a four-year program that includes a one year clinical internship. It's one of a few programs nationally that can lead to a bachelor of science degree. The program provides extensive didactic lectures, full immersion ultrasound scanning in a state-of-the-art Ultrasound Scanning Suite, and a one-year clinical internship. The program combines a strong science education with practical experience and liberal arts course work to prepare students for a career in ultrasound, a related medical field, as well as preparation for graduate study, including medical and dental school. The program emphasizes skills in administration and research, in addition to the development of scanning and diagnostic abilities with a focus on relevancy to clinical practice. This high-quality comprehensive background makes you well-prepared, well-trained, and sought-after in the work place.

Apply your knowledge
With a rigorous hands-on approach, coupled with an emphasis placed on experiential learning, you will gain a wealth of experience applying what you've learned in classroom lectures and lab experiences to a variety of real-life situations. A dedicated faculty is both engaged and passionate about your education and are fully committed to the development of exceptional sonographers and leaders.

Graduates are prepared to pursue a variety of career options, nationally and internationally, in medical, industrial, and educational settings. Graduates can be found in a wide range of positions, including supervisory and administrative, in hospitals, clinics, private physicians' offices, teaching, research, sales, and industry. Graduates also can work as freelance sonographers or for mobile services.

Medical Community Support
The diagnostic medical sonography program benefits from a comprehensive, supportive medical community comprised of highly-trained radiologists, physicians, sonologists, sonographers, and echocardiographers that guide, educate, and train our students. Many of these professionals are involved in teaching our students at both on-campus and off-campus clinical sites. Our partner clinical sites also employ many of our graduates. Through these interactions, you are exposed to generous and dedicated health care professionals who will enhance your education through professional development, increase your awareness of community needs, and share a sense of cooperative spirit in which medicine is practiced. In addition, many of our clinical instructors, echocardiographers, and sonographers are alumni and are familiar with the standards, expectations, and rigor of our program. Learn more about the program's affiliated faculty.

Program Outcomes and Attrition Rate
The diagnostic medical sonography has exceptional passing rates on the national examinations:
- OB/GYN: 93%
- Abdomen: 100%
- Cardiac: 100%

The program has a very low attrition rate (0%) and a retention rate of 100%. Job placement is also 100%.

Program Policy and Procedures Handbook/Technical Standards
Please refer to these two documents for more information:
- Program Policy and Procedures Handbook
- Technical Standards

Additional Educational Opportunities
In addition to a BS in ultrasound, RIT also offers a certificate in diagnostic medical sonography and a certificate in echocardiography (cardiac ultrasound). Both of these options are not only designed to meet the growing needs of the national and international medical communities but also the needs of individuals who:
- Hold a degree in the life sciences and other closely related degrees that may be approved by the program director. Additional pre-requisite coursework may be required for any type and level of degree.
- Have a current, active license or registry in an area of medical or allied health sciences, some examples of medical or allied health sciences areas include respiratory therapy, nuclear medicine, physical therapy, radiography (x-rays), nursing, and more. Any of the more than 200 medical or allied health sciences fields also will be considered.

Premedical and Health Professions Advisory Program
Medical schools and graduate programs in the health professions (such as physician assistant, physical therapy, and occupational therapy) welcome applications from students majoring in a wide range of academic programs. Acceptance into these programs requires the completion of pre-med requirements such as course work in biological and physical sciences, a strong academic record, pertinent experiences in the field, and key intrapersonal and interpersonal capabilities. Learn more about how RIT's Premedical and Health Professions Advisory Program can help you become a competitive candidate for admission to graduate programs in the medical and health professions.

Sonography as a Pre-Med Option
Being accepted into a medical graduate program requires certain qualifications, including completing prerequisite courses, a strong academic record, acquiring pertinent experiences in the field, and developing key intrapersonal and interpersonal qualities. The Premedical and Health Professions Advisory Program works with all students on an individual

basis to help them become competitive candidates for admission to graduate programs in the medical and health professions.

The diagnostic medical sonography major has assisted students in entering the world of medicine and dentistry. With the addition of a few courses and without extending your study at RIT, the program can prepare you for medical, dental, veterinary, or other graduate school programs in the medical or health sciences. Graduates of the program have gone on to become physicians, dentists, chiropractors, veterinarians, and more. Learn more about how diagnostic medical sonography can be used as a pre-med option.

Experiential Learning

Clinical Internships

The one-year clinical internship provides hands-on experience at two or more approved medical facilities. After completing the pre-internship course work, all students begin the internship by attending an intensive two-week experience on campus. During this time they enhance and polish the skills they previously learned, prepare to perform complete sonographic examinations as performed in real clinical settings, and advance their knowledge in recognizing anatomy and disease states using a variety of equipment in the Ultrasound Scanning Suite. Students also learn about hospital, departmental, and administrative operations. After completing these requirements, candidates are assigned to a medical training site for their clinical experience. At these facilities, students work side-by-side with sonographers, physicians, and other health care professionals to learn, develop, apply, and sharpen the necessary skills to perform general ultrasound examinations. Students' clinical progress and performance are closely monitored by the program's clinical coordinator and program director, who have regular communication and make periodic visits to the clinical internship sites. Additionally, students return to campus each month for three days of lectures, presentations, projects, and testing. Students may complete their clinical internships at any approved regional or national medical ultrasound facility, with approval of the program director.

Curriculum

Diagnostic Medical Sonography (general ultrasound), BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-101	General Education – Elective: General Biology I	3
BIOL-102	General Education – Elective: General Biology II	3
BIOL-103	General Education – Elective: General Biology I Lab	1
BIOL-104	General Education – Elective: General Biology II Lab	1
MATH-111	General Education – Mathematical Perspective A: Precalculus	3
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Elective	3
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Social Perspective	3
	General Education – Global Perspective	3
	General Education – First Year Writing (WI)	3
Second Year		
MEDS-201	General Education – Elective: Language of Medicine	3
MEDS-250	General Education – Elective: Human Anatomy and Physiology I	4
MEDS-251	General Education – Elective: Human Anatomy and Physiology II	4
PHYS-111	General Education – Natural Science Inquiry Perspective: College Physics I	4
PHYS-112	General Education – Scientific Principles Perspective: College Physics II	4
	General Education – Immersion 1	3
	General Education – Immersion 2	3
	Open Electives	6
Third Year		
DMSO-301	Sonographic Scanning Skills and Techniques I	3
DMSO-302	Sonographic Scanning Skills and Techniques II	3
DMSO-309	Sonography Physics and Instrumentation I	3
DMSO-310	Sonography Physics and Instrumentation II	3
DMSO-312	Human Cross-Sectional Anatomy	3
MEDS-333	Patient Care	2
MEDS-415	Pathophysiology of Organ Systems I	3
	General Education – Immersion 3	3
	Open Electives	6
Fourth Year		
DMSO-414	Sonographic Vascular Evaluation	3
DMSO-452	Obstetrical Sonography I	3
DMSO-453	Gynecological Sonography	3
DMSO-454	Obstetrical Sonography II	3
DMSO-456	Abdominal and Small Parts Sonography I	3
DMSO-457	Abdominal and Small Parts Sonography II	3
DMSO-460	Administration and Research in Sonography (WI-PR)	3
DMSO-570	Clinical Sonography I	7
DMSO-571	Clinical Sonography II	5
Total Semester Credit Hours		**125**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accreditation

The diagnostic medical sonography (ultrasound) program is accredited by the Commission on Accreditation of Allied Health Education Programs upon the recommendation of the JRC-DMS.

Commission on Accreditation of Allied Health Education Programs
25400 US Hwy 19 N., Suite 158
Clearwater, FL 33763
727-210-2350
caahep.org

It is noteworthy to mention that the program is institutionally accredited and programmatically accredited. This type of dual accreditation meets both professional and employer requirements and also allows our graduates to immediately sit for the national board examinations administered by the American Registry of Diagnostic Medical Sonography (ARDMS).

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math is required. Pre-calculus is recommended
- Biology is required. Physics recommended

Transfer Admission

Transfer course recommendations without associate degree
Courses in liberal arts, sciences, and math

Appropriate associate degree programs for transfer
AS degree in liberal arts with science option; allied health; radiologic technology

Diagnostic Medical Sonography (Ultrasound), Certificate

www.rit.edu/study/diagnostic-medical-sonography-ultrasound-certificate
Hamad Ghazle, Professor
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Program overview

The diagnostic medical sonography certificate is an 18-month program that includes a clinical internship. The program – which focuses on various abdominal, gynecological, obstetrical, and small parts examinations including certain vascular studies – has been designed to meet and exceed the objectives of the Joint Review Committee on Education in Diagnostic Medical Sonography of the Commission on Accreditation of Allied Health Education Programs (CAAHEP). It was created to produce competent, compassionate, and responsible ultrasound professionals and leaders. The certificate is available to all registered allied health practitioners as well as to those holding an associate or bachelor's degree in a relevant discipline. The program includes lectures and course work integrated with a clinical internship. Dependent on a student's previous degree, certain prerequisite courses may be required prior to enrollment. Required prerequisite courses include one year of anatomy and physiology with laboratories and one year of college or general physics with laboratories.

Graduates earning the certificate will:

- gain a thorough working knowledge of ultrasound scanning techniques;
- be skilled in the operation of ultrasound instrumentation and laboratory equipment;
- acquire the proper manner in working with patients; and
- under the guidance from faculty and professional staff, be capable of scheduling and performing the daily workload of ultrasound procedures, of evaluating new procedures where necessary, and of supervising other technical personnel.

Plan of study

During the first academic year, students complete all the prerequisite courses required to enter the clinical internship phase of the program. Students also apply, polish, and test their clinical skills and techniques in the on-campus ultrasound scanning suite, which is equipped with a variety of ultrasound equipment. Following a required two-week pre-clinical internship orientation session, students begin their training at the first of two assigned clinical training sites.

Experiential Learning

Clinical Internship

The one-year clinical internship provides hands-on experience at two or more approved medical facilities. After completing the pre-internship course work, all students begin the internship by attending an intensive two-week experience on campus. During this time they enhance and polish the skills they previously learned, prepare to perform complete sonographic examinations as performed in real clinical settings, and advance their knowledge in recognizing anatomy and disease states using a variety of equipment in the Ultrasound Scanning Suite. Students also learn about hospital, departmental, and administrative operations. After completing these requirements, candidates are assigned to a medical training site for their clinical experience. At these facilities, students work side-by-side with sonographers, physicians, and other health care professionals to learn, develop, apply, and sharpen the necessary skills to perform general ultrasound examinations. Students' clinical progress and performance are closely monitored by the program's clinical coordinator and program director, who have regular communication and make periodic visits to the clinical internship sites. Additionally, students return to campus each month for three days of lectures, presentations, projects, and testing. Students may complete their clinical internships at any approved regional or national medical ultrasound facility, with approval of the program director.

Curriculum

Diagnostic Medical Sonography, certificate, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
DMSO-301	Sonographic Scanning Skills and Techniques I	3
DMSO-302	Sonographic Scanning Skills and Techniques II	3
DMSO-309	Sonography Physics and Instrumentation I	3
DMSO-310	Sonography Physics and Instrumentation II	3
DMSO-312	Human Cross-Sectional Anatomy	3
MEDS-333	Patient Care	2
MEDS-415	Pathophysiology of Organ Systems I	3
Second Year		
DMSO-414	Sonographic Vascular Evaluation	3
DMSO-452	Obstetrical Sonography I	3
DMSO-453	Gynecological Sonography	3
DMSO-454	Obstetrical Sonography II	3
DMSO-456	Abdominal and Small Parts Sonography I	3
DMSO-457	Abdominal and Small Parts Sonography II	3
DMSO-460	Administration and Research in Sonography	3
DMSO-570	Clinical Sonography I	7
DMSO-571	Clinical Sonography II	5
Total Semester Credit Hours		**53**

Dietetics and Nutrition, BS

www.rit.edu/study/dietetics-and-nutrition-bs
Elizabeth Ruder, Assistant Professor
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Program overview

Public interest in nutrition for maintaining good health throughout life has never been stronger. Completing a degree in dietetics and nutrition is your first step to becoming a Registered Dietitian Nutritionist (RDN; also known as an RD). RDNs work with people of all ages, cultures, and economic means. They are credentialed health professionals who apply nutritional science to individuals, families, communities, and beyond to help their clients address nutritional needs.

People are increasingly interested in the nutritional requirements for obtaining good health and long life. Registered dietitian nutritionists (RDNs) work with people of all ages, cultures, and economic means. They learn to understand people as individuals, thereby helping their clients solve their nutritional needs. RDNs are health professionals who apply the art and science of food and nutrition.

The major leads to a BS degree that meets the educational requirements of the Academy of Nutrition and Dietetics. The pre-professional phase (years 1 and 2) involves core courses in science, food science, basic nutrition, mathematics, liberal arts, and business. The professional phase (years 3 and 4) includes practicum experiences in various upper-division courses. Three cooperative work experiences, including one position in health care food and nutrition services, are a requirement of the major. Students also have the opportunity to acquire a certificate or minor in a variety of content areas, including exercise science. To become credentialed as an RDN students also need to complete an accredited supervised practice after graduation and pass the National Registration Exam for Dietitian Nutritionists.

Part of the Wegmans School of Health and Nutrition, the BS program in dietetics and nutrition is a challenging curriculum that prepares students to become RDNs and to practice in diverse settings such as hospitals, clinical practices, other health care facilities, universities, government agencies, research facilities, food and pharmaceutical companies, public health organizations, public wellness programs, school foodservice, commercial foodservice, journalism, marketing, sports nutrition, and corporate wellness programs. (Additional information is available in the Dietetics and Nutrition Program Handbook.)

Program strengths

- RIT/Rochester Regional Health Alliance: RIT is Rochester Regional Health's official academic affiliate and Rochester Regional is the university's official affiliated clinical partner. We work together to improve the quality and cost of health care delivery, and to demonstrably improve the health of the people of Western New York and the Finger Lakes. The alliance provides a primary network of health care opportunities for student work experiences (co-ops), practicums, and research.
- A successful program with a significant history at RIT. The dietetics and nutrition program originated in 1892 as a food program under RIT's predecessor, Mechanics Institute.
- Our alumni include Dr. Judith Brown, author of a nationally used nutrition text; Dr. Penny Kris-Etherton, Distinguished professor at The Pennsylvania State University and winner of several award for research including dietary fats and health benefits of dark chocolate.
- Active support and interaction with Rochester nutrition and health care communities provide significant opportunities for experiential learning activities in upper division courses
- Faculty with strong teaching and research skills who have won awards for teaching and conducting research. They have presented research at national and international conferences and routinely publish in peer-reviewed science and health journals.
- Historical relationship with RIT's hospitality and tourism management major emphasizes culinary expertise, management, and leadership training, fostering a unique skill set for the Registered Dietitian Nutritionist
- Excellent first-time pass rate on RD exam puts RIT in the 88th percentile of all DPD-programs for first-attempt pass rate.
- Excellent supervised practice (dietetic internship) placement rate (Over past five years, 100% of graduates who seek supervised practice are placed within 12 months of graduating)
- Excellent employment rate (100% of graduates over the past five years are employed in the field within six months of completing dietetic internship)
- Curriculum equally emphasizes clinical nutrition, community nutrition, and food management, which prepares students for diverse employment opportunities
- Small program size and dedicated faculty members ensure individualized student attention
- Strong undergraduate research component: Each student completes two individual and one group research project with frequent dissemination of student research at the annual meeting of the New York State Academy of Nutrition & Dietetics
- Requirement of co-op work experiences in food and nutrition supported by Office of Career Services and Cooperative Education
- New state of the art facility includes significant opportunities for interdisciplinary experiences with other health care programs and real-world experience for students via actual health clinics and simulation laboratory
- Inclusion of physical-focused assessment using a simulation laboratory.
- Multiple opportunities for international study experiences, including faculty-led programs to study the Mediterranean Diet in Croatia and childhood anemia in Ghana. Study abroad opportunities at RIT's global campuses in China, Croatia, Dubai, and Kosovo, or through affiliate programs at other universities

Mission

The mission of RIT's dietetics and nutrition major is based on the philosophy that a college graduate should have a broad-based education. This encompasses meeting the current and future needs of students for supervised practice leading to eligibility for the CDR credentialing exam to become a RDN and practice careers in the changing food and nutrition environment to better serve society.

Goals of the dietetics and nutrition program

1. Prepare graduates for successful application to accredited supervised practice programs and to become competent, entry-level Registered Dietitian Nutritionists.
2. Prepare graduates to continually participate in professional development.

Objectives/Outcomes of the dietetics and nutrition program

Objective: The program's one-year pass rate (graduates who pass the registration exam within one year of first attempt) on the CDR credentialing exam for dietitian nutritionists is at least 80%.
Outcome: 100% one-year pass rate.

Objective: 80% of program graduates are admitted to a supervised practice program within 12 months of graduation.

Outcome: 100% acceptance into a supervised practice program within 12 months of graduation.

Objective: 85% of program graduates apply for admission to a supervised practice program prior to or within 12 months of graduation.
Outcome: 90% applied to supervised practice program prior to or within 12 months of graduation.

Objective: At least 80% of program students complete program/degree requirements within 6 years (150% of program length).
Outcome: 100% of students complete the program within 6 years (150% of program length).

Objective: At least 90% of supervised practice directors who answer a survey will agree or strongly agree with the statement: "This RIT graduate was adequately prepared for supervised practice."
Outcome: Data under collection, outcome forthcoming.

Objective: 95% of graduates who responded to a survey and have completed or are completing supervised practice will verify that they were prepared.
Outcome: 100% of graduate survey responders felt they were prepared for supervised practice.

Objective: 100% of students in the third and fourth year of the program will be members of the Academy of Nutrition and Dietetics (AND).
Outcome: 100% of third- and fourth-year students are AND members.

Objective: 100% of all graduates who become RDNs will participate in professional development activities required for maintenance of RDN status
Outcome: Data under collection, outcome forthcoming.

Becoming a Registered Dietitian Nutritionist (RDN)

The following are the steps necessary to become a Registered Dietitian Nutritionist:

- Successful completion of the BS in dietetics and nutrition degree requirements; including three blocks of approved cooperative education experience.
- Complete an ACEND accredited 1,200 hour supervised practice program, such as a dietetic internship or coordinated master's program after graduation.
- Pass the CDR Credentialing Exam for Dietitians.

In addition to the professional credential of the RDN, forty-six states currently have statutory provisions (licensure/certification) regarding professional regulation of dietitians and/or nutritionists. Information regarding statutes of individual states is provided by the Academy of Nutrition and Dietetics.

Effective January 1, 2024, the Commission on Dietetic Registration (CDR) will require a minimum of a master's degree to be eligible to take the credentialing exam to become a registered dietitian nutritionist (RDN). In order to be approved for registration examination eligibility with a bachelor's degree, an individual must meet all eligibility requirements and be submitted into CDR's Registration Eligibility Processing System (REPS) before 12:00 midnight Central Time, December 31, 2023. For more information about this requirement visit CDR's website. In addition, CDR requires that individuals complete course work and supervised practice in program(s) accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND). Graduates who successfully complete the ACEND-accredited Didactic program at Rochester Institute of Technology are eligible to apply to an ACEND-accredited supervised practice program. In most states, graduates also must obtain licensure or certification to practice. Visit the Commission on Dietetic Registration for more information on state licensure requirements.

RIT's dietetics and nutrition program will be compliant with these new requirements for accreditation.

Visit the Academy of Nutrition and Dietetics for more information about educational pathways to become a RDN.

Career opportunities for a Registered Dietitian Nutritionist

A Registered Dietitian Nutritionist advises and counsels others on food, nutrition, and lifestyle. They may explain nutrition issues, assess a client's dietary and health needs, develop meal plans, gauge the effects of these meal plans, conduct research, and promote nutrition through public speaking and community outreach programs. Salary information for dietitians and nutritionists is available from the Bureau of Labor Statistics. Specialties within the Registered Dietitian Nutritionist profession include:

- Hospitals, HMOs, or other health care facilities: Educating patients about nutrition and administering medical nutrition therapy as part of the health care team. RDNs may also manage the foodservice operations in these settings, as well as in schools, day-care centers, and correctional facilities, overseeing everything from food purchasing and preparation to managing staff.
- Sports nutrition and corporate wellness programs: Educating clients about the connection between food, fitness, and health.
- Food and nutrition-related businesses and industries: Working in communications, consumer affairs, public relations, marketing, or product development.
- Private practice, working under contract with health care or food companies, or in their own business: RDNs may provide services to foodservice or restaurant managers, food vendors and distributors, athletes, nursing home residents, or company employees.
- Community and public health settings: RDNs teach, monitor, and advise the public, and help to improve quality of life through healthy eating habits.
- Universities and medical centers: Teaching physicians, nurses, dietetics students, and others the sophisticated science of food and nutrition.
- Research areas: In food and pharmaceutical companies, universities and hospitals, directing or conducting experiments to answer critical nutrition questions and find alternative foods or nutrition recommendations for the public.

Student Dietetics and Nutrition Association

The student Dietetics and Nutrition Association is a student club comprised of dietetics and nutrition students and supports experiential learning outside of the classroom. The club promotes health and nutrition on campus as well as volunteer opportunities with local organizations. Club activities include volunteering at local food banks and schools, presenting health related information at RIT events, and educational activities for members.

Community partners

As a dietetics and nutrition student, the Rochester metropolitan area is your lab for hands-on, experience-based learning. The program has a rich history in the community and partners with a variety of organizations throughout the area to expose students to a wide range of nutrition-related settings. These organizations represent a small sampling of the over 50 community partners with whom we collaborate:

- Abbott Nutrition
- American Dairy Association and Dairy Council
- American Heart Association
- Food and Drug Administration
- Foodlink

- Gates-Chili School District
- Heritage Christian Services
- Hillside Family of Agencies
- Jewish Senior Life
- Genesee Dietetic Association
- On Nutrition
- Ortho-Clinical Diagnostics
- RIT
- RIT Dining Services
- Rochester Psychiatric Center
- Rochester Regional Health
- University of Rochester Medical Center
- Wegmans
- WIC
- YMCA of Greater Rochester

2+2 Transfer Options

The dietetics and nutrition program has articulation agreements with a number of colleges that enable you to seamlessly transfer into the dietetics and nutrition program upon the successful completion of your associate degree at one of the following schools. For more information regarding these 2+2 transfer options, please contact Undergraduate Admissions or the program director.

- Finger Lakes Community College
- Genesee Community College
- Hudson Valley Community College
- Morrisville State College
- SUNY Erie
- Monroe Community College
- Onondaga Community College

Learn more about transferring credits and additional information about transferring to RIT by visiting the Transfer Admissions website.

Nutritional sciences minor

Housed in the Wegmans School of Health and Nutrition, students may enhance their primary course of study by minoring in nutritional sciences, which focuses on nutrients and human nutrition issues. The study of nutrients includes knowledge about food sources, metabolism, and relationship to health. Nutrition influences and is affected by health, cultural issues, exercise science, food systems, hospitality, and behavior. For more information, visit the nutritional sciences minor page.

Experiential Learning

Cooperative Education

Co-op is a full-time paid work experience for at least 400 hours in an industry related to food and nutrition. Students register for co-op just like a class but do not pay tuition. The course is graded as pass/fail. Students are required to complete three co–op experiences to receive their BS degree in dietetics and nutrition and the majority complete their co-op experiences in the summer. One co-op must be completed in a health care environment. For more information, please visit the Office of Career Service and Cooperative Education.

Students often complete co-ops with job titles such as diet clerk, health/nutrition educator, nutrition assistant, cook, food service worker, prep cook/worker, and patient care technician, among others.

A sample of co-op employers in the Rochester area includes Wegmans, Rochester General Hospital, Strong Memorial Hospital, Highland Hospital, St. John's Home, RIT Dining Services, and Monroe Community Hospital. Students may complete co-ops in their hometown area as well as in other locations throughout the United States and while studying abroad.

Beyond the Classroom

Students engage in experiential learning with a variety of Rochester-based organizations.

Study abroad: Success in today's global society requires experience and leadership that drives education beyond traditional boundaries. RIT is committed to expanding opportunities for global education, international connections, work experience and cultural exchanges. Study abroad can fulfill a co-op experience, supporting a student's desire to study abroad while satisfying graduation requirements. For information on study abroad opportunities, please visit RIT Global.

The dietetics and nutrition department offers faculty-led international experiences such as studying the Mediterranean diet in Croatia and travel to conduct a research project on childhood anemia in Ghana.

Curriculum

Dietetics and Nutrition, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Natural Science Inquiry Perspective: General Chemistry for Engineers	3
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab	1
CHMO-231	General Education – Elective: Organic Chemistry I	3
CHMO-235	General Education – Elective: Organic Chemistry I Lab	1
ECON-101	General Education – Elective: Principles of Microeconomics	3
HSPT-215	Principles of Food Production and Service	3
MATH-101	General Education – Mathematical Perspective A: College Algebra	3
MEDG-106	General Education – Scientific Principles Perspective: Microbiology of Health and Disease	3
NUTR-215	Contemporary Nutrition	3
NUTR-499	Cooperative Education Experience (summer)	0
PSYC-101	General Education – Elective: Introduction to Psychology	3
YOPS-010	RIT 365: RIT Connections	0
	General Education – Elective	3
	General Education – First-Year Writing (WI)	3
Second Year		
ACCT-110	Financial Accounting	3
CHMB-402	General Education – Elective: Biochemistry I	3
HSPT-335	Food and Beverage Management	3
MEDS-250	General Education – Elective: Human Anatomy and Physiology I	4
MEDS-251	General Education – Elective: Human Anatomy and Physiology II	4
NUTR-223	Food & Beverage Management Lab	1
NUTR-499	Cooperative Education Experience (summer)	0
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	3
	Open Elective	4
	General Education – Immersion 1	3
	General Education – Ethical Perspective	3
Third Year		
HRDE-386	Human Resources Development	3
HSPT-325	Food Innovation and Development	3
HSPT-375	Customer Experience Management	3
MGMT-215	Organizational Behavior	3
NUTR-333	Techniques of Dietetics Education	3
NUTR-402	Dietetic Environment	3
NUTR-499	Cooperative Education Experience (summer)	0
NUTR-554	Life Cycle Nutrition	4
	General Education – Immersion 2	3
	General Education – Immersion 3	3
	General Education – Global Perspective	3
Fourth Year		
NUTR-497	Dietetic Internship Seminar	1
NUTR-510	Integrative Approaches to Health	1
NUTR-525	Medical Nutrition Therapy I	3
NUTR-526	Medical Nutrition Therapy II	3
NUTR-550	Community Nutrition	3
NUTR-560	Health and Nutrition Research Foundations (WI-PR)	3
	Open Electives	9
	General Education – Artistic Perspective	3
	General Education – Social Perspective	3
Total Semester Credit Hours		**123**

Please see General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accreditation

The dietetics and nutrition major is accredited through June 2023 by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics (AND), 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math is required.
- Biology and chemistry required.

Transfer Admission

Transfer course recommendations without associate degree

Courses in liberal arts, sciences, and math. Science courses required.

Appropriate associate degree programs for transfer

Dietetics or nutrition, food service management, or liberal arts

Please note: The dietetics and nutrition program has articulation agreements with the following institutions.

- Erie Community College
- Finger Lakes Community College
- Genesee Community College
- Hudson Valley Community College
- Monroe Community College
- Morrisville Community College
- Onondaga Community College

Learn more about transferring credits and additional information about transferring to RIT by visiting the Transfer Admissions website.

Echocardiography (Cardiac Ultrasound), Certificate

www.rit.edu/study/echocardiography-cardiac-ultrasound-certificate

Hamad Ghazle, Professor
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Program overview

Echocardiography focuses on the evaluation of the heart, its valves and chambers, and associated vessels. The echocardiography certificate produces competent, compassionate, and responsible professionals and leaders who are skilled in ultrasound scanning techniques and the operation of ultrasound instrumentation.

The certificate in echocardiography is an 18-month program that includes a clinical internship. The program, which focuses on the evaluation of the heart, its valves and chambers, and associated vessels, has been designed to exceed the objectives of the Joint Review Committee on Education in Diagnostic Medical Sonography. The program produces competent, compassionate, and responsible echocardiography professionals and leaders. This certificate is available to all registered allied health practitioners as well as those holding an associate or bachelor's degree in a relevant discipline. The certificate includes lectures and course work integrated with a clinical internship. Dependent on the previous degree, certain prerequisite courses may be required prior to enrollment. Required prerequisite courses include one year of anatomy and physiology with laboratories, one year of college or general physics with laboratories. A patient care course/experience may be required prior to or during enrollment. For more information on the prerequisite courses and completion time, please contact the program director. We will be glad to assist you and provide you with detailed information dependent on your situation.

Graduates earning the certificate will:

- gain a thorough working knowledge of echocardiography scanning techniques;
- be skilled in the operation of ultrasound instrumentation and laboratory equipment;
- acquire the proper manner in working with patients; and
- under guidance from faculty and professional staff, become capable of scheduling and performing the daily workload of ultrasound procedures, of evaluating new procedures where necessary, and of supervising other technical personnel.

Plan of study

During the first academic year, students complete all the prerequisite courses required to enter the clinical internship phase of the program. Students also apply, polish, and test their clinical skills and techniques in the on-campus Ultrasound Scanning Suite, which is equipped with a variety of ultrasound equipment. Following a required two-week preclinical internship orientation session, students begin their training at the first of two assigned clinical training sites.

In addition to the echocardiography certificate, RIT also offers a bachelor of science degree and a certificate in diagnostic medical sonography. Both of these options are designed to meet the growing needs of the national and international medical communities.

Experiential Learning

Clinical Internship

The one-year clinical internship provides hands-on experience at two or more approved medical facilities. After completing the pre-internship course work, all students begin the internship by attending an intensive two-week experience on campus. During this time they enhance and polish the skills they previously learned, prepare to perform complete sonographic examinations as performed in real clinical settings, and advance their knowledge in recognizing anatomy and disease states using a variety of equipment in the Ultrasound Scanning Suite. Students also learn about hospital, departmental, and administrative operations. After completing these requirements, candidates are assigned to a medical training site for their clinical experience. At these facilities, students work side-by-side with sonographers, physicians, and other health care professionals to learn, develop, apply, and sharpen the necessary skills to perform general ultrasound examinations. Students' clinical progress and performance are closely monitored by the program's clinical coordinator and program director, who have regular communication and make periodic visits to the clinical internship sites. Additionally, students return to campus each month for three days of lectures, presentations, projects, and testing. Students may complete their clinical internships at any approved regional or national medical ultrasound facility, with approval of the program director.

Curriculum

Echocardiography, certificate, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ECHO-305	Cardiac Sectional Anatomy and Physiology	3
ECHO-307	Echocardiographic Scanning Skills and Techniques I	1
ECHO-308	Echocardiographic Scanning Skills and Techniques II	1
ECHO-320	Electrophysiology and Cardiac Pharmacology	2
DMSO-309	Sonography Physics and Instrumentation I	3
DMSO-310	Sonography Physics and Instrumentation II	3
MEDS-415	Pathophysiology of Organ Systems I	3
Second Year		
ECHO-401	Echocardiography I	3
ECHO-402	Echocardiography II	3
ECHO-410	Ischemic Heart Disease: Stress Echocardiography	2
ECHO-415	Cardiac M-Mode	2
ECHO-420	Clinical Echocardiography I	4
ECHO-421	Clinical Echocardiography II	4
ECHO-425	Seminar in Echocardiography	2
ECHO-430	Congenital Heart Disease I	2
ECHO-431	Congenital Heart Disease II	2
ECHO-465	Echocardiography Special Procedures	2
Total Semester Credit Hours		**42**

Exercise Science, BS

www.rit.edu/study/exercise-science-bs
William Brewer, Senior Lecturer
585-475-2476, wsbscl@rit.edu

Program overview

As an exercise science major you will learn to scientifically address issues of health and fitness as well as human performance as part of a rapidly growing field. A clinical track focuses on helping people recover from the unhealthy effects of a sedentary lifestyle and an athletic track focuses on training athletes to extend and expand their capacity for exceptional human performance.

RIT's exercise science degree is designed to be completed in four years and is offered at RIT as an on campus learning experience. The program also offers clinical and athletic tracks.

The clinical track is designed for students interested in using exercise as therapy. Clinical exercise medicine is an emerging field that is poised to grow as the population ages. This field is for students who see the opportunity to provide exercise/fitness services as an integrated medical service. With an entrepreneurial spirit, students prepare themselves to become the newest practitioners in the health care field. Clinical exercise physiologists perform fitness assessments, design exercise prescriptions, and implement therapeutic exercise programs for health promotion.

The athletic track is for students who want to raise the bar of performance for athletes at all levels. A scientific approach to athletic conditioning improves performance while maintaining the health of athletes. Athletic track courses allow students to learn how to better train and maintain athletes, especially those performing at intense levels of competition. Skilled strength and conditioning specialists are in demand at all levels of sports and the prevalence of private sector sports specific training facilities has never been higher. Students interested in a career to train athletes and enhance the capabilities of those who play sports will be well prepared to advise and guide the next generation of athletic performers.

Program goals and student learning outcomes

The exercise science program has set the following student goals and learning outcomes:

Integrate scientific information and research into practice

- Demonstrate how to locate, interpret, evaluate, and use professional literature to make ethical practice decisions.
- Use current information technologies to locate and apply evidence-based guidelines and protocols.

Develop communication skills and professional behaviors for entry into pre-professional practice

- Demonstrate effective and professional oral and written communication
- Demonstrate assertiveness, advocacy, and negotiation skills appropriate to the situation
- Demonstrate counseling techniques to facilitate behavior change
- Apply established guidelines to professional practice
- Describe the professional roles that collaborate with an exercise physiologist in the delivery of fitness services

Develop and deliver information and clinical customer services

- Use the fitness assessment process to make decisions, identify problems and evaluate fitness interventions

- Apply knowledge of the role of the environment, exercise, and lifestyle choices to develop interventions to affect change and enhance wellness in diverse individuals and groups
- Utilize knowledge of education and behavior change theories to develop an educational session or program for a target population

Demonstrate foundational knowledge of core sciences
- Demonstrate knowledge of physical, chemical and biological sciences

Prepare students for successful completion of National Fitness Certification Exams
- Acquire the knowledge, skills, and abilities required for successful completion of an advanced certification with an organization accredited by the National Commission for Certifying Agencies (NCCA). Examples include the American College of Sports Medicine (ACSM), Certified Exercise Physiologist, and the National Strength and Conditioning Association (NSCA), Certified Strength and Conditioning Specialist.

Minor in exercise science

The exercise science minor is designed to prepare students to take an accredited certification exam and to become a professionally credentialed personal trainer. The minor is open to all RIT students, except those majoring in exercise science. For more information, including curriculum requirements, please visit the exercise science minor page.

Certificate in exercise science

Completion of the certificate in exercise science prepares you for employment as an entry-level service provider in a fitness facility. To enroll in the certificate program, you do not need to be a matriculated student at RIT. The certificate requires the completion of three courses. For additional information, including curriculum and admissions information, please visit the exercise science certificate program page.

Certification

Students who complete the athletic track are prepared to achieve professional certification through the National Strength and Conditioning Association (NSCA) as a Certified Strength and Conditioning Specialist (CSCS). The CSCS is a highly respected and sought-after credential in the field of strength conditioning. Students completing the clinical track are well prepared to take the American College of Sports Medicine (ACSM) Certified Exercise Physiologist exam. This certification validates the knowledge, skills, and abilities of fitness and exercise practitioners who are prepared to work with people diagnosed with chronic disease.

2+2 Transfer Options

The exercise science program has articulation agreements with a number of colleges that enable you to seamlessly transfer into the exercise science program upon the successful completion of your associate degree at one of the following schools. For more information regarding these 2+2 transfer options, please contact Undergraduate Admissions or the program director.
- Finger Lakes Community College
- Genesee Community College
- Hudson Valley Community College
- Morrisville State College
- SUNY Erie
- Monroe Community College

Learn more about transferring credits and additional information about transferring to RIT by visiting the Transfer Admissions website.

Curriculum

Exercise Science, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-101	General Education – Elective: General Biology I	3
BIOL-102	General Education – Elective: General Biology II	3
BIOL-103	General Education – Elective: General Biology I Lab	1
BIOL-104	General Education – Elective: General Biology II Lab	1
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	3
CHMG-142	General Education – Scientific Principles Perspective: General & Analytical Chemistry II	3
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab	1
CHMG-146	General Education – Scientific Principles Perspective: General & Analytical Chemistry II Lab	1
EXSC-101	Seminar in Exercise Science	1
EXSC-150	Introduction to Exercise Science	3
MATH-161	General Education – Mathematical Perspective A: Applied Calculus	4
MEDS-242	Cell Structure & Function	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Elective	3
Second Year		
EXSC-206	Fitness Prescription	3
EXSC-210	Human Motor Behavior	3
MEDS-250	General Education – Elective: Human Anatomy and Physiology I	4
MEDS-251	General Education – Elective: Human Anatomy and Physiology II	4
PHYS-111	General Education – Elective: College Physics I	4
PHYS-112	General Education – Elective: College Physics II	4
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	3
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
Third Year		
EXSC-410	Kinesiology	4
EXSC-420	Biomechanics	4
EXSC-550	Exercise Physiology	4
EXSC-590	Exercise Science Research	3
	Professional Electives	6
	General Education – Social Perspective	3
	General Education – Immersion 1	3
Fourth Year		
EXSC-270	Group Exercise	3
EXSC-320	Coaching Healthy Behavior	3
	Open Electives	12
	Professional Elective	3
	General Education – Immersion 2, 3	6
Total Semester Credit Hours		**122**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
- 3 years of math is required. Pre-calculus is recommended
- Biology and Chemistry required

Transfer Admission

Transfer course recommendations without associate degree
Courses in liberal arts, sciences, and math

Appropriate associate degree programs for transfer
AS degree in liberal arts with science option

Please note: The exercise science program has articulation agreements with the following institutions:

- Finger Lakes Community College
- Genesee Community College
- Hudson Valley Community College
- Monroe Community College
- Morrisville State College
- SUNY Erie

Learn more about transferring credits and additional information about transferring to RIT by visiting the Transfer Admissions website.

Exercise Science, Certificate

www.rit.edu/study/exercise-science-certificate

William Brewer, Senior Lecturer
585-475-2476, wsbscl@rit.edu

Program overview

A certificate in exercise science prepares you for employment as an entry-level service provider in a fitness facility. It can also complement other programs such as the biomedical sciences, nutritional sciences, or dietetics and nutrition, as it bolsters your knowledge of exercise, in particular, strength and conditioning.

College-level knowledge and professional certification are increasingly required for those who wish to work in the fitness industry, whether full- or part-time, in an athletic club, or sports medicine facility. Knowledge of and professional certification in fitness instruction and programming also are of increasing value to allied health professionals who wish to augment their care or practice with the ability to prescribe exercise programs that address special medical needs.

The certificate in exercise science covers the basic principles of exercise physiology, fitness assessment, the preparation of fitness programs and prescriptions, and the development of exercise prescriptions for individuals with medical or other significant limitations. Students who successfully complete all three courses are prepared to sit for professional certification examinations from the American College of Sports Medicine, American Council on Exercise, and the American Academy of Health and Fitness Professionals, as well as for certifications from the Cooper Institute for Aerobic Research, the National Academy of Sports Medicine, and a number of other recognized organizations.

Curriculum

Exercise Science, certificate, typical course sequence

COURSE		SEMESTER CREDIT HOURS
EXSC-205	Sports Physiology & Life Fitness	3
EXSC-206	Fitness Prescription	3
EXSC-207	Exercise for Special Populations	3
Total Semester Credit Hours		**9**

Health Systems Administration, Certificate

www.rit.edu/study/health-systems-administration-certificate
Carla Stebbins, Senior Lecturer
585-475-4761, casihst@rit.edu

Program overview

The health systems administration certificate introduces students to the complexity of the U.S. health care system. You will learn how health care organizations plan for and deliver effective health care services, how various services are financed as well as other financial management strategies, and how to effectively lead these highly complex, mission-driven organizations that serve people throughout their lives.

Students working on undergraduate degrees in the health sciences or those considering a career within the health care industry, would benefit from this certificate program, as it provides an excellent orientation to the health care industry as a whole.

The health systems administration certificate is designed for three types individuals:

- Students who have completed their associate degree or are in the process of completing a bachelor's degree who are considering careers in health care but desire an orientation to the US health system;
- Working professionals, without a bachelor's degree, who are interested in exploring the health care delivery system; and
- Professionals that have invested in clinical degrees, but their primary programs fell short of a completed bachelor's degree who desire to understand the business side of health care.

Program Goals

There are three primary goals for the health systems administration certificate program:

1. Understand the role of the US health care system, how it compares to other countries systems, in achieving health and wellness;
2. Appreciate the complexity of the system and the related organizations that respond to the needs of their communities and the populations within them; and
3. Assess the leadership potential of those interested in careers within the design and delivery of high-quality health service systems.

Flexible, Online Curriculum

Each of the certificate's four courses are delivered online during the 14-week, fall and spring semesters. Most courses are taught by faculty who also teach in the master of science degree in health systems management.

Curriculum

Health Systems Administration, certificate, typical course sequence

COURSE		SEMESTER CREDIT HOURS
HLTH-315	Reinventing Health Care	3
HLTH-325	Health Care Leadership	3
HLTH-328	Finance for Health Care Professionals	3
HLTH-330	Health Care Planning and Program Development	3
Total Semester Credit Hours		**12**

Admission requirements

Certain countries are subject to comprehensive embargoes under US Export Controls, which prohibit virtually ALL exports, imports, and other transactions without a license or other US Government authorization. Learners from Syria, Sudan, North Korea, the Crimea region of the Ukraine, Iran, and Cuba may not register for RIT online courses. Nor may individuals on the United States Treasury Department's list of Specially Designated Nationals or the United States Commerce Department's table of Deny Orders. By registering for RIT online courses, you represent and warrant that you are not located in, under the control of, or a national or resident of any such country or on any such list.

Nutritional Sciences, BS

www.rit.edu/study/nutritional-sciences-bs
Elizabeth Ruder, Assistant Professor
585-475-2402, ehrihst@rit.edu

Program overview

Understanding nutrition, especially nutritional content, can have a remarkable impact on our health. Educating the public about the benefits of nutrition, and the various ways healthy living can improve our well-being, is the focus of the BS degree in nutritional sciences.

The nutritional sciences degree blends biological, chemical, and behavioral sciences to help health professionals, administrators of nutrition and health promotion programs, and the general public better understand and translate the science of food into policy and practice. Nutritionists and nutrition scientists apply their knowledge to help businesses offer employee wellness programs; assist food systems administrators and engineers involved in food innovation and technology; and oversee government programs addressing food insecurity and population health issues.

Part of the Wegmans School of Health and Nutrition, the major offers a challenging curriculum that prepares students with an in-depth understanding of nutrition as an important moderator of health. Students are well prepared to apply to professional programs, such as medical school, enter graduate school for further biomedical studies, or provide expertise in nutrition to the general public in a range of diverse settings (e.g., sports fitness programs, hospitality industry, nutrition writing, and federal nutrition programs).

An effective nutritional scientist is skilled in working with people to address behavioral issues, teach clients about nutrition and health properties in food, and offer nutrition supervision. The major offers a comprehensive curriculum that provides a solid foundation in nutritional sciences as well as leadership skills that include communication, problem solving, team dynamics, and interaction with the community.

Program goals and outcomes

1. Prepare students to apply nutrition principles, concepts, and practices to domains aligned with health and wellbeing.
2. Demonstrate ability to integrate science-based nutrition information and research into practice.
3. Develop communication skills and professional behaviors for entry into professional practice.
4. Apply principles of management and systems to deliver nutrition programs and services.
5. Prepare students for successful application to graduate and professional schools or professional employment in health and nutrition careers.
6. Demonstrate knowledge and skills for customer service including: development and delivery of information, products and services to individuals, groups, and populations.

Program strengths

- RIT/Rochester Regional Health Alliance: RIT is Rochester Regional Health's official academic affiliate and Rochester Regional is the university's official affiliated clinical partner. We work together to improve the quality and cost of health care delivery, and to demonstrably improve the health of the people of Western New York and the Finger Lakes. The alliance provides a primary network of health care opportunities for student work experiences (co-ops), practicums, and research.
- Our alumni include Dr. Judith Brown, author of a nationally used nutrition text; Dr. Penny Kris-Etherton, Distinguished professor at The Pennsylvania State University and winner of several award for research including dietary fats and health benefits of dark chocolate.
- Active support and interaction with Rochester nutrition and health care communities provide significant opportunities for experiential learning activities in upper division courses
- Articulation with pre-medicine enables completion of all pre-med requirements.
- Faculty with strong teaching and research skills who have won awards for teaching and conducting research. They have presented at national and international conferences and routinely publish in peer-reviewed science and health journals.
- Small program size and dedicated faculty members ensure individualized student attention
- Strong undergraduate research component.
- Requirement of co-op work experiences in food and nutrition supported by Office of Career Services and Cooperative Education
- New state of the art facility includes significant opportunities for interdisciplinary experiences with other health care programs and real-world experience for students via actual health clinics and simulation laboratory
- Inclusion of physical-focused assessment using a simulation laboratory.
- Multiple opportunities for international study experiences, including faculty-led programs to study the Mediterranean Diet in Croatia and childhood anemia in Ghana. Study abroad opportunities at RIT's global campuses in China, Croatia, Dubai, and Kosovo, or through affiliate programs at other universities

Student Dietetics and Nutrition Association

The student Dietetics and Nutrition Association is a student club comprised of dietetics and nutrition students and supports experiential learning outside of the classroom. The club promotes health and nutrition on campus as well as volunteer opportunities with local organizations. Club activities include volunteering at local food banks and schools, presenting health related information at RIT events, and educational activities for members.

Career opportunities

Careers in nutrition are diverse, ranging from policy development, communications, and social and community services. You can choose to select electives to become eligible to sit for the Certified Health Education Specialist (CHES), a respected credential in health care education. You will also be well prepared to pursue graduate study for a career in medicine, allied health, or research.

Community partners

As a dietetics and nutrition student, the Rochester metropolitan area is your lab for hands-on, experience-based learning. The program has a rich history in the community and partners with a variety of organizations throughout the area to expose students to a wide range of nutrition-related settings. These organizations represent a small sampling of the over 50 community partners with whom we collaborate:

- Abbott Nutrition
- American Dairy Association and Dairy Council
- American Heart Association
- Food and Drug Administration
- Foodlink
- Gates-Chili School District
- Heritage Christian Services
- Hillside Family of Agencies
- Jewish Senior Life
- Genesee Dietetic Association

- On Nutrition
- Ortho-Clinical Diagnostics
- RIT
- RIT Dining Services
- Rochester Psychiatric Center
- Rochester Regional Health
- University of Rochester Medical Center
- Wegmans
- WIC
- YMCA of Greater Rochester

2+2 Transfer Options

The nutritional sciences program has articulation agreements with a number of colleges that enable you to seamlessly transfer into the nutritional sciences program upon the successful completion of your associate degree at one of the following schools. For more information regarding these 2+2 transfer options, please contact Undergraduate Admissions or the program director.

- Finger Lakes Community College
- Genesee Community College
- Hudson Valley Community College
- Morrisville State College
- SUNY Erie
- Monroe Community College
- Onondaga Community College

Learn more about transferring credits and additional information about transferring to RIT by visiting the Transfer Admissions website.

Note: The nutritional sciences major does not meet the educational requirements of the Academy of Nutrition and Dietetics that lead to eligibility to become a Registered Dietitian Nutritionist.

Experiential Learning

Cooperative Education

he nutritional sciences program requires a 400-hour cooperative education experience in an industry setting related to food and nutrition. Co-op is paid, full-time employment in your field of study. Students do not pay tuition during co-op experiences. Students are required to complete two co–op experiences to receive their BS degree in nutritional sciences and the majority of students complete their co-ops in the summer. For transfer students possessing at least an associate's degree, one co-op may be waived.

Students often complete co-ops with job titles such as diet clerk, health/nutrition educator, nutrition assistant, cook, food service worker, prep cook/worker, and patient care technician, among others.

A sample of co-op employers in the Rochester area includes Wegmans, Rochester General Hospital, Strong Memorial Hospital, Highland Hospital, St. John's Home, RIT Dining Services, and Monroe Community Hospital. Students are allowed to complete co-ops in their hometown area as well as in other locations throughout the United States and while studying abroad.

Beyond the Classroom

Students engage in experiential learning with a variety of Rochester-based organizations.

Study abroad: Success in today's global society requires experience and leadership that drives education beyond traditional boundaries. RIT is committed to expanding opportunities for global education, international connections, work experience and cultural exchanges. Study abroad can fulfill a co-op experience, supporting a student's desire to study abroad while satisfying graduation requirements. For information on study abroad opportunities, please visit RIT Global.

The nutritional sciences department offers faculty-led international experiences such as studying the Mediterranean diet in Croatia and travel to conduct a research project on childhood anemia in Ghana.

Curriculum

Nutritional sciences, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Natural Science Inquiry Perspective: General Chemistry for Engineers	3
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab	1
CHMO-231	General Education – Elective: Organic Chemistry I	3
CHMO-235	General Education – Elective: Organic Chemistry Lab I	1
HSPT-215	Principles of Food Production and Service	3
MATH-101	General Education – Mathematical Perspective A: College Algebra	3
NUTR-215	Contemporary Nutrition	3
NUTR-499	Cooperative Education Experience (Summer)	0
PSYC-101	General Education – Elective: Introduction to Psychology	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Social Perspective	3
	General Education – Scientific Principles Perspective	3
	General Education – Elective	3
Second Year		
CHMB-402	General Education – Elective: Biochemistry I	3
MEDS-250	General Education – Elective: Human Anatomy and Physiology I	4
MEDS-251	General Education – Elective: Human Anatomy and Physiology II	4
NUTR-499	Cooperative Education Experience (Summer)	0
SOCI-102	General Education – Elective: Foundations of Sociology	3
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	3
	General Education – Ethical Perspective	3
	General Education – Immersion 1	3
	Major Electives	6
	Open Elective	3
Third Year		
NUTR-333	Techniques of Dietetics Education	3
NUTR-499	Cooperative Education Experience (Summer)†	0
NUTR-554	Life Cycle Nutrition	4
	General Education – Immersion 2	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
	Major Electives	12
	Open Elective	3
Fourth Year		
NUTR-510	Integrative Approaches to Health	1
NUTR-525	Medical Nutrition Therapy I	3
NUTR-550	Community Nutrition	3
NUTR-560	Health and Nutrition Research Foundations (WI-PR)	3
	Open Electives	6
	General Education – Elective	3
	General Education – Immersion 3	3
	Major Electives	6
Total Semester Credit Hours		**123**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Cooperative Education (NUTR-499) in the third year is optional. It is required only if co-op in the first and second year is not completed.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
- 3 years of math is required.
- Biology and chemistry required.

Transfer Admission

Transfer course recommendations without associate degree
Courses in liberal arts, sciences, and math. Science courses required for nutritional sciences major.

Appropriate associate degree programs for transfer
Dietetics or nutrition, food service management, or liberal arts

Please note: The nutritional sciences program has articulation agreements with the following institutions:
- Erie Community College
- Finger Lakes Community College
- Genesee Community College
- Hudson Valley Community College
- Monroe Community College
- Morrisville Community College
- Onondaga Community College

Learn more about transferring credits and additional information about transferring to RIT by visiting the Transfer Admissions website.

Physician Assistant, BS/MS

www.rit.edu/study/physician-assistant-bsms
Lisa Whitley,
585-475-5151, llwscl@rit.edu

Program overview

RIT's physician assistant degree prepares you to elicit medical histories, conduct physical examinations, order laboratory and radiological testing, diagnose common illnesses, determine treatment, provide medical advice, counsel and educate patients, promote wellness and disease prevention, assist in surgery, and perform casting and suturing.

Physician assistant duties vary depending on the state and specialty in which they practice. In most states, including New York, physician assistants may prescribe medication. Examples of specialties include (but are not limited to): internal medicine, family medicine, emergency medicine, geriatrics, pediatrics, women's health, behavioral health, general surgery, orthopedics, neurosurgery, and neonatology. Clinical rotations (internships) during students' last year provide the opportunity to explore these varied disciplines.

Obtaining the skills and knowledge to practice as a physician assistant is a complex process. A carefully planned course of study has been developed to offer a balance of didactic and clinical knowledge. A significant component of the educational process is the socialization of the student to the character, performance, and role of a provider of medical care. The evaluation of the student's adaptation to this role depends on the experienced judgment of individual faculty members. It is important to recognize that these subjective judgments may transcend or be independent of traditional paper and pencil tests and other similar objective measures of academic performance. Physician assistant education involves instruction from practicing clinicians with unpredictable schedules.

Many opportunities, in the form of evaluations, are provided for measurement of progress by both faculty and student. In addition to a fully staffed Academic Support Center, individual instruction and tutoring may be provided in certain instances. Every effort is made to provide a complete learning environment. Even though a variety of experiences, learning situations, and tools are provided by the Program, the single greatest factor, motivation, is essentially up to the student.
- Accreditation Update–November 6, 2019
- Physician Assistant BS/MS - 5-Year Program Curriculum
- Physician Assistant Program Goals
- Physician Assistant Program Successes
- NCCPA Pass Rate Report

Mission

RIT's physician assistant program provides a foundation of science and liberal arts; and prepares students to provide compassionate, patient-centered healthcare. The program is committed to developing the ethical values, medical knowledge, professionalism, and interpersonal communication skills essential for inter-professional, team-based, clinical practice.

Goals

Medical Knowledge: Graduates will demonstrate core medical knowledge of established and evolving biomedical and clinical sciences and apply this knowledge to patient care.

Interpersonal and Communication Skills: Graduates will demonstrate interpersonal and communication skills that result in effective information exchange with patients, families, physicians, and other members of the healthcare team.

Patient Care: Graduates will provide effective, safe, high-quality, and equitable patient care in diverse settings and across the life span.

Professionalism: Graduates will practice with integrity, ethical and legal responsibility, and sensitivity to diverse patient populations.

Practice-based Learning and Improvement: Graduates will critically analyze their practice experiences with Evidence-Based Medicine (EBM) and quality assurance processes to improve patient care.

Systems-based Practice: Graduates will demonstrate awareness of and responsiveness to healthcare systems, while keeping the patient at the center of cost-effective, safe care. (Adapted from the Competencies for the Physician Assistant Profession, written by the AAPA, ARC-PA, PAEA, and NCCPA, 2012)

Philosophy: The educational philosophy of the physician assistant program is to provide all students with the necessary liberal arts and basic science foundation necessary to build solid medical knowledge and humanistic skills by which to ultimately provide high quality patient care to future patients. The faculty views the responsibilities of role modeling and mentoring as critical to the success of assimilating students to the realities and responsibilities of medicine today. The educational philosophy incorporates the attitudes of respect for individual patients into critical decision-making through the assimilation of appropriate interpersonal skills, compassion, and a respect and reverence for the position of physician assistant.

Plan of Study

The physician assistant major is offered as a BS/MS degree program, which enables students to earn both a bachelor's degree and a master's degree in five years. The curriculum is divided into a pre-professional phase (years 1 and 2), which includes course work in the basic sciences, mathematics, general education, and liberal arts; and a professional phase, (years 3, 4, and 5), which features didactic medical education and culminates in clinical rotations in which students apply their medical knowledge in a series of rotations through various disciplines of medicine.

Technical Standards

Students in the physician assistant program must possess certain capabilities and skills, with or without reasonable accommodation. These include the intellectual ability to learn, integrate, analyze, and synthesize data. They must have functional use, with or without accommodation, of the senses of vision, hearing, and equilibrium. Learn more about the technical standards required of a successful physician assistant major.

Graduate Competencies

The physician assistant program has outlined functions and tasks for performing a range of skills you are expected to master as a graduate of the program. Learn more about graduate competencies required of a successful physician assistant major.

Program progression

Students are matriculated into one of the first three years, upon their acceptance into the physician assistant major. Students must complete academic requirements to progress on to the next academic year. Students must meet all program academic requirements, policies, and standards to advance from the pre-professional phase to the professional phase of the program. Once matriculated into the pre-professional phase, students are permitted to take a limited number of courses at another institution during the summer, pending program approval. It is important, however, that students take core science courses at RIT to ensure a consistent educational experience. Students are not permitted to skip class years (i.e. first to third year) once matriculated in the major.

Clinical Rotations

Clinical rotations include a five-week experience in various disciplines of medicine, providing students with the opportunity to apply the basic principles of medicine to hospital-based and ambulatory patient care settings. Students are assigned to a primary preceptor (physician/physician assistant) and are exposed to a wide variety of acute and chronic medical problems. The emphasis is on data gathering, physical examination, differential diagnosis, patient management, maintenance of medical records, performance of diagnostic and therapeutic procedures, and the provision of patient education and counseling. Mandatory rotations are in the fields of internal medicine, family medicine, geriatrics, orthopedics, emergency medicine, women's health, pediatrics, general surgery, and behavioral health. Students also select one elective rotation, which enables them to customize their experience according to their medical area of interest.

The clinical rotations represent the integration and combination of the didactic and clinical phases of the physician assistant program. A great deal of planning has gone into creating a learning environment that will allow the student to obtain the high-level skills required for practice as a physician assistant. The affiliates (hospitals and office-practices) are busy places offering a variety of services. It is the responsibility of the student to explore and learn as much as possible during this very important year. You will be assigned a preceptor for each rotation by the program. This will generally be a physician, physician assistant program, or nurse practitioner who is responsible for your actions and educational experience. In general, the student is expected to participate in each and every aspect of the department or office where assigned.

The physician assistant program is fortunate to have the support of the local and neighboring medical communities for providing clinical sites offering a wide array of clinical experiences. Program faculty provides rotation assignments for all students. The program cannot assure the student assignment to a clinical affiliate within the immediate Rochester area or other desired area. Several of these sites are located some distance from the RIT main campus. The physician assistant program makes every attempt to assist the student in finding suitable housing. However, ultimately the responsibility for housing, travel, and food are the student's responsibility.

Curriculum

Physician Assistant, BS/MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year (Pre-professional)		
BIOL-101	General Education – Elective: General Biology I	3
BIOL-102	General Education – Elective: General Biology II	3
BIOL-103	General Education – Elective: General Biology I Lab	1
BIOL-104	General Education – Elective: General Biology II Lab	1
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	3
CHMG-142	General Education – Scientific Principles Perspective: General & Analytical Chemistry II	3
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab	1
CHMG-146	General Education – Scientific Principles Perspective: General & Analytical Chemistry II Lab	1
MATH-161	General Education – Mathematical Perspective A: Applied Calculus	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing	3
	General Education – Elective	3
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
Second Year (Pre-professional)		
CHMB-240	General Education – Elective: Biochemistry for Health Sciences	3
MEDS-250	General Education – Elective: Human Anatomy and Physiology I	4
MEDS-251	General Education – Elective: Human Anatomy and Physiology II	4
PHYA-206	Medical Microbiology	3
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	3
	Open Elective	3
	General Education – Social Perspective	3
	General Education – Immersions	9
Third Year (Professional)		
PHYA-401	History & Physical Diagnosis I	4
PHYA-402	History & Physical Diagnosis II	4
PHYA-405	Pathophysiology I	2
PHYA-406	Pathophysiology II	2
PHYA-415	Pharmacology I	1
PHYA-416	Pharmacology II	2
PHYA-419	Advanced Gross Anatomy	2
PHYA-420	PA Seminar	1
PHYA-422	Clinical Medicine I	5
PHYA-423	Clinical Medicine II	5
PHYA-430	Clinical Genetics	2
Fourth Year (Professional)		
PHYA-409	Clinical Lab Medicine	1
PHYA-417	Pharmacology III	2
PHYA-421	Diagnostic Imaging	2
PHYA-424	Clinical Medicine III	5
PHYA-440	Society and Behavioral Medicine	3
PHYA-510	Hospital Practice	4
PHYA-520	Clinical Integration	4
PHYA-550	Procedural Clinical Skills	3
PHYA-560	Healthcare Policy & Law	2
PHYA-710	Graduate Project I (WI-PR)	2
PHYA-729	Clinical Epidemiology	3
PHYA-730	Research Methods (WI-PR)	2
PHYA-750	Pediatrics	4
PHYA-751	Internal Medicine	4
PHYA-752	Women's Health	4
PHYA-761	Professional Practice I	2
	Open Elective	3
Fifth Year (Professional)		
PHYA-720	Graduate Project II	2
PHYA-753	Emergency Medicine	4
PHYA-754	Surgery	4
PHYA-755	Orthopedics	4
PHYA-756	Geriatrics	4
PHYA-757	Behavioral Health	4
PHYA-758	Family Medicine	4
PHYA-759	Elective Rotation	4
PHYA-762	Professional Practice II	2
PHYA-763	Professional Practice III	2
Total Semester Credit Hours		**181**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Accreditation

Physician Assistant Accreditation Update

The RIT physician assistant program had an accreditation site visit in June 2019 and the Accreditation Review Commission on Education for Physician Assistants (ARC-PA) met in late September 2019. The following is the official ARC-PA announcement regarding RIT's accreditation status:

The Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA) has granted Accreditation-Continued status to the Rochester Institute of Technology Physician Assistant Program sponsored by Rochester Institute of Technology. Accreditation-Continued is an accreditation status granted when a currently accredited program is in compliance with the ARC-PA Standards.

Accreditation remains in effect until the program closes or withdraws from the accreditation process or until accreditation is withdrawn for failure to comply with the Standards. The approximate date for the next validation review of the program by the ARC-PA will be September 2027. The review date is contingent upon continued compliance with the Accreditation Standards and ARC-PA policy.

Admission requirements

The physician assistant program is a highly competitive. The number of openings for all students is limited by accreditation standards.

In addition to the university's general admission procedures, the physician assistant major requires the completion of a supplemental data packet, application, and a personal admission interview (by invitation). The program requires a personal interview prior to admission. Interviews are by invitation only. Not all applicants are extended an invitation and not all applicants who are invited to interview are accepted into the program. The interview performance is viewed as one of the most important aspects of your application to the program. Careful attention is given to ranking and interviewing freshman and transfer applicants in comparison to their peers. In addition, the program strongly encourages applicants to have participated in some degree of patient care experience and/or shadowing of physician assistants.

There are approximately 30-36 students enrolled in each class year of the program. Therefore, the number of openings for all students is limited and competitive. All prospective applicants must have a minimum cumulative GPA of 3.0 (on a 4.0 scale) to qualify for admission and must maintain a minimum GPA of 3.0 once enrolled in the program.

It also is important to note that the minimum grade point average for acceptance into the physician assistant major is 3.0 (on the basis of a 4.0 maximum) for both high school and transfer students. In order to graduate from the major, a GPA of 3.0 or better must be maintained.

Health Care Experience

While health care experience is not an absolute requirement for admission, the program faculty highly suggest that candidates volunteer in hospitals, nursing homes, hospice and/or healthcare facilities, as applicable. In addition, shadowing healthcare professionals (PAs, MDs) in clinical arenas is highly suggested as a means of observing the role of PAs and other members of the healthcare team in providing care to patients.

Transfer admission

Qualified transfer students are accepted into the major, on a space available basis. Prior health care experience and/or shadowing are strongly recommended. Transcript evaluations and rendering of transfer credit are addressed at the time of admission only. Anatomy and physiology courses must be taken within the last five years prior to matriculation to be eligible for transfer. All pre-professional course work must be com-

pleted to continue on, or to be considered for entry, into the professional phase of the major. Please contact the Office of Undergraduate Admissions for information on transfer requirements.

Advanced placement

In the pre-professional phase, advanced placement (AP) credit for general education courses is evaluated and approved by the academic advisors. AP credit for calculus, statistics, and university electives is awarded, as applicable, within the major. AP credit is not accepted for biology and chemistry as course substitutions. Advanced placement or credit for experiential learning is not awarded for courses in the professional phase of the major.

PA student employment and co-curricular activities

Many PA students work during the first two years of the program. Most of these students find that balancing academics, co-curricular activities, and working 8-10 hours/week is possible. Nonetheless, attention must always remain focused on the academic expectations of the PA program, which require students to maintain a minimum term and cumulative GPA of 3.0 (BS/MS degree) throughout the program. Given the rigorous program of study, students in the professional phase of the program are strongly advised meet with their academic advisor to discuss their participation in outside employment and co-curricular activities. Students in the professional phase, including clinical rotations, must ensure that employment and/or co-curricular activities do not interfere with academic preparation, performance, clinical responsibilities, and scheduling as per clinical affiliates and program requirements. Outside commitments that are not managed effectively can dramatically affect successful progression within the program and on clinical rotations. Given the rapidly changing environment in day-to-day clinical activities and responsibilities, patient cases and/or clinical responsibilities must be given paramount priority.

Service work

PA students participating in clinical service work are responsible for ensuring that those with whom they come into contact understand their role as PA students. At no time should PA students, participating in clinical service work, represent themselves, take the responsibility of, or the place, of qualified staff. The exception is when the student is under the guidance and direction of their instructor/preceptor for that given rotation block in which students' status must be disclosed. PA students are never to serve as substitutions for regular staff and/or health professionals.

Tuition Fee Rates

- Current tuition rates can be found at: https://www.rit.edu/admissions/tuition-and-fees
- RIT Refund policies can be found at: https://www.rit.edu/fa/sfs/refund

PA Program Summary of Costs

Aside from tuition costs, there are additional costs that are incurred within the professional phase of the program. A summary of costs is provided below, but these calculations are current estimates, and are subject to change.

Housing expenses - In the fifth year of the program, students complete ten clinical rotations which require, from time to time, that the student be away from the Rochester area. Sometimes these clinical sites are within driving distance, but other times, the student will need to stay near the clinical site for the 5 weeks of the rotation. Because of this, there may be slightly elevated housing costs during this fifth year. The PA program assists the student in finding suitable housing during this clinical year, but ultimately the responsibility for housing, travel, and food, is that of the student. Students are not reimbursed during their time on clinical rotations. Senior students are considered full time during this clinical training year and are responsible for tuition costs. These costs vary according to the needs of individual students. Suitable living on-campus (dorms, apartments, etc.) are generally available for average housing fees. Please refer to the RIT Undergraduate Bulletin and online at http://www.rit.edu for more information.

Transportation and parking - In the professional phase of the program (years 3, 4, 5), students can expect to be off campus a portion of the time. The student is responsible for transportation during these years. Because of this, a car is recommended in the start of the third year, and certainly during the fifth year. Parking fees may be incurred as students begin clinical training in hospitals. Car-pooling is recommended, when applicable.

Textbooks - In the professional phase of the PA Program (years 3, 4, 5), the coursework and clinical experiences are exclusively medical in nature. Additional textbooks are required in various areas of didactic and clinical instruction. These additional books and reference materials typically run around $2,000.00, but vary from student to student.

Diagnostic equipment - Each student is required to purchase diagnostic equipment for the start of the professional phase (year 3) of the program. The student is expected to bring his/her own equipment to classes in good working order. The PA program works with various medical suppliers to ensure that equipment costs to the third year students will be the lowest possible, while ensuring their quality. If buying new equipment, it would be wise to wait until this time to purchase the equipment. These items generally range $800.00 to $1,200.00. This will be a one-time only cost, and these items will be useful for many years to come in the clinical fields of medicine.

PA Clinical Knowledge Rating and Assessment Tool (PACKRAT) Exams - A written competency examination will be given to students in the fourth and fifth years of the Program. The Physician Assistant Clinical Knowledge Rating and Assessment Tool (PACKRAT) is a nationally recognized competency examination for PA students. This standardized examination provides excellent feedback to students and faculty regarding comprehensive knowledge bases and problem-solving abilities of the students. The content and approach has been created to simulate the computer-based Physician Assistant National Certifying Exam (PANCE). Many students have found this to be excellent preparation for clinical rotations and the PANCE. The cost to each student is currently $40.00/exam.

Criminal Background Checks - In accordance with various state laws and regulations, most of our clinical affiliates require PA students to undergo a criminal background check prior to beginning a clinical rotation. A PA student may not be allowed to participate in a clinical rotation (s), by the clinical affiliates, based on the results of a criminal background check. As a PA professional advances in his/her healthcare career, s/he can expect regular criminal background checks and credential verification as part of the participation, hiring, and employment process. The RIT PA Program requires that all PA students have an initial criminal background check prior to entering the professional phase of the program (year 3) and once again prior to the start of clinical rotations (end of year 4). The cost to each student for these screenings is approximately $130.00.

Drug Testing - In accordance with various state laws and regulations, some clinical affiliates may require PA students to undergo drug testing prior to beginning a clinical rotation. These additional authorizations and their associated fees must be completed by the student at the students' expense. A PA student may not be allowed to participate in a clinical rotation(s), by the clinical affiliates, based on the results of this drug testing. As a PA professional advances in his/her healthcare career, s/he can expect regular, random drug testing, and credential verification as part of the participation, hiring, and employment process.

Basic and Advanced Cardiac Life Support (BLS/ACLS) Certification - Students are required to have current CPR /ACLS certification prior to the start of clinical rotations in the fifth year. This training is arranged through the PA Program in conjunction with the American Heart Association and hospital affiliates. The cost for this certification is $70.00-$150.00.

Physical Examinations and Immunizations - A history and physical examination (including various blood work, titers, TB testing, and current immunizations) are required prior to the start of clinical rotations. TB testing is also required prior to the start of the third year. Students must arrange for these examinations several months in advance of the start of clinical rotations. Costs may range from $ 300.00 – 400.00 depending on insurance coverage. Although the PA program cannot mandate that each student obtain the Hepatitis B vaccine, however it is very strongly recommended prior to the start of the third year. Lack of this vaccination may preclude students from most clinical training sites. Students may obtain this three injection vaccination series at the RIT Student Health Center or through private medical coverage. Costs may vary dependent upon health insurance coverage.

FIT Testing - Prior to the start of clinical rotations students are required to undergo Fit testing which tests the actual size and provider's ability to use a respirator mask device that protects healthcare workers from inhaling harmful substances. These incurred costs will be the student's responsibility and could range from $ 40.00 - $ 50.00.

Optional Costs - Student memberships to the following professional organizations:

- Rochester Regional PA Association (RRPAA) - $10.00 annually
- New York State Society of PAs (NYSSPA) - $60.00 for the duration of your student enrollment
- American Academy of PAs (AAPA) - $75.00 for the duration of your student enrollment

Faculty

Richard L. Doolittle, BA, University of Bridgeport; MS, Ph.D., University of Rochester—Interim Dean; Professor

Kristen Waterstram-Rich, BS, MS, Rochester Institute of Technology—Interim Associate Dean; Professor

Biomedical Sciences

Robert Osgood, BS, Jackson State University; MS, Ph.D., University of Southern Mississippi—Program Director; Associate Professor

Cory Crane, BA (anthropology), BA (psychology), University of Michigan; MS, Ph.D., Purdue University—Associate Professor

Richard L. Doolittle, BA, University of Bridgeport; MS, Ph.D., University of Rochester—Interim Dean; Professor

Caroline Easton, BS, Rochester Institute of Technology; Ph.D., University of Connecticut—Professor

Michele Lennox, AAS, Rochester Institute of Technology—Lecturer

Elizabeth Perry, BS, State University College at Brockport; MS, Ph.D., University of Rochester—Assistant Professor

Laurence I. Sugarman, BA Washington University in St. Louis; PA-C, St. Louis University; MD, University of Missouri-Columbia—Research Professor

Bolaji N. Thomas, BSc, MSc, Ph.D., University of Lagos (Nigeria)—Professor

Physician Assistant

Heidi Miller, BS, PA-C, Alderson Broaddus College; MPH, University of Rochester—Program Director; Professor

Nancy Valentage, BS, PA-C, Gannon University; MS, Rochester Institute of Technology—Associate Director; Professor

Heather Grotke, BS, Rochester Institute of Technology; MS, PA-C, Daemen College—Clinical Coordinator; Lecturer

Susan Hartfield, BS, State University of New York at Buffalo; BS, Rochester Institute of Technology; PharmD, Albany College of Pharmacy—Assistant Professor

Ashley Nichols, BS, MS, Daemen College—Clinical Coordinator; Lecturer

John B. Oliphant, BA, ATC, Messiah College; M.S.Ed ., Elmira College; MHP, PA-C, Northeastern University; Ph.D., Niagara University—Associate Professor

Diagnostic Medical Sonography

Hamad Ghazle, BS, RDMS, RVT, APS, Rochester Institute of Technology; MS, Ed.D., University of Rochester—Program Director; Professor

BethRae King, BS, RDCS, State University College at Brockport—Echocardiography Concentration Coordinator; Lecturer

Health Systems Administration

Carla Stebbins, BA, University of Northern Iowa; MHA, Des Moines University; Ph.D., Iowa State University—Program Director; Senior Lecturer

Patricia Poteat, BA, University of Rochester; MS, Rochester Institute of Technology; Ph.D., University of Rochester—Senior Lecturer

Wegmans School of Health and Nutrition

Barbara A. Lohse, BS, University of Wisconsin-Eau Claire; MS, RD, University of Wisconsin-Stout; Ph.D., University of Wisconsin-Madison—Head, Wegmans School of Health and Nutrition; Professor

Brenda Ariba Zarhari Abu, BSc, University for Development Studies (Ghana); MPhil, University of Ghana (Ghana); Ph.D., University of the Free State (South Africa); RD, Iowa State University—Assistant Professor

Zachary W. Bevilacqua, BS, State University College at Brockport; MS, University at Buffalo; Ph.D., Indiana University Bloomington—Visiting Assistant Professor

William S. Brewer, BS, State University College at Cortland; MS, Empire State College—Program Director; Senior Lecturer

Elizabeth A. Kmiecinski, BS, The Ohio State University; RD, Charleston Area Medical Center; MS, University of Kentucky—Associate Professor

Elizabeth H. Ruder, BS, Cornell University; RD, Cleveland Clinic Foundation; Ph.D., Pennsylvania State University; MPH, Johns Hopkins University—Program Director, Assistant Professor

School of Individualized Study

James Hall, Executive Director
rit.edu/sois

Programs of study

Applied Arts and Sciences, AAS	150
Applied Arts and Sciences, BS	150
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Organizational Change and Leadership, Certificate	152

Through the School of Individualized Study, students interested in more than one area of study have the option of creating personalized undergraduate programs directly related to their interests and aspirations.

The diverse nature of these customized degree programs values student's ideas and provides an interdisciplinary approach to learning that can be applied to the professional environment.

Like the school itself, students participating in the school are anything but typical. Some are full-time undergraduate students with nontraditional ideas about what they want in a college degree, while others are adults with families and careers attending classes online or in the evening. The school offers a BS degree, an AAS degree, and a diploma.

Please visit the school's website–**www.rit.edu/sois**–for in depth information on academics, advising, faculty, facilites, and more.

Admission requirements

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin.

In addition to the admission requirements of the university, the school has added enrollment policies that must be followed.

Enrollment policies: The school allows a student to enroll in any course for which he or she has sufficient background. Many courses have prerequisites that students are expected to meet before enrolling.

Academic advisors are available throughout the year to answe questions regarding course or program choices. In support of and in compliance with RIT's policy of assuring competency in written communication, all students matriculated in a BS degree program must satisfy a writing competency requirement. Information about this requirement, and the various methods for satisfying it, is available at the SOIS office or by visiting the school's website.

Students matriculated in the school's baccalaureate degree program are expected to complete the degree within seven years.

Financial aid and scholarships

Please refer to the Financial Aid and Scholarships section of this bulletin for information regarding financial aid, scholarships, loans, and grants.

Applied Arts and Sciences, AAS

www.rit.edu/study/applied-arts-and-sciences-aas
School of Individualized Study
585-475-2234, sois@rit.edu

Program overview

The AAS degree in applied arts and sciences offers students the opportunity to create an individualized undergraduate major. The degree requires students to complete at least 60 credit hours of course work comprising 24 credit hours in general education along with 36 credit hours in one or two professional concentrations. Each concentration is customized by the student with guidance and advice from their academic adviser. A professional concentration is at least 20 credit hours and can be designed from most of RIT's majors.

The applied arts and science degree may be completed on campus, online, or by combining on-campus and online course work.

The following chart represents a sample of a typical course sequence for two concentrations in management and economics. Students will work with an adviser to craft a personal pan of study based on their chosen concentration areas.

Curriculum

Applied Arts and Science, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
SOIS-101	Individualized Study Seminar	1
UWRT-150	General Education - First Year Writing: FYW: Writing Seminar (WI)	3
	General Education - Electives	6
	General Education - Artistic Perspective	3
	General Education - Social Perspective	3
	Professional Core Courses	14
Second Year		
	General Education - Ethical Perspective	3
	General Education - Global Perspective	3
	General Education - Scientific Perspective	3
	Professional Core Courses	15
	Open Electives	6
Total Semester Credit Hours		**60**

Please see General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.

Admission requirements

Freshman Admissions

This degree offers students the opportunity to create individualized undergraduate programs of technical and professional study. Applicants should speak directly to an admissions counselor in the Office of Undergraduate Admissions for more information.

Transfer Admissions

This program offers students the opportunity to create individualized undergraduate programs of technical and professional study through its applied arts and science program. The applied arts and science program is particularly appropriate for individuals who have prior college-level learning, are interested in changing majors, have unique ideas about how they want to design their academic areas of study, or want to prepare themselves for a career that requires skills and expertise from several disciplines. Applicants should speak directly to an admissions counselor in the Office of Undergraduate Admissions for more information.

Applied Arts and Sciences, BS

www.rit.edu/study/applied-arts-and-sciences-bs
School of Individualized Study
585-475-2234, sois@rit.edu

Program overview

The School of Individualized Study offers students the opportunity to create individualized undergraduate programs of study through its applied arts and sciences program. In this program, students work closely with faculty and professional advisers to design unique, multidisciplinary plans of study that combine several areas of academic knowledge and interest. The bachelors of applied arts and sciences program is particularly appropriate for individuals who have unique ideas about how they want to design their academic areas of study, have prior college-level learning, are interested in changing or expanding their major, or who want to prepare themselves for a career that requires a combination of skills and expertise from several disciplines.

Bachelor of science (BS) degree: 120 semester credit hours total; program is comprised of general education courses plus course work in professional areas of focus.

Associate of applied science (AAS) degree: 60 semester credit hours total; program is comprised of general education courses plus course work in a professional area of focus.

BS and AAS degrees are available to full-time day students, part-time evening students, and online students. These degrees allow students to pursue several different areas of study, selected specifically to meet individual career and personal goals.

For their professional core, students may draw upon a wealth of educational resources from across RIT's colleges and departments. Examples of professional core areas of study include:

Business/management focus
- Leadership
- Quality management
- Health systems administration
- Project management
- Innovation

Computer/technical focus
- Applied computing
- Technical communications
- Computer science studies
- Engineering technology studies
- Computer graphics
- Mechanical technology

Liberal arts focus
- History
- Psychology studies
- Creative writing
- Cultural studies
- Foreign language

Students looking to complete the BS or AAS online can choose from a diverse group of online concentrations. Examples include:
- Organizational change
- Health systems administration
- Integrated electronics
- Leadership
- Quality management
- Project management

- Web design
- Various liberal arts including concentrations

No two applied arts and sciences programs will be exactly alike because each takes into account the individual's goals and any previous learning. For example, one individualized program might lead to a bachelor's degree with a professional core that combines information technology, graphic arts, and management, while another could lead to a bachelor's degree that combines the fields of technical communication and health systems administration.

As career plans evolve and the demands of their technical and professional fields change, students meet regularly with professional advisers to review and update plans of study.

The following chart represents a sample of a typical course sequence for three concentations in data mining, manangement, and economic studies. Students will work with an adviser to craft a personal pan of study based on their chosen concentration areas.

Curriculum

Applied Arts and Science, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
SOIS-101	Individualized Study Seminar	1
YOPS-10	RIT 365: RIT Connections	0
	General Education - Artistic Perspective	3
	General Education - Social Perspective	3
	General Education - Mathematical Perspective A	3
	Professional Concentration Courses	12
	General Education - Electives	6
	General Education - First Year Writing (WI)	3
Second Year		
	Professional Concentration Courses	12
	General Education - Ethical Perspective	3
	General Education - Natural Science Inquiry Perspective	3
	General Education - Mathematical Perspective B	3
	General Education - Scientific Perspective	3
	Open Elective	3
	General Education - Elective (WI-GE)	3
Third Year		
	General Education - Global Perspective	3
	Professional Concentration Courses	18
	General Education - Immersion 1, 2	6
	General Education - Elective	3
Fourth Year		
SOIS-510	Multidisciplinary Life (WI-PR)	3
	General Education - Immersion 3	3
	Professional Concentration Courses	6
	General Education - Electives	12
	Open Electives	6
Total Semester Credit Hours		**121**

Please see General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Admission requirements

Freshman Admissions

This degree offers students the opportunity to create individualized undergraduate programs of technical and professional study. Applicants should speak directly to an admissions counselor in the Office of Undergraduate Admissions for more information.

Transfer Admissions

This program offers students the opportunity to create individualized undergraduate programs of technical and professional study through its applied arts and science program. The applied arts and science program is particularly appropriate for individuals who have prior college-level learning, are interested in changing majors, have unique ideas about how they want to design their academic areas of study, or want to prepare themselves for a career that requires skills and expertise from several disciplines. Applicants should speak directly to an admissions counselor in the Office of Undergraduate Admissions for more information.

Applied Arts and Sciences, Diploma

www.rit.edu/study/applied-arts-and-sciences-diploma
School of Individualized Study
585-475-2234, sois@rit.edu

Program overview

The applied arts and sciences major offers students the opportunity to create individualized undergraduate programs of study through three levels of study: a bachelor of science degree, an associate of applied science degree, and a diploma. Further information for all three levels can be found under the applied arts and sciences BS program.

Curriculum

Applied Arts and Science, DP degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
Professional Concentration Courses		24
Total Semester Credit Hours		**24**

Admission requirements

Freshman Admissions

This program offers students the opportunity to create individualized undergraduate programs of technical and professional study. Applicants should speak directly to an admissions counselor in the Office of Undergraduate Admissions for more information.

Organizational Change and Leadership, Certificate

www.rit.edu/study/organizational-change-and-leadership-certificate
School of Individualized Study Advising Team
585-475-2234, sois@rit.edu

Program overview

Profound and ongoing changes are taking place in organizations, and individuals need to be flexible and proactive in their response. The organizational change and leadership certificate helps students understand corporate culture and develop skills necessary to manage organizational and individual change. Through the study of leadership, corporate culture, change management, organizational behavior, and team dynamics, individuals understand and obtain the skills necessary to proactively manage workplace change.

Curriculum

Organizational Change and Leadership, certificate, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
SOIS-205	Practicing and Assessing Leadership	3
SOIS-335	Global Forces and Trends	3
SOIS-233	Teams and Team Development	3
SOIS-431	Understanding Organizational Culture	3
Second Year		
SOIS-432	Managing Organizational Change	3
SOIS-442	Learning Organization	3
Total Semester Credit Hours		**18**

Faculty

James Hall, BA, MA, Wilfrid Laurier University (Canada); MTS, Waterloo Lutheran Seminary (Canada); MA, Ph.D., University of Iowa—Executive Director, Professor

Stephen Aldersley, BS, University of Surrey (United Kingdom); MS, University of Lancaster (United Kingdom); Graduate Education Certificate, St. Martin's (United Kingdom); MS, College of St. Rose; Ed.D., University of Rochester—Professor

Makini Beck, BA, State University College at Old Westbury; M.S.Ed., St. Bonaventure University; Ph.D., University of Rochester—Assistant Professor

Hannah Davis, BA, Indiana University; MA, Western Kentucky University—Visiting Lecturer

Leonie Fernandes, BS, University of Michigan; MS, Rochester Institute of Technology; PMI—Project Management Coordinator

Thomas Hanney, Certificate, Rochester Institute of Technology; BA, St. John Fisher College; MPA, State University College at Brockport—Senior Lecturer

Clarence Sheffield, BS, University of Utah; MA, University of Colorado at Boulder; Ph.D., Bryn Mawr College—Professor

David P. Wick, BS, ME, MS, Ph.D., Clarkson University—Associate Professor

Dan Worden, BA, Texas Christian University; MA, Ph.D., Brandeis University—Associate Professor

University Studies

Marty Burris, BA, Western Michigan University; MBA, Rochester Institute of Technology—Director

Pradip Ananda, BS, Eckerd College; MA, Florida Gulf Coast University—Academic Adviser

Dewey Lawrence, BS, Keuka College; MSEd, State University College at Brockport—Assistant Director

College of Liberal Arts

Laverne McQuiller Williams, Interim Dean
rit.edu/liberalarts

Programs of study

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	Communication, BS	158
#	Criminal Justice, BS	159
	Digital Humanities and Social Sciences, BS	162
	Economics, BS	163
#	International and Global Studies, BS	165
	Journalism, BS	169
	Liberal Arts Exploration, Undeclared	170
	Museum Studies, BS	171
	Philosophy, BS	172
	Political Science, BS	174
	Psychology, BS	176
#	Public Policy, BS	178
	Sociology and Anthropology, BS	180

Accelerated dual degree available

The College of Liberal Arts plays three important roles at RIT: it offers a variety of undergraduate and graduate degree programs in the social sciences and humanities; it provides general education courses required of all students pursuing baccalaureate and associate degrees; and it creates opportunities for students and the RIT community to participate in cultural and academic experiences such as theater, music, creative writing, public speaking, and lectures.

Recognizing that future leaders will work in an increasingly interconnected and complex world, the College of Liberal Arts provides students with a rigorous curriculum in the liberal arts. This curriculum is designed to help them forge comprehensive links between a major field of study and the ethical, social, cultural, and communicative demands of the contemporary world. As a result, the general education requirements for undergraduate students include introductory and upper-level courses in the humanities and the social and behavioral sciences.

Please visit the college's website–**rit.edu/liberalarts**–for in depth information on academics, faculty, facilities, research initiatives, advising services, and more.

Admission requirements

For more information on undergraduate admission, including freshman and transfer admission guidelines, please refer to individual program descriptions and the Undergraduate Admission section of this bulletin.

Financial aid and scholarships

Please refer to the Financial Aid and Scholarships section of this bulletin for information regarding financial aid, scholarships, loans, and grants.

Advertising and Public Relations, BS

www.rit.edu/study/advertising-and-public-relations-bs
Amy Lyman,
585-475-4137, axlgla@rit.edu

Program overview

In RIT's advertising degree you'll be prepared to create persuasive messages for a variety of traditional and emerging media platforms, including social media. Analyze audiences, write copy, select media platforms, and manage campaigns. The degree combines courses in communication, advertising, public relations, and marketing to prepare you for the overlapping roles of advertising and public relations professionals.

The fields of advertising and public relations are rapidly changing now that the Internet and mobile devices like smart phones and tablets have influenced the way professionals reach audiences. Unique opportunities and exciting challenges lie ahead in the advertising and public relations field. The major combines advertising, public relations, and marketing to address the overlapping roles of communication professionals.

Students will learn how to create persuasive messages for a variety of traditional and emerging media platforms. They will analyze audiences, write copy, select media, and manage campaigns. The major also features a senior thesis and one semester of cooperative education or internship experience.

Students develop skills through a core of required communication courses, which cover communication theory, visual communication, public relations, advertising, writing, campaign planning and management, media planning, public speaking, and digital design.
A professional core of three marketing courses, chosen by the student, provides a deeper understanding and appreciation of marketing.
Electives and liberal arts courses complete the curriculum.

Senior thesis

Students conduct original research on a subject of their choosing. Two faculty members serve as advisors and guide each student on how to investigate a topic, select a research method, implement the project, and present their findings. Students often present their research at conferences.

Advising

Every student in the School of Communication is assigned a professional academic advisor and a faculty mentor. Professional advisors assist with course planning and registration. Faculty mentors provide advising on career development and planning, including information about research opportunities, graduate school, and jobs. Peer mentors, who are upper-level advertising and public relations students, are also available to answer questions about classes, clubs on campus, student-run activities, and other matters from the student's perspective. For more information, please refer to the college's academic advising page.

Graduate School

The advertising and public relations major prepares students to pursue graduate studies in a variety of fields.

Communication Master's Degree

The School of Communication offers an MS degree in communication.

RIT/Syracuse University College of Law 3+3 Option

RIT has partnered with Syracuse University's College of Law to offer an accelerated 3+3 BS/JD option for highly capable students. This option provides a fast-track pathway to law school in which students earn a bachelor's degree and a juris doctorate degree in six years. In the 3+3 option, students interested in the following RIT majors–advertising and public relations, communication, criminal justice, economics, international and global studies, journalism, philosophy, political science, psychology, public policy, and sociology and anthropology–may apply to the option directly. Successful applicants are offered admission to RIT and given conditional acceptance into Syracuse University's College of Law. Learn more about the RIT/Syracuse University College of Law 3+3 Option, including admission requirements and frequently asked questions.

Accelerated 4+1 MBA option

An accelerated 4+1 MBA option also is available for students who wish to earn a BS in advertising and public relations and an MBA. The program is offered in conjunction with Saunders College of Business and allows students to obtain both degrees in five years of study. Students should consult their advisor for more information.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the advertising degree are required to complete one cooperative education or internship experience.

Curriculum

Advertising and Public Relations, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
COMM-105	Foundations of Communication	3
COMM-201	General Education – Elective: Public Speaking	3
COMM-211	Principles of Advertising	3
COMM-212	Public Relations	3
MATH-101	General Education – Mathematical Perspective A: College Algebra	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Natural Science Inquiry Perspective	3
	General Education – Elective	3
Second Year		
COMM-202	General Education – Elective: Mass Communications	3
COMM-221	Public Relations Writing (WI-PR)	3
COMM-223	Digital Design in Communication	3
COMM-304	Intercultural Communication	3
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Scientific Principles Perspective	3
	General Education – Elective	3
	Open Elective	3
Third Year		
COMM-301	Theories of Communication	3
COMM-321	Copywriting and Visualization	3
COMM-401	Quantitative Research Methods	3
COMM-421	Media Planning	3
COMM-499	Communication Co-op (summer)	0
MKTG-230	Principles of Marketing	3
	General Education – Immersion 1, 2, 3	9
	General Education – Electives	6
Fourth Year		
COMM-322	Campaign Management and Planning	3
COMM-402	Qualitative Research Methods	3
COMM-501	Senior Thesis in Communication (WI-PR)	3
	Professional Core Courses	6
	General Education – Electives	6
	Open Electives	9
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Professional core courses

Students choose two of the following:

INTB-320	Global Marketing
MKTG-320	Digital Marketing
MKTG-350	Consumer Behavior
MKTG-360	Professional Selling
MKTG-370	Advertising and Promotion Management
MKTG-489	Seminar in Marketing

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Strong performance in English and social studies is expected

Transfer Admission

Transfer course recommendations without associate degree

Courses in advertising, marketing, communications, liberal arts, and science

Appropriate associate degree programs for transfer

Advertising, business/marketing, communications, public relations, or liberal arts

Applied Modern Language and Culture, BS

www.rit.edu/study/applied-modern-language-and-culture-bs

Amy Lyman,
585-475-4137, axlgla@rit.edu

Program overview

Today's workforce is increasingly global, and career opportunities may arise in exciting international locations where a solid understanding of your career field includes proficiency in a second language and its culture. The BS degree in applied modern language and culture is a distinctive, dynamic foreign language degree in which you'll study Chinese, Japanese, or Spanish. It prepares you to actively apply your knowledge of language and culture to a technical or professional discipline of your choice, such as science, business, communication, computing and information technology, engineering, the arts, and more. You'll gain proficiency in your chosen language while learning to articulate your technical or professional discipline in that language.

Applied modern language and culture is not a traditional foreign language degree. Instead, the major provides advanced study of languages and cultures that most directly apply to the global workplace and the global economy in which you'll work. Students choose one of three language tracks—Chinese, Japanese, or Spanish—where they'll immerse themselves in that region's language and culture. Students learn to speak, understand, read, and write in their chosen language, as well as gain a proficiency in the culture and traditions surrounding the language and geographic region. In addition, students choose a secondary major of study or a minor in a technical or professional discipline, such as computing, information technology, engineering, business, the arts, or the sciences.

The major is unique in that it provides extensive study of a specific language and culture and its direct application to a career field. Students learn how the integration of language skills, cultural awareness, and professional fluency impacts their work in science, computing, communication, engineering, business, the arts, and more.

Capstone project

In the final year, students engage in an interdisciplinary capstone seminar that integrates their chosen linguistic/cultural discipline with the professional or technical field they have chosen to pursue. This capstone seminar culminates in a senior project presentation.

Experiential Learning

International Experience

The applied modern language and culture major includes a required international experience where students live, study, or work in an international location. Through study abroad or an international co-op, students immerse themselves in their chosen language, engage in cultural customs and traditions, and broaden their global perspective and understanding.

Curriculum

Applied Modern Language and Culture (Chinese track), BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
Choose one of the following:		3
MLCH-201	Beginning Chinese I	
	General Education – Global Perspective	
Choose one of the following:		3
MLCH-202	Beginning Chinese II	
	General Education – Global Perspective	
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Social Perspective	3
	General Education – Natural Science Inquiry Perspective	3
	General Education – Scientific Principles Perspective	3
	General Education – Electives	6
Second Year		
MLCH-301	Intermediate Chinese I	3
MLCH-302	Intermediate Chinese II	3
MLCH-310	Intermediate Conversational Chinese	3
MLCH-315	Intermediate Reading and Writing in Chinese	3
	General Education – Mathematical Perspective A	3
	General Education – Mathematical Perspective B	3
	General Education – Immersion 1, 2	6
	MLC Focus Area Courses	6
Third Year†		
MLCH-410	Chinese for Science and Technology	3
	Advanced Chinese Language 400 level Courses	6
	General Education – Immersion 3	3
	General Education – Electives	9
	MLC Focus Area Course	3
	MLC Program Elective	3
	Open Elective	3
Fourth Year		
MLCH-415	Professional Chinese	3
MLCU-549	Capstone Seminar in Applied Modern Language and Culture	3
	General Education – Electives	6
	MLC Focus Area Courses	6
	Open Electives	12
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE)for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Students complete Study Abroad and Work Abroad requirements in the third year of study. Prior to studying abroad, MLCH-201, MLCH-202, MLCH-301, MLCH-302, and two Intermediate Enhancement Courses.

Applied Modern Language and Culture (Japanese track), BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
Choose one of the following:		3
MLJP-201	Beginning Japanese I	
	General Education – Global Perspective	
Choose one of the following:		3
MLJP-202	Beginning Japanese II	
	General Education – Global Perspective	
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Social Perspective	3
	General Education – Natural Science Inquiry Perspective	3
	General Education – Scientific Principles Perspective	3
	General Education – Electives	6
Second Year		
MLJP-301	Intermediate Japanese I	3
MLJP-302	Intermediate Japanese II	3
MLJP-310	Practical Reading and Speaking in Japanese	3
MLJP-315	Practical Writing and Speaking in Japanese	3
	General Education – Mathematical Perspective A	3
	General Education – Mathematical Perspective B	3
	General Education – Immersion 1, 2	6
	MLC Focus Area Courses	6
Third Year†		
MLJP-402	Creative Writing and Performance in Japanese (WI-PR)	3
MLJP-410	Japanese for Science and Technology	3
	Advanced Japanese 400 level Language Course	3
	General Education – Immersion 3	3
	General Education – Electives	9
	MLC Focus Area Course	3
	MLC Program Elective	3
	Open Elective	3
Fourth Year		
MLJP-415	Professional Japanese	3
MLCU-549	Capstone Seminar in Applied Modern Language and Culture	3
	General Education – Electives	6
	MLC Focus Area Courses	6
	Open Electives	12
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Students complete Study Abroad and Work Abroad requirements in the third year of study. Prior to studying abroad, MLJP-201, MLJP-202, MLJP-301, MLJP-302, and two Intermediate Enhancement Courses.

Applied Modern Language and Culture (Spanish track), BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
Choose one of the following:		3
MLSP-201A	Beginning Spanish IA	
	General Education – Global Perspective	
Choose one of the following:		3
MLSP-202	Beginning Spanish II	
	General Education – Global Perspective	
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Social Perspective	3
	General Education – Natural Science Inquiry Perspective	3
	General Education – Scientific Principles Perspective	3
	General Education – Electives	6
Second Year		
MLSP-301	Intermediate Spanish I	3
MLSP-302	Intermediate Spanish II	3
MLSP-310	Spanish Grammar Review	3
MLSP-315	Hispanic Culture & Civilization	3
	General Education – Mathematical Perspective A	3
	General Education – Mathematical Perspective B	3
	General Education – Immersion 1, 2	6
	MLC Focus Area Courses	6
Third Year†		
MLSP-410	Spanish for Science and Technology	3
	Advanced Spanish 400 level Language Courses	6
	General Education – Electives	9
	General Education – Immersion 3	3
	MLC Focus Area Course	3
	MLC Program Elective	3
	Open Elective	3
Fourth Year		
MLSP-415	Professional Spanish	3
MLCU-549	Capstone Seminar in Applied Modern Language and Culture	3
	General Education – Electives	6
	MLC Focus Area Courses	6
	Open Electives	12
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Students complete Study Abroad and Work Abroad requirements in the third year of study. Prior to studying abroad, MLSP-201, MLSP-202, MLSP-301, MLSP-302, and two Intermediate Enhancement Courses.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Strong performance in English and social studies is expected

Transfer Admission

Transfer course recommendations without associate degree

Courses in liberal arts, science, and foreign language

Appropriate associate degree programs for transfer

Liberal arts with social sciences, sciences, or languages

Communication, BS

www.rit.edu/study/communication-bs
Amy Lyman,
585-475-4137, axlgla@rit.edu

Program overview

Developing productive relationships, managing teams, analyzing audiences, creating effective messages, and understanding media are key competencies needed for successful communication professionals. RIT's communication degree prepares you in the theory, research, and practical application needed to develop these skills. You will graduate ready for a successful career as a communication specialist. The degree's strong focus on undergraduate research also prepares students for graduate work in communication and related academic disciplines.

Students customize their program work by taking professional core courses from RIT's nine colleges, in areas as diverse as design, photography, marketing, health care, programming, and engineering, to name a few. This unique combination of course work allows you to explore the breadth of the communication field while studying other subject areas of professional or personal interest. You will be are prepared for a variety of careers, ranging from traditional corporate communication to entrepreneurial start-up environments.

Plan of Study

Students take courses in communication theory, visual communication, public speaking, mass communication, communication law and ethics, technology-mediated communication, and research methods. They also complete a professional core from one of the many minors across the university or may design their own. Electives and liberal arts courses complete the curriculum. Students complement their classroom work by completing one semester of cooperative education that deepens students' knowledge of the communication field while they gain hands-on work experience that prepares them for a full-time position after graduation.

Advising

Every student in the School of Communication is assigned a professional academic advisor and a faculty mentor. Professional advisors assist with course planning and registration. The faculty mentor provides advising on career development and planning, including information about research opportunities, graduate school, and jobs. Peer mentors, who are upper-level advertising and public relations students, are also available to answer questions about classes, clubs on campus, student-run activities, and other matters from the student's perspective. For more information, please refer to the college's academic advising page.

Graduate School

The communication degree prepares students to pursue graduate studies in a variety of fields.

Communication Master's Degree

The School of Communication offers an MS degree in communication.

RIT/Syracuse University College of Law 3+3 Option

RIT has partnered with Syracuse University's College of Law to offer an accelerated 3+3 BS/JD option for highly capable students. This option provides a fast-track pathway to law school in which students earn a bachelor's degree and a juris doctorate degree in six years. In the 3+3 option, students interested in the following RIT majors–advertising and public relations, communication, criminal justice, economics, international and global studies, journalism, philosophy, political science, psychology, public policy, and sociology and anthropology–may apply to the option directly. Successful applicants are offered admission to RIT and given conditional acceptance into Syracuse University's College of Law. Learn more about the RIT/Syracuse University College of Law 3+3 Option, including admission requirements and frequently asked questions.

Accelerated 4+1 MBA option

An accelerated 4+1 MBA option also is available for students who wish to earn a BS in communication and an MBA. The program is offered in conjunction with Saunders College of Business and allows students to obtain both degrees in five years of study. Students should consult their advisor for more information.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the communication degree are required to complete one block of cooperative education.

Curriculum

Communication, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
COMM-101	General Education – Elective: Human Communication	3
COMM-201	General Education – Elective: Public Speaking	3
COMM-202	Mass Communications	3
MATH 101	General Education – Mathematical Perspective A: College Algebra	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Global Perspective	3
	General Education – Natural Science Inquiry Perspective §	3
	General Education – Elective	3
Second Year		
COMM-341	Visual Communication	3
COMM-342	Communication Law and Ethics	3
Choose one of the following:		3
COMM-302	Interpersonal Communication	
COMM-303	Small Group Communication	
COMM-304	Intercultural Communication	
COMM-343	Technology-Mediated Communication	3
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	3
	General Education – Immersion 1	3
	General Education – Scientific Principles Perspective	3
	General Education – Social Perspective	3
	Open Elective	3
	Professional Core‡	3
Third Year		
COMM-301	Theories of Communication	3
COMM-401	Quantitative Research Methods	3
COMM-499	Communication Co-op (summer)	0
	General Education – Immersion 2, 3	6
	Communication Electives	6
	Open Electives	6
	Professional Core‡	6

COURSE		SEMESTER CREDIT HOURS
Fourth Year		
COMM-402	Qualitative Research Methods	3
COMM-501	Senior Thesis in Communication (WI)	3
	Communication Elective	3
	Professional Core‡	3
	General Education – Electives	15
	Open Elective	3
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Professional core may be fulfilled by selecting a 300-level (or higher) course from a discipline outside the liberal arts.
§ Students will satisfy this requirement by taking either a 3- or 4-credit hour lab science course. If a science course consists of separate lecture and laboratory sections, the student must take both the lecture and lab portions to satisfy the requirement.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Strong performance in English and social studies is expected

Transfer Admission

Transfer course recommendations without associate degree

Courses in liberal arts, math, science, and computer science

Appropriate associate degree programs for transfer

Liberal arts with emphasis in communication and a technical field such as business, photography, or computer science

Criminal Justice, BS

www.rit.edu/study/criminal-justice-bs

Amy Lyman,
585-475-4137, axlgla@rit.edu

Program overview

RIT's criminal justice degree focuses on understanding crime and criminal justice system responses. Students explore contemporary public safety issues, especially those involving technology, and evaluate the intended and unintended consequences. This framework offers opportunities to consider policy responses and engage in hands-on research in local agencies. A focus on theory and social science provides students with the problem-solving skills necessary for addressing today's most pressing social issues.

The criminal justice degree offers students a broad education, preparing them for a wide range of careers in federal and local criminal justice agencies. The major also provides continuing education for professionals already employed in criminal justice positions and offers a strong academic foundation for graduate or law school. The major is unique in its broad core curriculum, the scope of professional course offerings, an intensive field experience where students blend knowledge gained in the classroom with a career-oriented internship, and opportunities for cooperative education.

RIT's approach to the study of criminal justice combines theoretical perspectives with practical experience. The emphasis within the areas of crime, criminal behavior, social control mechanisms, administration, planning, and management is on problem-solving techniques based on the growing body of research in the field as well as students' own guided research.

Center for Public Safety Initiatives

The Center for Public Safety Initiatives is housed in the criminal justice department and works with the Rochester Police Department and other community groups. Several students work at CPSI and gain valuable experience working with crime mapping, data gathering, and data analysis. Students work closely with faculty on various projects, including Operation IMPACT, Ceasefire and Project Safe Neighborhoods, and the Rochester Police Department. The CPSI supports the development, implementation, and evaluation of criminal justice and community-based anti-crime and anti-violence interventions.

Advising

Students are assigned a faculty advisor who assists in formulating career goals and planning a field of study to achieve professional aspirations. Through core courses, students are exposed to the widest possible range of perspectives from which to view crime and the nature of criminal justice administration, thus broadening their career options.

Careers in Criminal Justice

Many graduates are engaged in law enforcement careers in agencies at all levels of government, including the Federal Bureau of Investigation, Secret Service, U.S. Marshals Service, Naval Intelligence Service, U.S. Customs and Border Patrol, Immigration and Naturalization Service, Centers for Disease Control, Department of the Interior, and the National Park Service, among others. The Rochester Police Department, Monroe County Sheriff's Department, and suburban departments throughout the greater Rochester area employ our graduates. A number have advanced in rank to positions of command, including several chiefs and deputy chiefs.

Other alumni work as correctional officers, counselors, probation officers, and parole officers; with many advancing to administrative

positions. A significant number of alumni have used the program as a foundation for law school and have entered the legal profession as prosecutors, public defenders, and private practice lawyers. Many graduates serve in U.S. Attorneys General offices. Others serve the legal profession as investigators or paralegals.

Consistent with the liberal arts/social science nature of the major, some graduates have attained advanced degrees in related areas and entered teaching careers at the secondary and college levels. Others have become psychologists, social workers, drug and alcoholism counselors, youth service specialists, and victim assistance/rape crisis counselors. Many have completed advanced degrees in business, public policy, public administration, criminology, and criminal justice.

Pre-Law Advising Program

Law schools welcome applications from students majoring in a wide range of academic programs. If you are interested in pursuing law school, RIT's Pre-Law Advising Program is designed to maximize your chances of admission to law school. The program includes personalized advising, LSAT preparation, academic counseling, and a time table for law school admission.

Graduate School

Criminal Justice Master's Degree

The criminal justice department offers an MS degree in criminal justice that focuses on program analysis and evaluation.

RIT/Syracuse University College of Law 3+3 Option

RIT has partnered with Syracuse University's College of Law to offer an accelerated 3+3 BS/JD option for highly capable students. This option provides a fast-track pathway to law school in which students earn a bachelor's degree and a juris doctorate degree in six years. In the 3+3 option, students interested in the following RIT majors–advertising and public relations, communication, criminal justice, economics, international and global studies, journalism, philosophy, political science, psychology, public policy, and sociology and anthropology–may apply to the option directly. Successful applicants are offered admission to RIT and given conditional acceptance into Syracuse University's College of Law. Learn more about the RIT/Syracuse University College of Law 3+3 Option, including admission requirements and frequently asked questions.

Accelerated 4+1 MBA option

An accelerated 4+1 MBA option is available for students who wish to earn a BS in criminal justice and an MBA. The program is offered in conjunction with Saunders College of Business and allows students to obtain both degrees in five years of study. Students should consult their advisor for more information.

Experiential Learning

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the criminal justice degree have the opportunity to participate in cooperative education and may apply for co-op placements after two semesters of full-time study. Cooperative education provides a working experience in a criminal justice-related field but does not carry academic credit hours.

Field Experience

During their senior year, students have the opportunity to complete an internship at a number of agencies and organizations in the areas of law, law enforcement, institutional and non-institutional corrections, courts, juvenile advocacy and counseling programs, and security. For one semester, students work 25-hours-a-week under an agency field supervisor and meet regularly with advisors and peers who are doing field placements in other agencies. Placements are individualized to fit a student's career objectives.

Curriculum

Criminal Justice, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CRIM-100	Seminar in Criminal Justice	3
CRIM-110	Introduction to Criminal Justice	3
YOPS-10	RIT 365: RIT Connections	0
	Criminal Justice Elective	3
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Global Perspective	3
	General Education – Natural Science Inquiry Perspective‡	3
	General Education – Social Perspective	3
	General Education – Elective	3
Second Year		
CRIM-300	Quantitative Methods for Criminal Justice	3
CRIM-350	Theories of Crime and Criminality	3
CRIM-400	Research Methods	3
	Criminal Justice Elective	3
	General Education – Immersion 1, 2	6
	General Education – Mathematical Perspective A	3
	General Education – Mathematical Perspective B	3
	General Education – Scientific Principles Perspective	3
	General Education – Elective	3
Third Year		
	Criminal Justice Electives	9
	General Education – Electives	9
	General Education – Immersion 3	3
	Open Electives	9
Fourth Year		
CRIM-500	Seminar in Criminal Justice and Public Policy (WI-PR)	3
CRIM-550	Field Experience	3
	Criminal Justice Electives	9
	General Education – Electives	9
	Open Electives	6
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and lab portions to satisfy the requirement.

Criminal Justice Electives

COURSE	
CRIM-210	Technology in Criminal Justice
CRIM-215	Law and Society
CRIM-220	Corrections
CRIM-225	Criminal Law
CRIM-230	Juvenile Justice
CRIM-235	Crime, Justice and Communities
CRIM-240	Law Enforcement in Society
CRIM-245	Prostitution and Vice
CRIM-250	Domestic Violence
CRIM-255	Seminar on Sexual Violence
CRIM-260	Courts
CRIM-265	Women and Crime
CRIM-270	Current Issues in Criminal Justice
CRIM-275	Crime and Violence
CRIM-285	Minority Groups and the Criminal Justice System
CRIM-290	Computer Crime
CRIM-299	Crime, Justice, and Ethics
CRIM-310	Seminar in Law
CRIM-315	Evidence
CRIM-489	Major Issues in Criminal Justice

Accelerated dual degree option

BS/MS in Criminal Justice

An accelerated dual-degree option that provides an opportunity for students to complete both a BS and an MS degree in criminal justice in five years. This dual-degree program is designed for students who are looking to develop a stronger foundation in criminological and criminal justice theory and social scientific research skills. Graduates are well positioned for careers in the policy analysis arena or to be able to easily transition into a criminal justice doctoral program. Applications to the BS/MS option are accepted from matriculated undergraduate criminal justice students. To be considered for admission, students need at least a 3.0 cumulative grade point average, have at least a third year standing, and must have been enrolled in the BS degree in criminal justice for at least two terms. Students may apply to the program by submitting a Criminal Justice BS/MS Dual Degree Application.

Criminal Justice, BS/MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CRIM-100	Seminar in Criminal Justice	3
CRIM-110	Introduction to Criminal Justice	3
YOPS-010	RIT 365: RIT Connections	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Natural Science Inquiry Perspective‡	3
	General Education – First Year Writing (WI)	3
	General Education – Elective	3
	Criminal Justice Elective	3
Second Year		
CRIM-300	Quantitative Methods for Criminal Justice	3
CRIM-350	Theories of Crime and Criminality	3
CRIM-400	Research Methods	3
	Criminal Justice Elective	3
	General Education – Scientific Principles Perspective	3
	General Education – Mathematical Perspective A	3
	General Education – Mathematical Perspective B	3
	General Education – Elective	3
	General Education – Immersion 1, 2	6
Third Year		
	Criminal Justice Electives	9
	General Education – Electives	9
	General Education – Immersion 3	3
	Open Electives	9
Fourth Year		
CRIM-500	Seminar in Criminal Justice and Public Policy (WI)	3
CRIM-550	Field Experience	3
CRIM-700	Pro-Seminar In Criminal Justice Theory	3
CRIM-703	Advanced Criminology	3
	General Education – Electives	9
	Open Electives	6
	Criminal Justice Elective	3
Fifth Year		
CRIM-701	Statistics	3
CRIM-702	Pro-Seminar in Research Methods	3
CRIM-704	Crime, Justice and Community	3
CRIM-705	Interventions and Change in Criminal Justice	3
CRIM-775	Criminal Justice Capstone	3
	Electives	9
Total Semester Credit Hours		**144**

Please see General Education Curriculum for more information.
(WI) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and lab portions to satisfy the requirement.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Strong performance in English and social studies is expected

Transfer Admission

Transfer course recommendations without associate degree

Courses in criminal justice or related areas, liberal arts, math, and science

Appropriate associate degree programs for transfer

Criminal justice, human services, or liberal arts

Digital Humanities and Social Sciences, BS

www.rit.edu/study/digital-humanities-and-social-sciences-bs
Amy Lyman,
585-475-4137, axlgla@rit.edu

Program overview

Digital humanities and social sciences is a dynamic and interdisciplinary field dedicated to furthering the possibilities of computing for humanities and social sciences subjects including anthropology, art, communication, history, literature, linguistics, philosophy, and political science, among others. This social sciences major is a collaborative degree program where students receive a strong foundation in critical thinking, cultural awareness, and communication. The major is unique, pairing a traditional liberal arts education with study in digital technology, human-computer interaction, database management, geographic information technologies, and interactivity in new media.

Digital tools paired with computing further the understanding and study of anthropology, communication, culture, literature, linguistics, history, and the arts. The digital humanities and social sciences major is a dynamic and interdisciplinary field of research dedicated to furthering the possibilities of computing for humanities and social sciences subjects including anthropology, art, communication, history, literature, linguistics, philosophy, and political science, among others.

The major is a collaborative degree program. Students receive a strong foundation in critical thinking, cultural awareness, and communication in the College of Liberal Arts. This major offers a traditional liberal education, which is given a new impact through engagement with digital technology. Course work combines humanities and social science with computational and design curriculum from the colleges of Art and Design and Computing and Information Science in areas such as human-computer interaction, database management, geographic information technologies, and interactivity in new media.

Digital humanities and social sciences brings together faculty from three colleges and eight units for collaborative teaching and research. Our projects reside at the intersection of computing and design with humanities and social science. Through the development and application of new technologies, we are transforming scholarship in the arts, humanities, and social sciences. Our undergraduate program in digital humanities and social sciences is uniquely interdisciplinary: students take course work in the College of Liberal Arts, the Golisano College of Computing and Information Sciences, and the College of Art and Design. Students learn to understand the historical and cultural contexts for, and to think critically about, new technologies. Our partnerships within RIT, with the Wallace Center, The Cary Graphic Arts Collection, and The RIT Press, as well as the Library Company of Philadelphia and Malmö University in Sweden, provide distinctive opportunities for imagination and application.

Scholars in digital humanities and social sciences employ many other tools and techniques in their academic inquiry and public dissemination of research, including 3D design visualization, geospatial technology, and electronic literature. The major also fosters critical analysis of digital culture, social media, and digital games. Team-based projects and public engagement are hallmarks of the program.

Plan of study

The digital humanities and social sciences major combines information science and technologies with the liberal arts to provide students with the integrative literacy increasingly necessary for careers in cultural institutions, government, educational institutions, and technology firms. Students achieve both broad knowledge in digital humanities and social sciences and a specialization in an area of interest through their studies. Students benefit from experiential learning with opportunities for cooperative education or an internship, team project-based lab courses, and a capstone project. Students are encouraged to study abroad or pursue an international co-op in order to enhance their studies.

Capstone experience

Students are required to complete a capstone experience.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the digital humanities and social sciences major are required to complete at least one cooperative education or internship experience. Students may complete this requirement during any summer following the second year, however, the requirement must be completed before the final year. The Office of Career Services and Cooperative Education assists students in identifying and applying to co-op and internship positions.

Curriculum

Digital Humanities and Social Sciences, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
DHSS-101	Computation and Culture	3
DHSS-102	Industrial Origins of the Digital Age	3
ISTE-120	Computational Problem Solving in the Information Domain I	4
ISTE-140	Web & Mobile I	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Elective	3
Second Year		
DHSS-103	Ethics in the Digital Era	3
ISTE-230	Introduction to Database and Data Modeling	3
ISTE-240	Web & Mobile II	3
NMDE-111	New Media Design Digital Survey I	3
NMDE-112	New Media Design Digital Survey II	3
STAT-145	General Education – Mathematical Perspective A: Introduction to Statistics I	3
	General Education – Immersion 1, 2	6
	General Education – Mathematical Perspective B	3
	General Education – Natural Science Inquiry Perspective	4
Third Year		
DHSS-377	Media Narrative (WI-PR)	3
DHSS-499	DHSS Co-op (summer)	0
ISTE-382	Maps, Mapping and Geospatial Technologies	3
	General Education – Immersion 3	3
	General Education – Scientific Principles Perspective	3
	General Education – Electives	6
	Professional Electives	6
	Project Courses	6
Fourth Year		
DHSS-489	DHSS Capstone I	3
DHSS-490	DHSS Capstone II	3
	General Education – Electives	9
	Open Electives	12
	Professional Elective	3
Total Semester Credit Hours		**122**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Professional Electives

COMM-223	Digital Design in Communication
COMM-263	Data Journalism
COMM-343	Technology-Mediated Communication
COMM-356	Critical Practice in Social Media
COMM-357	Communication, Gender, and Media
COMM-461	Multiplatform Journalism
CRIM-290	Computer Crime
DHSS-488	Special Topics
ENGL-215	Text & Code
ENGL-315	Digital Literature
ENGL-351	Language Technology
ENGL-373	Media Adaptation
ENGL-374	Games and Literature
ENGL-375	Storytelling Across Media
ENGL-386	World Building Workshop
ENGL-389	Digital Creative Writing Workshop
ENGL-450	Free & Open Source Culture
ENGL-543	Game-Based Fiction Workshop
ENGL-581	Intro to Natural Language Processing
FNRT-383	Traumatic Images
HIST-324	Oral History
HIST-326	Digital History
HIST-480	Global Information Age
IGME-101	New Media Interactive Design Algorithmic Problem Solving I
IGME-102	New Media Interactive Design Algorithmic Problem Solving II
IGME-119	2D Animation and Asset Production
IGME-220	Game Design & Development I
IGME-320	Game Design & Development II
MUSE-225	Museums & the Digital Age
MUSE-359	Cultural Informatics
MUSE-360	Visitor Engagement & Museum Technologies
PHIL-307	Philosophy of Technology
PHIL-314	Philosophy of Vision and Imaging
STSO-441	Cyborg Theory: (Re)thinking the Human Experience in the 21st Century

Project Courses

ENGL-386	World Building Workshop
ENGL-422	Maps, Spaces, and Places
ENGL-543	Game-based Fiction Workshop
FNRT-377	Imag(in)ing Rochester
FNRT-383	Traumatic Images
FNRT-384	Art of Dying
IGME-580	IGM Production Studio
IGME-581	Innovation & Invention
IGME-589	Research Studio
MUSE-354	Exhibition Design
NMDE-201	New Media Design Elements II
NMDE-203	New Media Design Interactive II
NMDE-302	New Media Design Graphical User Interface

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Strong performance in English and social studies is expected

Transfer Admission

Transfer course recommendations without associate degree

Liberal arts courses and basic information technology or computer science course work

Appropriate associate degree programs for transfer

Liberal arts with web development courses, and some information technology or computer science course work

Economics, BS

www.rit.edu/study/economics-bs

Amy Lyman,
585-475-4137, axlgla@rit.edu

Program overview

Economists play a role in a range of industries, from business and law to social sciences, agriculture, and environmental studies. They study how society distributes its resources – from land, labor, raw materials, and machinery – to produce a range of goods and services. They also conduct research, collect and analyze information, monitor economic trends, and develop forecasts to guide industries in making critical decisions. For students who have strong math skills, but are also interested in impacting policy and social issues, an economics degree is an exciting, dynamic major. RIT's economics degree develops your communication, computational, and management skills in addition to refining your economic reasoning and quantitative abilities. You'll be prepared to apply economic analysis to help solve real-world problems.

The economics degree emphasizes the quantitative analytical approach to dealing with economic problems in both the public and private sectors, providing students with marketable skills and the intellectual foundation for career growth. Graduates are prepared for entry-level managerial and analytical positions in both industry and government and to pursue graduate studies in economics, business, and law.

Plan of study

The economics curriculum develops communication, computational, and management skills in addition to economic reasoning and quantitative abilities. Required courses develop students' abilities to apply economic analysis to real-world problems. Liberal arts courses enhance oral and written communication skills. Business courses include accounting and finance. Quantitative analytical skills are developed by a course sequence that includes computer science, mathematics, and statistics. Free electives allow students to pursue advanced study in their individual areas of interest and/or develop a double major. Along with finance, marketing, mathematics, statistics, or computer science, there are many other possibilities. Faculty advisors help students develop professional options that assist them in attaining their career goals.

Tracks

Students choose one of the following tracks: economic theory, environmental economics, or managerial economics.

Capstone experience

Students are required to complete a creative capstone experience. Students may publish a paper in a refereed journal, present a paper at a professional conference or at an RIT-sponsored conference, present research at an approved exhibit at Imagine RIT: Creativity and Innovation Festival, or fulfill a comparable creative capstone requirement in the student's primary major (if economics is the secondary major).

Double majors

The economics curriculum is flexible and allows students to pursue a double major in a secondary field of study. Even with a double major, students are able to graduate in four years.

Academic enrichment opportunities

Economics faculty members serve as mentors and are available to enhance students' personal and professional growth. Students may work as teaching assistants for professors in economics courses or learn about research techniques as research assistants for faculty. For both of these activities, students receive a stipend. Finally, students can engage in

independent or joint research with a faculty member, receiving academic credit and obtaining funding for their research needs.

Graduate School

RIT/Syracuse University College of Law 3+3 Option

RIT has partnered with Syracuse University's College of Law to offer an accelerated 3+3 BS/JD option for highly capable students. This option provides a fast-track pathway to law school in which students earn a bachelor's degree and a juris doctorate degree in six years. In the 3+3 option, students interested in the following RIT majors–advertising and public relations, communication, criminal justice, economics, international and global studies, journalism, philosophy, political science, psychology, public policy, and sociology and anthropology–may apply to the option directly. Successful applicants are offered admission to RIT and given conditional acceptance into Syracuse University's College of Law. Learn more about the RIT/Syracuse University College of Law 3+3 Option, including admission requirements and frequently asked questions.

Accelerated 4+1 MBA option

An accelerated 4+1 option is available for students who wish to earn a BS in economics and an MBA. The option is offered in conjunction with Saunders College of Business and allows students to obtain both degrees in five years of study. Please consult your advisor for more information.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the economics degree are strongly encouraged to participate in cooperative education.

Curriculum

Economics, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ECON-100	Foundational Seminar in Economics	0
ECON-101	Principles of Microeconomics	3
ECON-201	Principles of Macroeconomics	3
MATH-171	General Education – Mathematical Perspective A: Calculus A	3
MATH-172	General Education – Mathematical Perspective B: Calculus B	3
STAT-145	General Education – Elective: Introduction to Statistics I	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Natural Science Inquiry Perspective†	3
	General Education – Elective	3
Second Year		
ECON-402	Intermediate Macroeconomic Theory	3
ECON-403	Econometrics I (WI-PR)	3
Choose one of the following:		3
ECON-405	International Trade and Finance	
ECON-406	Global Economic Issues	
	General Education – Global Perspective	3
	General Education – Immersion 1	3
	General Education – Social Perspective	3
	General Education – Elective	3
	Open Elective	3
	Track Courses	6
Third Year		
ECON-401	Intermediate Microeconomic Theory	3
ECON-404	Mathematical Methods: Economics	3
Choose one of the following:		3
ISCH-110	Principles of Computing	
ISTE-105	Web Foundations	
	General Education – Immersion 2, 3	6
	General Education – Scientific Principles Perspective	3
	General Education – Elective	3
	Open Electives	6
	Track Course	3
Fourth Year		
ECON-407	Industrial Organization	3
ECON-510	Economics Capstone Experience	0
	General Education – Electives	12
	Open Electives	6
	Track Courses	9
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Students will satisfy this requirement by taking either a 3- or 4-credit hour lab science course. If a science course consists of separate lecture and laboratory sections, the student must take both the lecture and lab portions to satisfy the requirement.

Tracks

Economic Theory and Policy

COURSE	
ECON-410	Game Theory with Economic Applications
	Upper Division Economics Elective
Choose any combination of four of the following:	
	Upper Division Economics Elective (from approved list)
	Mathematics Elective (from approved list)
	Computing Elective (from approved list)

Environmental Economics

COURSE	
ECON-421	Natural Resource Economics
ECON-422	Benefit-Cost Analysis
ECON-520	Environmental Economics
	Upper Division Economics Elective or Computing Elective or Mathematics Elective (from approved lists)
	Two Environmental Electives (from approved list)

Managerial Economics

COURSE	
ACCT-110	Financial Accounting
ECON-410	Game Theory with Economic Applications
ECON-430	Managerial Economics
Choose one of the following:	
FINC-220	Financial Management
ECON-431	Monetary Analysis and Policy
ECON-433	Financial Economics
Choose one of the following:	
ECON-405	International Trade and Finance
ECON-406	Global Economic Issues
	Upper Division Economics Elective or Computing Elective or Mathematics Elective (from approved lists)

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Strong performance in English and social studies is expected

Transfer Admission

Transfer course recommendations without associate degree
Courses in business, liberal arts, math, science, and computer science

Appropriate associate degree programs for transfer
AS degree in business administration or liberal arts

International and Global Studies, BS

www.rit.edu/study/international-and-global-studies-bs
Amy Lyman,
585-475-4137, axlgla@rit.edu

Program overview

The impact of global change is dramatic and far-reaching, altering the dynamics of everyday life. The international studies major aims to transform students into global experts who can assess and analyze the salient issues of worldwide transformation, including consumer capitalism, media culture, economic development and migration, gender and health, political conflict, sustainable futures, and the predicaments of democracy and civil society. Students in the international studies major are well-prepared for careers that demand an understanding of global cultural, social, economic, political, and environmental processes.

The BS in international and global studies offers an exciting range of courses from anthropology, economics, performing arts and visual culture, history, international business, linguistics, global works of literature, modern languages and culture studies, philosophy, political science, public policy, and sociology. This disciplinary diversity pledges not only to deliver a solid education in international studies but also introduces students to cutting-edge knowledge and expertise in global issues and world problems that will boost career opportunities.

All students complete a core concentration in globalization and choose a field specialization in one of the following areas: African studies; Asian studies; European studies; gender studies; Global Justice, Peace, and Conflict Studies; Indigenous studies; international business; Latina American studies; Middle Eastern studies; or sustainable futures. In addition, students complete an integrated international experience that encourages students to participate in a study abroad opportunity, an internship, or a cooperative educational experience in the selected world region of study.

Enhanced career opportunities

Building on the core curriculum, the range of choices of specialization allows students to flexibly develop the expertise required for successful career options: whether employment in state and federal agencies, private enterprise, and non-profit organizations or graduate studies. Our students are well prepared for graduate studies in fields like international law, international development, global education, administration, public policy, and the social sciences.

Pre-Law Advising Program

Law schools welcome applications from students majoring in a wide range of academic programs. If you are interested in pursuing law school, RIT's Pre-Law Advising Program is designed to maximize your chances of admission to law school. The program includes personalized advising, LSAT preparation, academic counseling, and a time table for law school admission.

RIT/Syracuse University College of Law 3+3 Option

RIT has partnered with Syracuse University's College of Law to offer an accelerated 3+3 BS/JD option for highly capable students. This option provides a fast-track pathway to law school in which students earn a bachelor's degree and a juris doctorate degree in six years. In the 3+3 option, students interested in the following RIT majors–advertising and public relations, communication, criminal justice, economics, international and global studies, journalism, philosophy, political science, psychology, public policy, and sociology and anthropology–may apply to the option directly. Successful applicants are offered admission to RIT and given conditional acceptance into Syracuse University's College of Law.

Learn more about the RIT/Syracuse University College of Law 3+3 Option, including admission requirements and frequently asked questions.

Experiential Learning

Integrated International Experience

The major encourages students to participate in a study abroad opportunity, an internship, or a cooperative educational experience in the selected world region of study.

Study Abroad

Students have lived and studied in diverse locations such as Japan, Australia, Senegal, France, Denmark, Germany, France, Italy, Spain, Brazil, and Costa Rica, or at one of RIT's global campuses in China, Croatia, Dubai, or Kosovo.

Cooperative Education and Internships

Students may also seek a cooperative education position with a government agency or the division of a U.S. corporation with international operations. Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Internships may also be available with organizations that are engaged with global issues, human rights, or international populations, including refugees and immigrants. A number of students have worked as interns under the supervision of human rights lawyers for the New York State Division of Human Rights in Rochester, NY, and for the United Nations Association of Rochester. These international experiences enhance employment prospects after graduation.

Curriculum

International and Global studies, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ANTH-210	Culture and Globalization	3
INGS-101	Global Studies	3
Choose one of the following:		3
ANTH-102	General Education – Global Perspective: Cultural Anthropology	
POLS-120	General Education – Global Perspective: Introduction to International Relations	
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Mathematical Perspective A	3
	General Education – Electives	6
	Open Elective	3
Second Year§		
POLS-330	Human Rights in Global Perspective	3
Choose one of the following:		3
ANTH-302	General Education – Elective: Qualitative Research	
SOCI-302	General Education – Elective: Qualitative Research	
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	3
	General Education – Immersion 1	3
	General Education – Social Perspective	3
	Modern Language Courses (intermediate level)‡	6
	Field Specialization Elective	3
	Globalization Concentration Electives	6
Third Year§		
Choose one of the following:		3
ANTH-455	Economics of Native America	
ECON-201	Principles of Macroeconomics	
ECON-405	International Trade and Finance	
ECON-406	Global Economic Issues	
ECON-432	Open Economy Macroeconomics	
ECON-448	Development Economics	
ECON-449	Comparative Economic Systems	
ECON-452	Economics of Native America	
INGS-455	Economics of Native America	
POLS-220	Global Political Economy	
Choose one of the following:		3
ISCH-101	Principles of Computing	
ISTE-105	Web Foundations	
	Advanced Study Course	3
	General Education – Immersion 2, 3	6
	General Education – Natural Science Inquiry Perspective†	3
	Globalization Concentration Elective	3
	Field Specialization Electives	6
	General Education – Elective	3
Fourth Year§		
INGS-501	Capstone Seminar (WI-PR)	3
	General Education – Scientific Principles Perspective	3
	General Education – Electives	12
	Field Specialization Elective	3
	Open Electives	9
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Students will satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, the student must take both the lecture and lab portions to satisfy the requirement.
‡ Modern language courses: Students without prior proficiency in a foreign language should take the beginning level language sequence as prerequisite(s) for the intermediate level in the LAS electives.
§ After the first year students are highly encouraged to complete an international experience by choosing a study abroad experience or an internship or co-op. The experience may be completed during the summer or during the academic year.

Concentrations

Students in the major will select three electives in the Core Concentration in Globalization.

Globalization

ANTH-235	Immigration to the U.S.
ANTH-270/INGS-270	Cuisine, Culture, and Power
ANTH-275	Global Islam
ANTH-295/SOCI-295	Global Public Health
ANTH-305	Comparative and Historical Linguistics
ANTH-330	Cultural Images of War and Terror
ANTH-341	Global Addictions
ANTH-345	Genocide and Post-Conflict Justice
ANTH-350	Global Economy & the Grassroots
ANTH-360	Humans and their Environment
ANTH-370	Media and Globalization
ANTH-410	Global Cities
ANTH-425	Global Sexualities
ANTH-430	Visual Anthropology
COMM-346	Global Media
HIST-281	Global History of Technology
HIST-383	Technology and Global Relations in the American Century
HIST-480	Global Information Age
INGS-201/HIST-201	Histories of Globalization
INGS-310/HIST-310	Global Slavery and Human Trafficking
INGS-489	Topics in Global Studies
POLS-220	Global Political Economy
POLS-360	International Political Thought
SOCI-315	Global Exiles of War and Terror
SOCI-355	CyberActivism: Diversity, Sex, and the Internet
SOCI-395	Borders: Humans, Boundaries, and Empires

Field Specializations

Students in the major will choose one of the following ten tracks or "field specializations" and select four courses from the track electives.

African studies

ANTH-225	Globalizing Africa
ANTH-310	African Film and Popular Culture
ANTH-345	Genocide and Post-Conflict Justice
ANTH-410	Global Cities
FNRT-323	Survey of African American Music
HIST-210	Culture and Politics in Urban Africa
HIST-245	American Slavery and Freedom
INGS-210	Culture and Politics in Urban Africa
INGS-489	Topics in Global Studies
SOCI-210	African American Culture
SOCI-315	Global Exiles of War and Terror
	Modern Language Elective (beyond intermediate)

Asian Studies

HIST-160	History of Modern East Asia
HIST-252	The U.S. and Japan
HIST-260	History of Premodern China
HIST-261	History of Modern China
HIST-265	History of Modern Japan
HIST-266	History of Premodern Japan
HIST-351	The Vietnam War
HIST-365	Conflict in Modern East Asia
HIST-450	Modern Japan in History, Fiction, and Film
HIST-462	East-West Encounters
HIST-465	Samurai in Word and Image
INGS-489	Topics in Global Studies
MLJP-351	Languages in Japanese Society
PHIL-311	East Asian Philosophy
POLS-350	Politics of East Asia
POLS-351	Politics of China
	Modern Language elective (beyond intermediate)

European Studies

ENGL-416	Topics in Global Literatures: Irish Literature
ENGL-416	Topics in Global Literatures: Italian Literature
ENGL-416	Topics in Global Literatures: Russian Literature
HIST-170	Twentieth Century Europe
HIST-270	History of Modern France
HIST-280	History of Modern Germany
HIST-369	Histories of Christianity
INGS-489	Topics in Global Studies
MLFR-351	French Film and Hollywood
MLGR-351	Modern German Culture Through Film
MLIT-449	Topics in Italian: Italian Film from Neorealism to the New Millennium
PHIL-201	Ancient Philosophy
PHIL-203	Modern Philosophy
PHIL-317	Renaissance Philosophy
PHIL-408	Critical Social Theory
PHIL-409	Existentialism
PHIL-410	Medieval Philosophy
PHIL-412	Nineteenth Century Philosophy
PHIL-417	Continental European Philosophy
	Modern Language Elective (beyond intermediate)

Gender Studies

ANTH-246	Gender and Health
ANTH-425	Global Sexualities
ECON-451	Economics of Women and the Family
ENGL-414	Topics in Women's and Gender Studies
FNRT-206	Queer Looks
INGS-489	Topics in Global Studies
PHIL-309	Feminist Theory
SOCI-235	Women, Work, and Culture
SOCI-246	Gender and Health
SOCI-355	CyberActivism: Diversity, Sex, and the Internet
SOCI-451	Economics of Women and the Family
STSO-342	Gender, Science, and Technology
WGST-206	Queer Looks
WGST-235	Women, Work, and Culture
WGST-309	Feminist Theory
WGST-414	Topics in Women's and Gender Studies
WGST-451	Economics of Women and the Family

Global Justice, Peace, and Conflict Studies

ANTH-345	Genocide and Post-Conflict Justice
COMM-304	Intercultural Communication
HIST-251	Modern U.S. Foreign Relations
HIST-351	The Vietnam War
HIST-350	Terrorism, Intelligence, and War
HIST-470	Science, Tech, & European Imperialism: 1800-1965
INGS-489	Topics in Global Studies
MLSP-353	Trauma and Survival in First Person Narrative
PHIL-304	Philosophy of Law
PHIL-305	Philosophy of Peace
PHIL-403	Social and Political Philosophy
POLS-210	Comparative Politics
POLS-325	International Law and Organizations
POLS-440	War and the State
POLS-445	Terrorism and Political Violence
SOCI-250	Globalization and Security
SOCI-305	Crime and Human Rights: Sociology of Atrocities
SOCI-315	Global Exiles of War and Terror
SOCI-395	Borders: Humans, Boundaries, and Empires

Indigenous Studies

ANTH-220	Language and Culture: Introduction to Linguistic Anthropology
ANTH-260	Native North Americans
ANTH-265	Native Americans in Film
ANTH-310	African Film and Popular Culture
ANTH-335	Culture and Politics in Latin America
ANTH-375	Native American Cultural Resources and Rights
ANTH-430	Visual Anthropology
INGS-489	Topics in Global Studies
	Modern Language Elective (beyond intermediate)

International Business

ECON-405	International Trade and Finance
ECON-406	Global Economic Issues
HIST-380	International Business History
INTB-225	Global Business Environment
INTB-300	Cross-Cultural Management
INTB-310	Regional Business Studies
INTB-489	Seminar in International Business
INTB-550	Global Entry and Competition Strategies
MKTG-230	Principles of Marketing
MKTG-330	Global Marketing
POLS-220	Global Political Economy

Latin American Studies

ANTH-235	Immigration to the U.S.
ANTH-255	Regional Archaeology: Mesoamerica
ANTH-285	American Indian Languages
ANTH-315	The Archaeology of Cities
ANTH-335	Culture and Politics in Latin America
ANTH-410	Global Cities
ENGL-416	Topics in Global Literatures*
INGS-489	Topics in Global Studies
MLSP-351	Gender and Sexuality in Hispanic Studies
MLSP-352	Caribbean Cinema
MLSP-353	Trauma and Survival in the First-Person Narrative
POLS-335	Politics in Developing Countries
	Modern Language Elective (beyond intermediate)

* ENGL-416 may be used when the topic is pertinent to Latin America and Latinx studies.

Middle Eastern Studies

ANTH-255	Regional Archaeology: Middle East
ANTH-315	The Archaeology of Cities
ANTH-365	Culture and Politics in the Middle East
INGS-489	Topics in Global Studies
POLS-335	Politics in Developing Countries
	Modern Language Elective (beyond intermediate)

Sustainable Futures

ANTH-270	Cuisine, Culture, and Power
ANTH-285	American Indian Languages
ANTH-360	Humans and Their Environment
ANTH-410	Global Cities
ECON-448	Development Economics
IGME-384	Introduction to Geographic Information Systems
INGS-489	Topics in Global Studies
ISTE-382	Maps, Mapping and Geospatial Technologies
PHIL-308	Environmental Philosophy
POLS-220	Global Political Economy
POLS-335	Politics in Developing Countries
SOCI-255	Global Public Health
SOCI-315	Global Exiles of War and Terror
SOCI-322	Health and Society
STSO-220	Environment and Society
STSO-330	Energy and the Environment
STSO-341	Biomedical Issues: Science and Technology
STSO-441	Cyborg Theory: (Re)thinking the Human Experience in the 21st Century

Accelerated dual degree option

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

International and Global Studies, BS degree/Science, Technology and Public Policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ANTH-210	Culture and Globalization	3
INGS-101	Global Studies	3
Choose one of the following:		3
ANTH-102	Cultural Anthropology	
POLS-120	Introduction to International Relations	
YOPS-010	RIT 365: RIT Connections	0
	General Education - Electives	6
	General Education - Ethical Perspective	3
	General Education - Artistic Perspective	3
	General Education - Mathematical Perspective A	3
	General Education - First Year Writing (WI)	3
	Open Elective	3
Second Year		
POLS-330	Human Rights in Global Perspective	3
SOCI-302/ANTH-302	Qualitative Research	3
STAT-145	General Education - Mathematical Perspective B: Introduction to Statistics I	3
	Globalization Concentration Courses	6
	Modern Language Intermediate Courses	6
	Field Specialization Elective	3
	General Education - Social Perspective	3
	General Education - Immersion 1	3
Third Year		
Choose one of the following:		3
ECON-201	Principles of Macroeconomics	
ECON-449	Comparative Economic Systems	
ECON-405	International Trade and Finance	
ECON-406	Global Economic Issues	
ECON-432	Open Economy Macroeconomics	
ECON-448	Development Economics	
POLS-220	Global Political Economy	
Choose one of the following:		3
CSCI-101	Principles of Computing	
ISTE-105	Web Foundations	
	General Education - Immersions 2, 3	6
	Field Specialization Electives	6
	Globalization Concentration Course	3
	General Education - Natural Science Inquiry Perspective‡	3
	Advanced Study Option	3
	General Education - Elective	3
Fourth Year		
INGS-501	Capstone Seminar (WI)	3
PUBL-701	Graduate Policy Analysis	3
PUBL-702	Graduate Decision Analysis	3
STSO-710	Graduate Science and Technology Policy Seminar	3
	Field Specialization Elective	3
	General Education - Scientific Principles Perspective	3
	General Education - Electives	12
Fifth Year		
PUBL-700	Readings in Public Policy	3
PUBL-703	Evaluation and Research Design	3
	Public Policy Electives	9
	Open Elective	3
PUBL-790	Public Policy Thesis	6
Total Semester Credit Hours		**144**

Please see General Education Curriculum for more information.
(WI) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and lab portions to satisfy the requirement.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Strong performance in English and social studies is expected

Transfer Admission

Transfer course recommendations without associate degree
Courses in liberal arts, science, foreign language, and history

Appropriate associate degree programs for transfer
Liberal arts with social sciences, sciences, or languages

Journalism, BS

www.rit.edu/study/journalism-bs
Amy Lyman,
585-475-4137, axlgla@rit.edu

Program overview

The journalism degree prepares students to gather, critically analyze, and synthesize verbal and visual information to communicate accurate and clear news stories across multiple media platforms. In addition to writing and reporting, students prepare audio and visual content for dissemination in a variety of media, making them a valuable asset to any future employer specializing in news reporting and factual storytelling.

The major is enhanced by RIT's reputation for using cutting-edge technology, yet is grounded in the traditional reporting and writing skills needed by professional journalists. The journalism degree prepares students for a converged digital media world. They learn the conceptual and practical skills demanded by the digital newsroom through a combination of journalism, communication, and applied professional courses, along with a professional core of courses. Students are also required to complete one block of cooperative education experience.

Plan of study

Students develop skills through a core of required communication courses, which cover news writing, news editing, multi-platform journalism, communication theory, mass communications, law and press ethics, and computer-assisted reporting. A professional core of four courses, chosen from the colleges of Art and Design, Business, or Computing and Information Sciences, introduces students to photojournalism, multimedia, web development, digital entrepreneurship, and building a web business. Journalism electives, free electives, and liberal arts courses complete the curriculum.

Senior project

In a senior capstone course students apply what they've learned to a project similar to one they would encounter in their profession. Students produce a long-form piece of journalism, a website, and a digital portfolio of selected works.

Advising

Every student is assigned a professional academic advisor and a faculty mentor in the department of communication. The professional advisor assists with course planning and registration; the faculty mentor provides advising about career development and planning, including information about research opportunities, graduate school, and jobs. Peer mentors, who are upper-level journalism students, are available to answer questions about classes, clubs on campus, student-run activities, and other matters from the student's perspective. For more information, please refer to the college's academic advising page.

Graduate School

The journalism degree prepares students to pursue graduate studies in a variety of fields.

Communication Master's Degree

The School of Communication offers an MS degree in communication.

RIT/Syracuse University College of Law 3+3 Option

RIT has partnered with Syracuse University's College of Law to offer an accelerated 3+3 BS/JD option for highly capable students. This option provides a fast-track pathway to law school in which students earn a bachelor's degree and a juris doctorate degree in six years. In the 3+3 option, students interested in the following RIT majors–advertising and public relations, communication, criminal justice, economics, international and global studies, journalism, philosophy, political science, psychology, public policy, and sociology and anthropology–may apply to the option directly. Successful applicants are offered admission to RIT and given conditional acceptance into Syracuse University's College of Law. Learn more about the RIT/Syracuse University College of Law 3+3 Option, including admission requirements and frequently asked questions.

Accelerated 4+1 MBA option

An accelerated 4+1 MBA option also is available for students who wish to earn a BS in journalism and an MBA. The program is offered in conjunction with Saunders College of Business and allows students to obtain both degrees in five years of study. Students should consult their advisor for more information.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the journalism degree are required to complete one semester of cooperative education or an internship experience.

Curriculum

Journalism, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
Choose one of the following:		3
COMM-261	History of Journalism	
COMM-271	Introduction to Journalism	
COMM-272	Reporting and Writing I (WI-PR)	3
COMM-273	Reporting and Writing II (WI-PR)	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Elective	3
	Professional Core Course	3
Second Year		
COMM-105	Foundations of Communication	3
COMM-263	Data Journalism	3
COMM-274	News Editing	3
	General Education – Mathematical Perspective A	3
	General Education – Mathematical Perspective B	3
	General Education – Natural Science Inquiry Perspective‡	3
	General Education – Scientific Principles Perspective	3
	General Education – Immersion 1, 2	6
	Professional Core Course	3
Third Year		
COMM-342	Communications Law and Ethics	3
COMM-361	Reporting in Specialized Fields	3
COMM-461	Multiplatform Journalism	3
COMM-499	Communication Co-op (summer)	0
	Professional Core Course	3
	General Education – Immersion 3	3
	General Education – Electives	9
	Open Electives	6
Fourth Year		
COMM-561	Senior Project	3
	Professional Core Courses	6
	General Education – Electives	12
	Open Electives	9
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either a 3 or 4 credit hour lab science course. If a science course consists of separate lecture and laboratory sections, the student must take both the lecture and the lab portion.

Professional core

Required courses	
MAAT-271	Webpage Production I
MAAT-272	Webpage Production II
PHAR-203	Elements of Photojournalism
PHPJ-315	Non-Fiction Multimedia
Choose one of the following:	
COMM-489	Topics in Communication
MGIS-360	Building a Web Business
MGMT-360	Digital Entrepreneurship

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Strong performance in English and social studies is expected

Transfer Admission

Transfer course recommendations without associate degree

Courses in liberal arts, math, science, and computer science

Appropriate associate degree programs for transfer

Liberal arts with emphasis in communication and a technical field such as business, photography, or computer science

Liberal Arts Exploration, Undeclared

www.rit.edu/study/liberal-arts-exploration

Amy Lyman,
585-475-4137, axlgla@rit.edu

Program overview

Many students excel in the humanities, and they love the history, English, and social science courses they took in high school. But some are unsure which direction to choose when it comes to picking a college major. Liberal arts exploration gives you the time to figure out who you are and better understand the kind of work you love to do. Through intensive one-on-one advising, meetings with faculty members, and hundreds of courses to choose from, you can take the time to explore your personal and career interests before committing to a major. You'll gain a better understanding of your goals and interests, as well as your career aspirations, as you remain on track to graduate in four years.

Liberal arts exploration is an undeclared option designed to allow students to complete required liberal arts, mathematics, and science courses while actively pursuing career exploration and receiving individualized academic advising. Students may stay in the option for up to two years (or 60 credit hours) before they must choose a major. The option offers students the flexibility and time to explore a variety of majors within the College of Liberal Arts without delaying their graduation.

Curriculum

Liberal arts exploration, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ACSC-010	Year One	0
ITDL-101	Career Exploration Seminar	1
	LAS Perspectives	15
	First Year LAS Elective	3
	First Year Writing	3
	LAS Electives	9
	Wellness Education*	0
Second Year		
CSCI-101	Principles of Computing	3
	LAS Perspectives	6
	LAS Immersion 1, 2, 3	9
	LAS Electives	12
Total Semester Credit Hours		**61**

Please see General Education Curriculum–Liberal Arts and Sciences (LAS) for more information.

* Please see Wellness Education Requirements for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Strong performance in English and social studies is expected

Museum Studies, BS

www.rit.edu/study/museum-studies-bs

Amy Lyman,
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Program overview

Museums, archives, libraries, and other cultural institutions are rapidly changing. These historical sites are seeking professionals who can help adopt and implement technological innovations to help manage, curate, conserve, and exhibit, and digitize their cultural or scientific collections, in order to make them available to the public in interactive and engaging ways. The museum studies program provides a thorough grounding in the history, theory, and practice of institutional collecting, exhibition development, and design, collection management, fundraising and grant writing, and implementing today's technologies. You'll be prepared to help an institution enhance assess, improve engagement, and better share their collections with the world.

Museum studies is an innovative, interdisciplinary, technically-based major that prepares students for careers in museums, archives, photo collections, and libraries. The major includes a set of introductory and advanced core courses to familiarize students with the fundamentals of museum studies, including the history, theory, and practice of institutional collecting, conservation, and the technical investigation of art. To broaden and deepen their knowledge, students choose a professional track in management or public history. Students in the advertising degree are required to complete one cooperative education or internship experience in a cultural institution.

Professional tracks

The two professional tracks–in museums, libraries, and archives and in public history–include course work that meets the criteria established by professionals in the field and reflects current opinion about necessary skill sets. Since 2000, the International Council of Museums (ICOM) and the Committee on Museum Professional Training (COMPT) have called for revisions in the training of museum professionals that reflect evolving needs for information technology, fundraising and grant writing skills, collections management, and interpretive and exhibition skills, all of which are included in the museums, libraries, and archives track. The public history track offers students core courses in learning how to think historically, making sound historical arguments, and presenting history effectively to a public audience.

Career opportunities

Upon graduation students are well prepared to work in institutions that collect cultural objects, such as museums, historical sites, historical societies, libraries, archives, and corporations. Students are also prepared to further their education in graduate programs in museum studies, art history, informatics, arts management, library and information studies, or business.

Advising

Every student is assigned a faculty advisor who provides academic advising and career counseling. All of the faculty members in museum studies hold the highest degrees in their field and all have been published within their areas of expertise. For more information, please refer to the college's academic advising page.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the museum studies degree are required to complete one cooperative education or internship experience in a cultural institution.

Curriculum

Museum Studies (Museums, Libraries and Archives track), BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ARTH-135	General Education – Elective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Elective: History of Western Art: Renaissance to Modern	3
MUSE-220	General Education – Elective: Introduction to Museums & Collecting	3
MUSE-221	Introduction to Public History	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Global Perspective	3
	General Education – Mathematical Perspective A	3
	General Education – Social Perspective	3
Second Year		
MUSE-224	History & Theory of Exhibitions	3
MUSE-225	Museum & the Digital Age	3
MUSE-341	Museum Education & Interpretation	3
MUSE-358	General Education – Elective: Legal and Ethical Issues for Collecting Institutions	3
	General Education – Immersion	3
	General Education – Natural Science Inquiry Perspective ‡	4
	General Education – Scientific Principles Perspective	3
	General Education – Mathematical Perspective B	3
	Open Electives	6
Third Year		
MUSE-340	Introduction to Archival Studies	3
MUSE-354	Exhibition Design	3
MUSE-355	Fundraising, Grant Writing, & Marketing for Nonprofit Institutions	3
MUSE-357	Collections Management & Museum Administration	3
MUSE-359	Cultural Informatics	3
MUSE 360	Visitor Engagement & Museum Technologies	3
	General Education – Immersion 2, 3	6
	General Education – Elective	3
	Open Elective	3
Choose one of the following:		0
MUSE-497	Museum Studies Internship (summer)	
MUSE-498	Museum Studies Co-op Part Time (summer)	
MUSE-499	Museum Studies Co-op (summer)	
Fourth Year		
MUSE-489	Research Methods (WI-PR)	3
MUSE-490	Senior Thesis in Museum Studies (WI-PR)	3
	General Education – Electives	12
	MUSE Electives	6
	Open Electives	6
Total Semester Credit Hours		**121**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either a 3- or 4-credit hour lab science course. If a science course consists of separate lecture and laboratory sections, the student must take both the lecture and lab portions to satisfy the requirement.

Museum Studies (Public History track), BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
HIST-101	Making History	3
MUSE-220	General Education – Elective: Introduction to Museums & Collecting	3
MUSE-221	General Education – Elective: Introduction to Public History	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Global Perspective	3
	General Education – Mathematical Perspective A	3
	General Education – Natural Science Inquiry Perspective ‡	4
	General Education – Social Perspective	3
Second Year		
HIST-125	Public History and Public Debate	3
HIST-324	Oral History	3
MUSE-224	History & Theory of Exhibitions	3
MUSE-225	Museums & the Digital Age	3
MUSE-341	General Education – Elective: Museum Education & Interpretation	3
MUSE-358	Legal and Ethical Issues for Collecting Institutions	3
	General Education – Immersion 1, 2	6
	General Education – Mathematical Perspective B	3
	General Education – Scientific Principles Perspective	3
Third Year		
HIST-325	Museums and History	3
MUSE-354	Exhibition Design	3
MUSE-355	Fundraising, Grant Writing, & Marketing for Nonprofit Institutions	3
MUSE-357	Collections Management & Museum Administration	3
MUSE-359	Cultural Informatics	3
MUSE-360	Visitor Engagement & Museum Technologies	3
	Public History Elective	3
	General Education – Immersion 3	3
	General Education – Electives	6
Choose one of the following:		0
MUSE-497	Museum Studies Internship (summer)	
MUSE-498	Museum Studies Co-op Part Time (summer)	
MUSE-499	Museum Studies Co-op (summer)	
Fourth Year		
MUSE-489	Research Methods (WI-PR)	3
MUSE-490	Senior Thesis in Museum Studies (WI-PR)	3
	General Education – Electives	9
	Open Electives	15
Total Semester Credit Hours		**121**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either a 3- or 4-credit hour lab science course. If a science course consists of separate lecture and laboratory sections, the student must take both the lecture and lab portions to satisfy the requirement.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Strong performance in English and social studies is expected

Transfer Admission

Transfer course recommendations without associate degree

Courses in liberal arts, art history, studio arts, photography, business, and chemistry

Appropriate associate degree programs for transfer

Fine arts, Liberal arts, or business/marketing

Philosophy, BS

www.rit.edu/study/philosophy-bs

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Program overview

Most of the skills required for student and career success—how to learn, how to apply that learning in professional and personal environments, and how to communicate that knowledge—are central to philosophy. Philosophy students are taught to evaluate complex problems, identify and examine underlying principles, investigate issues from diverse perspectives, and communicate clearly in both written and oral forms. The philosophy degree provides a thorough grounding in core areas of philosophy, such as the history of philosophy, ethics, and logical argumentation, as well as a core competence in another discipline, encouraging students to creatively pursue cross-disciplinary studies.

The philosophy degree provides a thorough grounding in core areas of philosophy (history of philosophy, ethics, and logical argumentation), as well as a four-course specialization within philosophy. Students combine philosophy with a core competence (or even a double major) in another discipline, encouraging them to creatively pursue cross-disciplinary studies. The major concludes with an optional Senior Thesis.

Plan of study

Students develop skills through a core of philosophy courses which cover the history of philosophy, ethics, and logical argumentation. Students also choose four courses in a specialization, such as: philosophy of mind and cognitive science, philosophy of science and technology, applied ethics, philosophy of the social sciences and political philosophy, philosophy of art and aesthetics, history of philosophy, and philosophy of law. Additionally, students complete a professional core of courses designed to provide foundational knowledge in a professional/technical discipline outside of philosophy, which complements their studies. Seminar in Philosophy (PHIL-416) examines a selected area or topic in philosophy at an advanced undergraduate level. Senior Thesis in Philosophy (PHIL-595), which is optional for students, provides an opportunity to integrate philosophy with various fields of application. Philosophy electives, general electives, and liberal arts courses complete the curriculum.

Specializations

Philosophy of mind and cognitive science: Examine the philosophical issues involved in studying intelligence, cognition, identity, consciousness, rationality, creativity and emotion, especially as such concepts and categories are invoked by computer and cognitive scientists, and as they are applied in relation to natural and artificial systems.

Philosophy of science and technology: Examine the concepts, methodologies, and philosophical implications of science and technology, and explores the underlying theories, practices, and consequences of science and technology and their role in shaping societies and their values.

Applied ethics: Examine the ethical underpinnings of different professions as well as the ethical presuppositions and implications of technology, engineering, science, management, and other disciplines. Attention is also given to ethics education within the professions and to the role professional ethicists can play in different professional and organizational settings.

Philosophy of social sciences and political philosophy: Examine philosophical issues arising from social and political life as well as the disciplines that study them.

Philosophy of art and aesthetics: Examine how different philosophical frameworks conceive of the various arts and crafts and the forms of cre-

ative experience and production with which they are engaged; explores the relationship between aesthetic perception and other forms of experience and judgment, between art and society, between art and ethics, and between art and technology.

History of philosophy: Explores the development and connection of philosophical ideas, concepts, and movements throughout time through an in-depth analysis of major transformative moments and figures, and examines how philosophical positions result from an ongoing conversation with previous thinkers.

Philosophy and law: Prepares for law school and other advanced studies by focusing on the skills and topics important to the study of the law. The courses provide an examination of the theoretical and ethical foundations of the law and an understanding of the logical and epistemological skills useful in evaluating and constructing legal arguments. In addition, a grounding in these topics and skills is valuable in a range of professions outside the legal field.

Advising

Each student is assigned a faculty advisor who assists in planning course schedules, professional/technical core requirements, and a philosophy specialization area. For more information, please refer to the college's academic advising page.

RIT/Syracuse University College of Law 3+3 Option

RIT has partnered with Syracuse University's College of Law to offer an accelerated 3+3 BS/JD option for highly capable students. This option provides a fast-track pathway to law school in which students earn a bachelor's degree and a juris doctorate degree in six years. In the 3+3 option, students interested in the following RIT majors–advertising and public relations, communication, criminal justice, economics, international and global studies, journalism, philosophy, political science, psychology, public policy, and sociology and anthropology–may apply to the option directly. Successful applicants are offered admission to RIT and given conditional acceptance into Syracuse University's College of Law. Learn more about the RIT/Syracuse University College of Law 3+3 Option, including admission requirements and frequently asked questions.

Curriculum

Philosophy, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
PHIL-201	Ancient Philosophy	3
PHIL-202	Foundations of Moral Philosophy	3
PHIL-203	Modern Philosophy	3
PHIL-205	Symbolic Logic	3
YOPS-010	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Mathematical Perspective A	3
	General Education – Elective	3
	Professional/Technical Core Course	3
Second Year		
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Mathematical Perspective B	3
	General Education – Natural Science Inquiry Perspective ‡	3
	Program Electives	9
	Professional/Technical Core Courses	9
Third Year		
	General Education – Scientific Principles Perspective	3
	General Education – Immersion 1	3
	General Education – Electives	6
	Open Electives	6
	Program Elective	3
	Professional/Technical Core Course	3
	Specialization Courses	6
Fourth Year		
PHIL-416	Seminar in Philosophy	3
PHIL-595	Senior Thesis in Philosophy† (WI-PR)	3
	General Education – Immersion 2, 3	6
	General Education – Electives	6
	Open Electives	6
	Specialization Courses	6
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Students may complete Senior Thesis in Philosophy or they may choose a 400-level philosophy course.
‡ Students will satisfy this requirement by taking either a 3- or 4-credit hour lab science course. If a science course consists of separate lecture and laboratory sections, student must take both the lecture and lab portions to satisfy the requirement.

Specializations

Philosophy of mind and cognitive science

COURSE	
Electives	
Choose four of the following	
PHIL-315	Responsible Knowing
PHIL-401	Great Thinkers*
PHIL-404	Philosophy of Mind
PHIL-407	Philosophy of Action
PHIL-414	Philosophy of Language
PHIL-416	Seminar in Philosophy*
PHIL-449	Special Topics*

Philosophy of science and technology

COURSE	
Electives	
Choose four of the following	
PHIL-307	Philosophy of Technology
PHIL-310	Theories of Knowledge
PHIL-314	Philosophy of Vision and Imaging
PHIL-315	Responsible Knowing
PHIL-316	Bioethics and Society
PHIL-401	Great Thinkers*
PHIL-402	Philosophy of Science
PHIL-416	Seminar in Philosophy*
PHIL-449	Special Topics*

Applied ethics

COURSE	
Electives	
Choose four of the following	
PHIL-304	Philosophy of Law
PHIL-305	Philosophy of Peace
PHIL-306	Professional Ethics
PHIL-308	Environmental Philosophy
PHIL-315	Responsible Knowing
PHIL-316	Bioethics and Society
PHIL-401	Great Thinkers*
PHIL-416	Seminar in Philosophy*
PHIL-449	Special Topics*

Philosophy of social sciences and political philosophy

COURSE	
Electives	
Choose four of the following	
PHIL-304	Philosophy of Law
PHIL-305	Philosophy of Peace
PHIL-308	Environmental Philosophy
PHIL-309	Feminist Theory
PHIL-315	Responsible Knowing
PHIL-316	Bioethics and Society
PHIL-401	Great Thinkers*
PHIL-403	Social and Political Philosophy
PHIL-405	Philosophy of the Social Sciences
PHIL-416	Seminar in Philosophy*
PHIL 449	Special Topics*

Philosophy of art and aesthetics

COURSE	
Electives	
Choose four of the following	
PHIL-303	Philosophy of Art/Aesthetics
PHIL-313	Philosophy of Film
PHIL-314	Philosophy of Vision and Imaging
PHIL-317	Renaissance Philosophy
PHIL-401	Great Thinkers*
PHIL-413	Philosophy of Literature
PHIL-416	Seminar in Philosophy*
PHIL-417	Continental Philosophy
PHIL-449	Special Topics*

History of philosophy

COURSE	
Electives	
Choose four of the following	
PHIL-301	Philosophy of Religion
PHIL-311	East Asian Philosophy
PHIL-312	American Philosophy
PHIL-317	Renaissance Philosophy
PHIL-401	Great Thinkers*
PHIL-406	Contemporary Philosophy
PHIL-408	Critical Social Theory
PHIL-409	Existentialism
PHIL-410	Medieval Philosophy
PHIL-412	Nineteenth Century Philosophy
PHIL-416	Seminar in Philosophy*
PHIL-417	Continental Philosophy
PHIL-449	Special Topics*

Philosophy and law

COURSE	
Electives	
Choose four of the following	
PHIL-304	Philosophy of Law
PHIL-306	Professional Ethics
PHIL-310	Theories of Knowledge
PHIL-316	Bioethics and Society
PHIL-401	Great Thinkers*
PHIL 403	Social and Political Philosophy
PHIL-416	Seminar in Philosophy*
PHIL-449	Special Topics*

* These courses are eligible only when their topic is relevant. Permission to include these courses in a specialization must be approved by the department.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Strong performance in English and social studies is expected

Transfer Admission

Transfer course recommendations without associate degree

Courses in liberal arts, math, science, philosophy, and ethics

Appropriate associate degree programs for transfer

Liberal arts

Political Science, BS

www.rit.edu/study/political-science-bs

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Program overview

The political science major integrates the fields of American government and international relations in order to prepare students for a life and career in an increasingly globalized world. The major includes three tracks of study – politics and life sciences, digital politics and organization, and political institutions. Students can study the influence of biology and biotechnology on how we understand ourselves as human beings and citizens, or they can examine the use of information technology for political purposes. The major prepares principled leaders and responsible citizens for careers in the public and private sectors.

Through exciting tracks in politics and life sciences, digital politics and organization, and political institutions, students study the influence of recent advances in biology and biotechnology on how we understand ourselves as human beings and citizens, or the use of information technology for political organization and communication. There are few undergraduate political science majors in the country that so fully incorporate both these fields into their curricula, including the opportunity to take courses from the biology and information technology departments as part of their program requirements.

Core courses

The major consists of four core courses designed to introduce students to the general themes of political science. The major culminates in a capstone course, which ties together the themes of the program through a seminar and significant writing project.

Program Tracks

The overarching goal of the political science major is to prepare students for the challenges of life and a career in a world that is increasingly globalized, where the application of biotechnology and biomedicine have become common, and where social computing shapes and influences democratic government and the wider community. Students are required to choose one track–in politics and life sciences, digital politics and organization, or political institutions–for an in-depth study on the political impact of modern biology and biotechnology, the changing role of political institutions in a globalized world, or the development and implementation of technologies that increasingly influence political organization and communication.

Political Science Electives

Students are required to take seven political science electives from the department's American politics and international relations/comparative government offerings with a minimum of three courses from each area. The areas are (1) statecraft, emerging democracies, and global governance and (2) deliberative democracy and national government. This requirement recognizes the increasing interdependence of domestic and international politics in this era of globalization.

Double Majors

Students may pursue a double major in political science and a secondary area of study. Students have combined political science with a double major in diverse fields such as computer science, criminal justice, economics, and philosophy.

Advising

Each student is assigned a faculty advisor who assists with course registration, scheduling, course selection, academic concerns, and career counseling. For more information, please refer to the college's academic advising page.

Graduate School

RIT/Syracuse University College of Law 3+3 Option

RIT has partnered with Syracuse University's College of Law to offer an accelerated 3+3 BS/JD option for highly capable students. This option provides a fast-track pathway to law school in which students earn a bachelor's degree and a juris doctorate degree in six years. In the 3+3 option, students interested in the following RIT majors–advertising and public relations, communication, criminal justice, economics, international and global studies, journalism, philosophy, political science, psychology, public policy, and sociology and anthropology–may apply to the option directly. Successful applicants are offered admission to RIT and given conditional acceptance into Syracuse University's College of Law. Learn more about the RIT/Syracuse University College of Law 3+3 Option, including admission requirements and frequently asked questions.

Accelerated 4+1 MBA option

An accelerated 4+1 MBA option also is available for students who wish to earn a BS in political science and an MBA. The program is offered in conjunction with Saunders College of Business and allows students to obtain both degrees in five years of study. Students should consult their advisor for more information.

Experiential Learning

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the political science major are encouraged to complete a cooperative education, internship, or study abroad experience.

Beginning in the third year, students may participate experiences that may include cooperative education or an internship, both of which provide students with hands-on experience in a variety of environments, from government agencies, non-profits, and nongovernmental agencies to political campaigns. Through these experiences, students gain employment experience as well as the opportunity to further develop skills in their chosen profession.

Study Abroad

Opportunities to study abroad enhance a student's understanding of global politics and culture. Students may study full time at a variety of host schools and are able to select courses in their major as well as liberal arts courses. Visit RIT Global to learn more about the range of study abroad programs and opportunities available.

Curriculum

Political Science, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
POLS-110	American Politics	3
POLS-120	Introduction to International Relations	3
YOPS-010	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Scientific Principles Perspective	3
	General Education – Mathematical Perspective A	3
	General Education – Mathematical Perspective B	3
	General Education – Elective	3
	Political Science Elective	3
Second Year		
POLS-290	Politics and the Life Sciences	3
POLS-295	Cyberpolitics	3
	Political Science Electives	6
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – Natural Science Inquiry Perspective‡	3
	General Education – Immersion 1, 2	6
	Open Elective	3
Third Year		
	Political Science Track Courses	6
	Political Science Electives	6
	Open Electives	6
	General Education – Immersion 3	3
	General Education – Electives	9
Fourth Year		
POLS-530	Political Science Capstone (WI-PR)	3
	Political Science Track Course	3
	Political Science Electives	6
	General Education – Electives	12
	Open Electives	6
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either a 3- or 4-credit hour lab science course. If a science course consists of separate lecture and laboratory sections, student must take both the lecture and lab portions to satisfy the requirement.

Program Tracks

Politics and the Life Sciences

BIOL-201	Cellular and Molecular Biology
BIOL-265	Evolutionary Biology
BIOL-293	Evolution and Creationism
BIOL-321	Genetics
POLS-215	Tech, Ethics, & Global Politics
POLS-285	Environmental Ethics and Political Ecology
POLS-340	Medicine, Morality, and Law
POLS-410	Evolutionary International Relations
POLS-415	Evolution and the Law
POLS-420	Primate Politics
STSO-421	Environmental Policy

Digital Politics and Organization

COMM-343	Technology-Mediated Communication
ISTE-140	Web & Mobile I
ISTE-230	Introduction to Database and Data Modeling
ISTE-240	Web & Mobile II
ISTE-305	Rapid Online Presence
ISTE-330	Database Connectivity and Access
MGIS-320	Database Management Systems
MGIS-425	Database Systems Development
POLS-305	Political Parties and Voting
POLS-365	Anarchy, Technology & Utopia
POLS-370	Cyberwar, Robots, & the Future of Conflict

Political Institutions

POLS-210	Comparative Politics
POLS-220	Global Political Economy
POLS-310	The Congress
POLS-315	The Presidency
POLS-325	International Law and Organizations
POLS-425	Constitutional Law

Political Science Electives

Students are required to take seven courses from the following two areas, with a minimum of three courses in each area.

Statecraft, Emerging Democracies, and Global Governance

POLS-205	Ethics in International Politics
POLS-210	Comparative Politics
POLS-215	Tech, Ethics & Global Politics
POLS-220	Global Political Economy
POLS-285	Environmental Ethics and Political Ecology
POLS-320	American Foreign Policy
POLS-325	International Law and Organizations
POLS-330	Human Rights in Global Perspective
POLS-333	The Rhetoric of Terrorism
POLS-335	Politics in Developing Countries
POLS-350	Politics of East Asia
POLS-351	Politics of China
POLS-360	International Political Thought
POLS-370	Cyberwar, Robots, & the Future of Conflict
POLS-375	Grand Strategy
POLS-390H	Greece and the Political Imagination
POLS-440	War and the State
POLS-445	Terrorism and Political Violence
POLS-455	Comparative Public Policy
POLS-525	Special Topics in Political Science
POLS-541	Peacekeeping and Conflict Transformation
POLS-542	War, Diplomacy, and State-Building

Deliberative Democracy and National Government

POLS-115	Ethical Debates Amer Politics
POLS-200	Law & Society
POLS-250	State & Local Politics
POLS-300	Rhetoric & Political Deliberation
POLS-305	Political Parties and Voting
POLS-310	The Congress
POLS-315	The Presidency
POLS-340	Medicine, Morality, and Law
POLS-345	Politics and Public Policy
POLS-355	Political Leadership
POLS-425	Constitutional Law
POLS-430	Constitutional Rights and Liberties
POLS-435	American Political Thought
POLS-460	Classical Constitutionalism, Virtue & Law
POLS-465	Modern Constitutionalism, Liberty & Equality
POLS-481	Women in Politics
POLS-485	Politics Through Fiction
POLS-490	Politics Through Film
POLS-525	Special Topics in Political Science

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Strong performance in English and social studies is expected

Transfer Admission

Transfer course recommendations without associate degree

Courses in liberal arts, science, foreign language, and history

Appropriate associate degree programs for transfer

Liberal arts with social sciences, sciences, or languages

Psychology, BS

www.rit.edu/study/psychology-bs

Amy Lyman,
585-475-4137, axlgla@rit.edu

Program overview

Psychology is the scientific study of the brain and focuses on observing, experimenting, and analyzing the behavior in multiple situations. To answer questions about what drives behavior, psychologists observe evolutionary factors, social and cultural inputs, and biological aspects of behavior.

RIT's psychology degree provides students with a strong grounding in the discipline of psychology, integrated with a technological focus. Students study behavior to understand the mind, but also look at the brain itself, with the use of new technologies allowing for a deeper study of psychological processes. Curriculum planning and career discussions occur with each student's faculty mentor.

Plan of study

The major is unique and encompasses four key elements: a choice of five upper-level interdisciplinary tracks, a solid grounding in experimental methodology and statistics, the capstone sequence of courses, and a required cooperative education, internship, or research experience.

Interdisciplinary tracks

Students choose two of the following interdisciplinary tracks: biopsychology, clinical psychology, cognitive psychology, social psychology, or visual perception. Current research and technology are integrated into these tracks to produce a focused and career-oriented psychology program. The tracks represent active fields of research in psychology, and students receive an education that provides a strong foundation for graduate school and employment in related fields.

Career opportunities

The unique requirements of this major ensure that each student is well-prepared for advanced study in psychology or a related field, employment in industry or in human service agencies, or other career opportunities.

Pre-Law Advising Program

Law schools welcome applications from students majoring in a wide range of academic programs. If you are interested in pursuing law school, RIT's Pre-Law Advising Program is designed to maximize your chances of admission to law school. The program includes personalized advising, LSAT preparation, academic counseling, and a time table for law school admission.

RIT/Syracuse University College of Law 3+3 Option

RIT has partnered with Syracuse University's College of Law to offer an accelerated 3+3 BS/JD option for highly capable students. This option provides a fast-track pathway to law school in which students earn a bachelor's degree and a juris doctorate degree in six years. In the 3+3 option, students interested in the following RIT majors–advertising and public relations, communication, criminal justice, economics, international and global studies, journalism, philosophy, political science, psychology, public policy, and sociology and anthropology–may apply to the option directly. Successful applicants are offered admission to RIT and given conditional acceptance into Syracuse University's College of Law. Learn more about the RIT/Syracuse University College of Law 3+3 Option, including admission requirements and frequently asked questions.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the psychology degree are required to complete a cooperative education, internship, or research experience (see Research). This is normally completed during the summer after the junior year but can be done in any semester after the second year. The co-op experience is completed in a psychology-related field and does not carry academic credit.

Curriculum

Psychology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
PSYC-101	Introduction to Psychology	3
STAT-145	General Education – Mathematical Perspective A: Introduction to Statistics I	3
STAT-146	General Education – Mathematical Perspective B: Introduction to Statistics II	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Elective	3
	Open Elective	3
	Psychology Breadth Course	3
	Psychology Pre-track Course	3
Second Year		
BIOG-101	General Education – Natural Science Inquiry Perspective: Explorations in Cellular Biology and Evolution	3
BIOG-103	General Education – Natural Science Inquiry Perspective: Explorations in Cell Biology & Evolution Lab	1
BIOG-102	General Education – Scientific Principles Perspective: Explorations in Animal and Plant Anatomy and Physiology	3
BIOG-104	General Education – Scientific Principles Perspective: Explorations in Animal & Plant Anatomy & Physiology Lab	1
PSYC-250	Research Methods I (WI-PR)	3
PSYC-251	Research Methods II (WI-PR)	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Elective	3
	Psychology Breadth Course	3
	Psychology Pre-track Courses	6
Third Year		
PSYC-301	Junior Seminar in Psychology	1
Choose one of the following:		0
PSYC-498	Internship (summer)	
PSYC-499	Psychology Co-op (summer)	
PSYC-550	Undergraduate Research Experience (summer)	
	General Education – Electives	9
	General Education – Immersions 1, 2, 3	9
	Psychology Breadth Course	3
	Psychology Track Courses	9
Fourth Year		
Choose one of the following:		6
PSYC-501	Senior Capstone Proposal	
PSYC-502	Seminar in Psychology	
PSYC-510	Senior Project in Psychology	
	General Education – Electives	9
	Open Electives	12
	Psychology Track Course	3
Total Semester Credit Hours		**124**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Pre-track courses

PSYC-221	Abnormal Psychology
PSYC-221H	Honors Abnormal Psychology
PSYC-222	Biopsychology
PSYC-223	Cognitive Psychology
PSYC-224	Perception
PSYC-225	Social Psychology
PSYC-226	Developmental Psychology

Breadth courses

PSYC-226	Developmental Psychology
PSYC-231	Death and Dying
PSYC-233	History & Systems in Psychology
PSYC-234	Industrial and Organizational Psychology
PSYC-235	Learning and Behavior
PSYC-236	Personality
PSYC-237	Psychology of Women
PSYC-238	Psychology of Religion
PSYC-239	Positive Psychology
PSYC-240	Human Sexuality
PSYC-241	Health Psychology
PSYC-300	Topics in Psychology

Tracks

Biopsychology

PSYC-410	Psychophysiology
PSYC-411	Psychopharmacology
PSYC-412	Biological Bases of Mental Disorders

Clinical Psychology

PSYC-420	Clinical Psychology
PSYC-421	Psychological Testing
PSYC-422	Psychotherapy

Cognitive Psychology

PSYC-430	Memory and Attention
PSYC-431	Language and Thought
PSYC-432	Decision Making, Judgment, and Problem Solving

Developmental Psychology

PSYC-460	Developmental Psychopathology
PSYC-461	Social and Emotional Development
PSYC-462	Cognitive and Perceptual Development

Social Psychology

PSYC-440	Interpersonal Relationships
PSYC-441	Group Processes
PSYC-442	Attitudes and Social Cognition

Visual Perception

PSYC-450	Visual System & Psychophysics
PSYC-451	Color, Form & Object Perception
PSYC-452	Depth, Motion & Space Perception

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Strong performance in English and social studies is expected

Transfer Admission

Transfer course recommendations without associate degree
Courses in liberal arts, sciences, social sciences

Appropriate associate degree programs for transfer
Liberal arts with science or social science

Public Policy, BS

www.rit.edu/study/public-policy-bs
Amy Lyman,
585-475-4137, axlgla@rit.edu

Program overview

Policy plays a critical role in addressing the many environmental, social, economic, and technological challenges facing society. The public policy degree provides students with the skills and knowledge needed to analyze and advocate for policy change in both private and public organizations.

Plan of study

Students will develop the skills needed to fully comprehend the impact of public policy on an increasingly technology-based society. The curriculum is designed to provide a foundation in analyzing policy in terms of complex, interconnected systems. Students integrate their interests in government, science, technology, economics, and other social science fields by taking courses with a broad disciplinary range.

The public policy degree combines an understanding of these fields with the analytical tools needed to study the impact of public policy on society. Courses help you attain a deep understanding of the ethical, political, and social dimensions of policy issues and help students develop strong policy analysis skills. The major has many key features, including:

Interdisciplinary—Public policy core courses ensure the major provides integration of diverse disciplines and enables students to integrate diverse subjects and apply them to the analysis of public policy.

Integrated qualitative and quantitative skills—The major balances both quantitative and qualitative approaches to the analysis of public policy so that students are able to achieve a full systems-level grasp of policy issues.

Customizable concentrations—Through customizable concentrations students are trained in the vernacular, methodologies, and problem-solving approaches of the sciences and technologies relevant to their chosen are of policy study, and develop a well-grounded familiarity in that area.

Solid grounding in liberal arts—While students acquire quantitative and qualitative training, by the end of their academic career they also complete liberal arts courses with a broad disciplinary range. It is this grounding in humanistic values, combined with technology and science, that makes the major both balanced and unique.

Applied experience—The major provides opportunities for optional cooperative education experiences after the student's third year of study. Students work directly with policy analysts and policymakers in legislative offices, nonprofit organizations, special interest groups, industry organizations, or corporate public affairs departments and gain paid professional experience in their field. In their senior year, students work closely with RIT faculty on research as part of a capstone senior project, which provides an applied research or consulting experience that uses many of the skills developed throughout the program.

Concentrations

Students must complete a five course concentration in an area of study. Sample concentrations include biotechnology policy, computer crime policy, computer software policy, energy policy, engineering policy, environmental policy, and information and telecommunications policy. With the help of a faculty adviser, students can customize a concentration based on their interests and professional aspirations. Students apply skills acquired in general public policy courses to specific policy areas. Many concentration courses, including those that provide a firm grounding in science and technology, are offered through other majors at RIT. This gives students an opportunity to interact and study with researchers and faculty from a broad range of disciplines.

Faculty

Faculty have extensive experience in the classroom and as practitioners in their respective fields. In addition to public policy, faculty members have a broad range of backgrounds, including physics, engineering, law, environmental science, energy management, and information technology.

Pre-Law Advising Program

Law schools welcome applications from students majoring in a wide range of academic programs. If you are interested in pursuing law school, RIT's Pre-Law Advising Program is designed to maximize your chances of admission to law school. The program includes personalized advising, LSAT preparation, academic counseling, and a time table for law school admission.

RIT/Syracuse University College of Law 3+3 Option

RIT has partnered with Syracuse University's College of Law to offer an accelerated 3+3 BS/JD option for highly capable students. This option provides a fast-track pathway to law school in which students earn a bachelor's degree and a juris doctorate degree in six years. In the 3+3 option, students interested in the following RIT majors–advertising and public relations, communication, criminal justice, economics, international and global studies, journalism, philosophy, political science, psychology, public policy, and sociology and anthropology–may apply to the option directly. Successful applicants are offered admission to RIT and given conditional acceptance into Syracuse University's College of Law. Learn more about the RIT/Syracuse University College of Law 3+3 Option, including admission requirements and frequently asked questions.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Cooperative education is optional, but strongly encouraged for students in the public policy degree. Students may complete a co-op or internship within the private, public, or nonprofit sectors.

Curriculum

Public Policy, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ECON-101	General Education – Elective: Principles of Microeconomics	3
ECON-201	General Education – Elective: Principles of Macroeconomics	3
PUBL-101	Foundations of Public Policy	3
STAT-145	General Education – Mathematical Perspective A: Introduction to Statistics I	3
STSO-201	Science and Technology Policy	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Scientific Principles Perspective	3
	General Education – Elective	3
Second Year		
PUBL-201	Ethics, Values, & Public Policy	3
PUBL-210	Introduction to Qualitative Policy Analysis	3
Choose one of the following:		4
MATH-161	General Education – Mathematical Perspective B: Applied Calculus	
MATH-171	General Education – Mathematical Perspective B: Calculus A	
MATH-181	General Education – Mathematical Perspective B: Project-based Calculus I	
STAT-146	General Education – Mathematical Perspective B: Introduction to Statistics II	
	Concentration Course	3
	General Education – Global Perspective	3
	General Education – Natural Science Inquiry Perspective‡	3
	General Education – Social Perspective	3
	General Education – Immersion 1	3
	Open Electives	6
Third Year		
PUBL-301	Public Policy Analysis	3
PUBL-302	Decision Analysis	3
Choose one of the following:		3
POLS-210	Comparative Politics	
POLS-325	International Law and Organizations	
POLS-455	Comparative Public Policy	
	Concentration Courses	6
	General Education – Elective	3
	General Education – Immersion 2	3
	Open Electives	6
	Public Policy Elective	3
Fourth Year		
PUBL-500	Senior Project (WI-PR)	3
PUBL-510	Technological Innovation and Public Policy	3
	Concentration Courses	6
	General Education – Immersion 3	3
	General Education – Electives	9
	Open Electives	6
Total Semester Credit Hours		**121**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either a 3- or 4-credit hour lab science course. If a science course consists of separate lecture and laboratory sections, student must take both the lecture and lab portions to satisfy the requirement.

Accelerated dual degree option

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

Public Policy, BS degree/Science, Technology and Public Policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ECON-101	Principles of Microeconomics	3
ECON-201	Principles of Macroeconomics	3
PUBL-101	Foundations of Public Policy	3
STAT-145	General Education – Mathematical Perspective A: Introduction to Statistics I	3
STSO-201	Science and Technology Policy	3
YOPS-010	RIT 365: RIT Connections	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Scientific Principles Perspective‡	3
	General Education – Elective	3
	General Education – First Year Writing (WI)	3
Second Year		
PUBL-201	Ethics, Values & Public Policy	3
PUBL-210	Introduction to Qualitative Policy Analysis	3
Choose one of the following:		4
STAT-146	General Education – Mathematical Perspective B: Introduction to Statistics II	
	General Education – Mathematical Perspective B: Calculus Based Math Course	
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Natural Science Inquiry Perspective	3
	Open Electives	6
	Concentration Course	3
	General Education – Immersion 1	3
Third Year		
PUBL-301	Public Policy Analysis	3
PUBL-302	Decision Analysis	3
	General Education – Immersion 2	3
	Open Electives	6
	General Education – Elective	3
	Concentration Courses	6
	POLS Course	3
	PUBL Elective	3
Fourth Year		
PUBL-500	Senior Project (WI)	3
PUBL-610	Technological Innovation and Public Policy/Graduate Elective	3
	General Education – Immersion 3	3
	Concentration Course	3
	Concentration Course/Graduate Elective	3
	Open Electives	6
	General Education – Electives	9
Fifth Year		
PUBL-700	Readings in Public Policy	3
PUBL-701	Graduate Policy Analysis	3
PUBL-703	Evaluation and Research Design	3
STSO-710	Graduate Science and Technology Policy Seminar	3
	Graduate Electives	6
Choose one of the following:		6
PUBL-790	Public Policy Thesis	
	Two graduate electives plus PUBL-798 Comprehensive Exam	
Total Semester Credit Hours		**145**

Please see General Education Curriculum for more information.
(WI) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either a 3- or 4-credit hour lab science course. If a science course consists of separate lecture and laboratory sections, student must take both the lecture and lab portions to satisfy the requirement.
§ Students who choose to complete the comprehensive exam will take an additional two graduate electives.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
- 3 years of math required
- Strong performance in English and social studies is expected

Transfer Admission

Transfer course recommendations without associate degree
Courses in liberal arts, sciences, and math

Appropriate associate degree programs for transfer
Liberal arts, environmental studies, economics, government, science

Sociology and Anthropology, BS

www.rit.edu/study/sociology-and-anthropology-bs
Amy Lyman,
585-475-4137, axlgla@rit.edu

Program overview

With a deep commitment to the broader values of justice and human rights, the sociology and anthropology major focuses on understanding social and cultural complexity and diversity. The program examines critical issues such as the economy, politics, gender and sexuality, race and ethnicity, urban living, the family, and health as they are shaped by social forces and cultural values. You'll gain insight from a wide range of theoretical perspectives and you'll develop the necessary research skills to further examine topics of critical importance in society. Students in the sociology and anthropology program build a strong foundation to pursue a wide range of career options both in the United States and abroad.

The sociology and anthropology major is dedicated to understanding and appreciating social and cultural complexity and diversity across the globe and through time. Students are exposed to critical perspectives, theories, and research skills that are necessary to engage in complex global and local issues that crosscut the economy, politics, society, gender, ethnicity, and culture. Understanding societies both past and present better prepares us to face the challenges of a rapidly changing world and to assume positions of leadership that promote vision and equity.

Plan of study

This integrated, multidisciplinary degree program explores the common scholarly roots and creative differences of sociology and anthropology, through which students gain a synergistic set of perspectives and skills that prepare them for social analysis in the widest array of social and cultural settings. Students choose one of the following specializations: archaeology, cultural anthropology, sociology, or thematic.

Graduates pursue careers in medicine and public health, law, business, international development, the not-for-profit sector, urban planning, architecture, social work, education, and government, among other possibilities.

Pre-Law Advising Program

Law schools welcome applications from students majoring in a wide range of academic programs. If you are interested in pursuing law school, RIT's Pre-Law Advising Program is designed to maximize your chances of admission to law school. The program includes personalized advising, LSAT preparation, academic counseling, and a time table for law school admission.

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Experiential Learning

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the sociology and anthropology degree are required to complete one cooperative education experience.

Other Learning Opportunities

In addition to a required cooperative education experience, students may apply their classroom knowledge with opportunities for hands-on learning through archaeological, ethnographic, or linguistic fieldwork, laboratory analysis, and study abroad.

Curriculum

Sociology and Anthropology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
Choose one of the following:		3
ANTH-102	Cultural Anthropology	
ANTH-103	Archaeology and the Human Past	
Choose one of the following:		3
ANTH-110	On the Cutting Edge: Research & Theory in the 21st Century (WI-PR)	
SOCI-110	On the Cutting Edge: Research & Theory in the 21st Century (WI-PR)	
SOCI-102	Foundations of Sociology	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
	General Education – First-Year Writing (WI)	3
	General Education – Global Perspective	3
	General Education – Mathematical Perspective A	3
	General Education – Natural Science Inquiry Perspective‡	3
	Open Elective	3
Second Year		
Choose one of the following:		3
ANTH-302	Qualitative Research	
SOCI-302	Qualitative Research	
Choose one of the following:		3
ANTH-303	Statistics in the Social Sciences	
SOCI-303	Statistics in the Social Sciences	
	General Education – Elective	3
	General Education – Immersion 1	3
	General Education – Mathematical Perspective B	3
	General Education – Scientific Principles Perspective	3
	General Education – Social Perspective	3
	Track Courses	9
Third Year		
Choose one of the following:		3
ANTH-301	Social and Cultural Theory	
SOCI-301	Social and Cultural Theory	
	General Education – Electives	6
	General Education – Immersion 2, 3	6
	Track Courses	15
Fourth Year		
Choose one of the following:		3
ANTH-501	Senior Research Project	
ANTH-502	Scholar's Thesis I	
SOCI-501	Senior Research Project	
SOCI-502	Scholar's Thesis I	
	General Education – Electives	15
	Open Electives	9
	Track Course	3
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either a 3- or 4-credit hour lab science course. If a science course consists of separate lecture and laboratory sections, students must take both the lecture and lab portions to satisfy the requirement. The lecture section alone will not fulfill the requirement.

Tracks

Archaeology

Electives–Choose nine of the following	
ANTH-103	Archaeology and the Human Past
ANTH-215	Field Methods in Archaeology
ANTH-230	Archaeology & Cultural Imagination: History, Interpretation and Popular Culture
ANTH-250	Themes in Archaeological Research
ANTH-255	Regional Archaeology
ANTH-260	Native North Americans
ANTH-312	People Before Cities
ANTH-315	The Archaeology of Cities
ANTH-328	Heritage and Tourism
ANTH-360	Humans and Their Environment
ANTH-375	Native American Cultural Resources and Rights
ANTH-415	Archaeological Science
ANTH-420	Exploring Ancient Technology
ANTH-435	The Archaeology of Death
ANTH-489	Topics in Anthropology
ANTH-503	Scholar's Thesis II
ENVS-250	Applications Geographic Information Systems

Cultural Anthropology

Electives–Choose nine of the following	
ANTH-104	Language and Linguistics
ANTH-201	Ethnographic Imagination: Writing about Society and Culture
ANTH-210	Culture and Globalization
ANTH-220	Language and Culture: Introduction to Linguistic Anthropology
ANTH-225	Globalizing Africa
ANTH-235	Immigration to the U.S.
ANTH-245	Ritual and Performance
ANTH-246	Gender and Health
ANTH-260	Native North Americans
ANTH-265	Native Americans in Film
ANTH-270	Cuisine, Culture, and Power
ANTH-295	Global Public Health
ANTH-310	African Film and Popular Culture
ANTH-325	Bodies and Culture
ANTH-328	Heritage and Tourism
ANTH-330	Cultural Images of War and Terror
ANTH-335	Culture and Politics in Latin America
ANTH-341	Global Addictions
ANTH-345	Genocide and Post-Conflict Justice
ANTH-361	Digitizing People
ANTH-365	Culture and Politics in the Middle East
ANTH-370	Media and Globalization
ANTH-375	Native American Cultural Resources and Rights
ANTH-410	Global Cities
ANTH-425	Global Sexualities
ANTH-430	Visual Anthropology
ANTH-489	Topics in Anthropology
ANTH-503	Scholar's Thesis II
INGS-101	Global Studies
INGS-270	Cuisine, Culture, and Power
SOCI-361	Digitizing People

Sociology

Electives–Choose nine of the following	
ANTH-361	Digitizing People
SOCI-201	Ethnographic Imagination: Writing about Society and Culture
SOCI-210	African-American Culture
SOCI-215	The Changing Family
SOCI-220	Minority Group Relations
SOCI-225	Social Inequality
SOCI-230	Sociology of Work
SOCI-235	Women, Work, and Culture
SOCI-240	Deaf Culture in America
SOCI-246	Gender and Health
SOCI-295	Global Public Health
SOCI-300	Sociology of American Life
SOCI-305	Crime and Human Rights: Sociology of Atrocities
SOCI-315	Global Exiles of War and Terror
SOCI-322	Health and Society
SOCI-330	Urban (In)Justice
SOCI-345	Urban Poverty
SOCI-350	Social Change
SOCI-355	CyberActivism: Diversity, Sex, and the Internet
SOCI-361	Digitizing People
SOCI-395	Borders: Humans, Boundaries, and Empires
SOCI-489	Topics in Sociology
SOCI-503	Scholar's Thesis II

Thematic

Students choose three thematic modules of three courses each from modules approved by the department.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- Strong performance in English and social studies is expected

Transfer Admission

Transfer course recommendations without associate degree

Courses in liberal arts, sciences, and math

Appropriate associate degree programs for transfer

Liberal arts, environmental studies, economics, government, science

Faculty

Laverne McQuiller Williams, BS, Rochester Institute of Technology; JD, Albany Law School of Union University; MA, Buffalo State College; Ph.D., University at Buffalo—Interim Dean; Professor

Michael Laver, BA, Purdue University; MA, Ph.D., University of Pennsylvania—Associate Dean; Professor

John S. Smithgall, BA, Roberts Wesleyan College; MS, University of Rochester—Assistant Dean for Student Services

School of Communication

Kelly Norris Martin, BA, John Carroll University; MS, Ph.D., North Carolina State University—Director; Associate Professor

Bruce A. Austin, BA, Rider College; MS, Illinois State University; Ph.D., Temple University—Professor

Keri Barone, BA, MA, State University College at Brockport—Principal Lecturer

Donathan Brown, BA, Illinois College; MA, Syracuse University; Ph.D., Texas A&M University—Assistant Provost and AVP for Faculty Diversity and Recruitment; Associate Professor

Claudia Bucciferro, Ph.D., University of Colorado at Boulder—Assistant Professor

Kari Cameron, BS, M.Ed., Nazareth College of Rochester; MS, Rochester Institute of Technology—Director of Undergraduate Studies: Advertising and Public Relations; Senior Lecturer

Grant C. Cos, BA, University of Massachusetts at Amherst; MA, Emerson College; Ph.D., Kent State University—Professor

Rebecca DeRoo, BA, Bryn Mawr College; MA, Ph.D., University of Chicago—Associate Professor

Thomas Dooley, BA, State University of New York at Geneseo; MA, University of Bolton (United Kingdom)—Lecturer

Nickesia Gordon, BA, University of the West Indies (Jamaica); MA, Clark University; Ph.D., Howard University—Associate Professor

Keith B. Jenkins, BA, University of Arkansas; MA, Ph.D., Florida State University—Vice President and Associate Provost for Diversity and Inclusion; Professor

Mike Johansson, MA, Syracuse University—Principal Lecturer

Ammina Kothari, BA, North Central College; MA, University of Oregon; Ph.D., Indiana University—Director of Graduate Programs; Associate Professor

Eun Sook Kwon, BA, Hannam University (Korea); MA, University of Texas at Austin; Ph.D., University of Georgia—Assistant Professor

Tina Lent, BA, MA, University of California at Los Angeles; Ph.D., University of Rochester—Professor

Hinda Mandell, BA, Brandeis University; MA, Harvard University; Ph.D., Syracuse University—Director of Undergraduate Studies: Journalism; Associate Professor

Lori Marra, BS, Nazareth College; MA, University of Rochester—Senior Lecturer

Bonnie McCracken Nickels, BA, State University of New York at Geneseo; MS, Rochester Institute of Technology; Ph.D., University of Buffalo—Visiting Assistant Professor

Julie Napieralski, BS, Kent State University; MS, Syracuse University—Senior Lecturer

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Rudy Pugliese, BA, State University College at Oneonta; MA, State University College at Brockport; Ph.D., Temple University—Professor

Elizabeth Reeves O'Connor, BS, MS, Rochester Institute of Technology—Principal Lecturer

Katrina Overby, BA, Rust College; MS, Oklahoma State University; Ph.D., Indiana University, Bloomington—Post-Doctoral Researcher

Patrick M. Scanlon, BA, Albany University; MA, Ph.D., University of Rochester—Professor

Jonathan E. Schroeder, BA, University of Michigan; MA, Ph.D., University of California at Berkeley—William A. Kern Professor in Communications

Bob Shea, BA, St. John Fisher College; MFA, Bennington College—Visiting Lecturer

Barry Strauber, BS, Syracuse University—Visiting Lecturer

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Tracy R. Worrell, BA, Otterbein University; MA, University of Cincinnati; Ph.D., Michigan State University—Director of Undergraduate Studies: Communication; Professor

Criminal Justice

Christopher Schreck, BA, University of Florida; MA, University of Arizona; Ph.D., Pennsylvania State University—Department Chair; Professor

Irshad Altheimer, BA, Alabama State University; MA, Ph.D., Washington State University—Associate Professor

Janelle Duda-Banwar, BSW, Xavier University; MSW, California State University at Long Beach; Ph.D., Case Western Reserve University—Visiting Assistant Professor

John McCluskey, BA, MA, Ph.D., State University of New York at Albany—Professor

Laverne McQuiller Williams, BS, Rochester Institute of Technology; JD, Albany Law School of Union University; MA, Buffalo State College; Ph.D., University at Buffalo—Interim Dean; Professor

Judy Porter, BA, University of Northern Colorado; MA, New Mexico State University; Ph.D., University of Nebraska at Omaha—Undergraduate Program Director: Criminal Justice; Professor

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Tony Smith, BA, MA, Ph.D., State University of New York at Albany—Associate Professor

Joe Williams, BS, Rochester Institute of Technology; MA, State University College at Brockport—Field Experience Coordinator; Public Policy Program Director; Senior Lecturer

Economics

Javier Espinosa, BS, Miami University; MA, Ph.D., University of Maryland at College Park—Department Chair; Associate Professor

Amit Batabyal, BS, Cornell University; MS, University of Minnesota; Ph.D., University of California at Berkeley—Arthur J. Gosnell Professor in Economics

Bharat Bhole, BA, MA, University of Mumbai (India); Ph.D., University of Southern California—Associate Professor

Bridget Gleeson Hanna, BComm, University College at Galway (Ireland); MA, University College at Dublin (Ireland); MA, University of Wisconsin at Madison—Associate Professor

Priti Kalsi, BA, University of Maryland at College Park; MA, Ph.D., University of Colorado at Boulder—Assistant Professor

Nikolaus Kasimatis, BA, MA, Ph.D., Simon Fraser University—Associate Professor

Eumni Ko, BA, BS, MA, Seoul National University (South Korea); MA, Ph.D., University of Rochester—Assistant Professor

Eddery Lam, BA, MA, Boston University; MA, University of Massachusetts at Amherst; Ph.D., Kansas State University—Associate Professor

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English

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Elena Rakhimova-Sommers, BA, MA, Moscow State Pedagogical University (Russia); MA, University of Notre Dame; Ph.D., University of Rochester—Provost's Faculty Associate for Non-Tenure-Track Faculty; Principal Lecturer

Thomas M. Stone, BA, Northern Arizona University; MA, Bucknell University; Ph.D., University of Rochester—Lecturer

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Marcos Zampiera, BSc, Ibero-American University (Brazil); University of Wolverhampton (United Kingdom); MA University of Algarve (Portugal); Ph.D., Saarland University (Germany)—Assistant Professor

Performing Arts and Visual Culture

Jonathan Kruger, BA, Carthage College; MM, DMA, Eastman School of Music—Department Chair; Professor

Thomas Davis, BM, Ithaca College; MM, Eastman School of Music—Visiting Lecturer

Ryan Gaynor, BS, Rochester Institute of Technology—Visiting Lecturer

Elizabeth Goins, BA, University of Delaware; Ph.D., University of London—Associate Professor

Andrew Head, BS, Bradley University; MFA, Michigan State University—Assistant Professor

Tina Lent, BA, MA, University of California at Los Angeles; Ph.D., University of Rochester—Professor

Jessica Lieberman, BA, University of Pennsylvania; Ph.D., University of Michigan—Program Director, Digital Humanities and Social Sciences; Associate Professor

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David McCarthy, BM, MA, Eastman School of Music; MM, Houghton College—Visiting Lecturer

David Munnell, BA, University of Delaware; MFA, Florida State University—Senior Lecturer

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Michael E. Ruhling, BA, Goshen College; MA, University of Notre Dame; MM, University of Missouri; Ph.D., Catholic University of America—Professor

Karl Stabnau, BA, Lafayette College; BM, Eastman School of Music; MA, MM, Syracuse University—Visiting Lecturer

Modern Languages and Cultures

Hiroko Yamashita, BA, University of Southern Mississippi; MA, Ph.D., The Ohio State University—Department Chair; Professor

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History

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Joseph M. Henning, BA, Colorado College; MIA, Columbia University; Ph.D., American University—Associate Professor

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Rebecca Scales, BA, Hollins College; MA, University of Georgia; Ph.D., Rutgers University—Associate Professor

Corinna Schlombs, Diploma, Bielefeld University (Germany); MA, Ph.D., University of Pennsylvania—Associate Professor

Siyan Zhao, BA, MA, Fudan University (China); Ph.D., Binghamton University—Visiting Assistant Professor

Philosophy

Brian Schroeder, BA, Edinboro College; M.Div., Princeton Theological Seminary; MA, Ph.D., Stony Brook University—Department Chair; Professor

Jesús Aguilar, BA, Hampshire College and Universidad Veracruzana (Mexico); MA, Universidad Nacional Autónoma de México (Mexico); Ph.D., McGill University (Canada)—Professor

Silvia Benso, Laurea, University of Torino (Italy); MA, Ph.D., Pennsylvania State University—Director, Women's and Gender Studies Program; Professor

Evelyn Brister, BA, Austin College; Ph.D., Northwestern University—Undergraduate Program Director; Professor

John Capps, BA, St. John's College; MA, Ph.D., Northwestern University—Professor

Timothy H. Engström, BA, MA, Ph.D., University of Edinburgh (Scotland)—Professor

Colin Mathers, BA, DePauw University; MA, Ph.D., University of Rochester—Lecturer

Irina Mikhalevich, BA, University of California at Berkley; Ph.D., Boston University—Assistant Professor

Wade L. Robison, BA, University of Maryland; Ph.D., University of Wisconsin—Ezra A. Hale Professor in Applied Ethics

John T. Sanders, BA, Purdue University; MA, Ph.D., Boston University—Professor

Evan Selinger, BA, Binghamton University; MA, University of Memphis; Ph.D., Stony Brook University—Professor

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Political Science

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Benjamin R. Banta, BA, Purdue University; MA, Ph.D., University of Delaware—Undergraduate Program Director; Associate Professor

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Paul H. Ferber, BA, American University; M.Phil., Ph.D., George Washington University—Professor

Joseph Fornieri, BA, State University College at Geneseo; MA, Boston College; Ph.D., Catholic University of America—Professor

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Joseph S. Baschnagel, BA, MA, Ph.D., State University of New York at Buffalo—Department Chair; Associate Professor

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Jessamy Comer, BA, Baylor University; MA, Ph.D., University of Rochester—Lecturer

Kirsten Condry, BA, Swarthmore College; Ph.D., University of Minnesota—Associate Professor

Caroline M. DeLong, BA, New College of Florida; MA, Ph.D., University of Hawaii—Undergraduate Program Director; Professor

Nicholas DiFonzo, MA, Rider College; MA, Ph.D., Temple University—Professor

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Rebecca Houston, BS, University of Arkansas at Little Rock; MA, Ph.D., University of New Orleans, Louisiana—Assistant Professor

Scott P. Merydith, BA, M.Ed., Ph.D., Kent State University—Professor

Vincent Pandolfi, BA, Lafayette College; MA, Ph.D., Hofstra University—Associate Professor

Esa M. Rantanen, BS, MS, Embry-Riddle Aeronautical University; MS, Ph.D., Pennsylvania State University—Associate Professor

Lindsay Schenkel, BA, St. John Fisher College; MA, Ph.D., University of Nebraska at Lincoln—Associate Professor

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Tina Sutton, BS, Union College; MA, Ph.D., State University of New York at Albany—Graduate Program Director, Experimental Psychology; Associate Professor

Public Policy

Sandra Rothenberg, BS, Syracuse University; MS, Ph.D., Massachusetts Institute of Technology—Department Chair; Professor

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Nathan Lee, BS, University of Pennsylvania; MS, Massachusetts Institute of Technology; Ph.D., Stanford University—Assistant Professor

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Joe Williams, BS, Rochester Institute of Technology; MA, State University College at Brockport—Public Policy Program Director; Senior Lecturer

Science, Technology, and Society

Christine Keiner, BA, Western Maryland College; Ph.D., Johns Hopkins University—Department Chair; Professor

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Thomas Cornell, BA, Rhodes College; MS, Georgia Institute of Technology; Ph.D., Johns Hopkins University—Professor

Franz A. Foltz, BS, MA, Pennsylvania State University; Ph.D., Rensselaer Polytechnic Institute—Public Policy Graduate Director; Associate Professor

Katherrine Healey, BA, MA, California State University at Sacramento; MA, M.Phil., Ph.D., Yale University—Visiting Assistant Professor

M. Ann Howard, BS, Cornell University; JD, Rutgers University—Professor

Jessica W. Pardee, BA, MA, Ph.D., Tulane University—Associate Professor

Kaitlin Stack Whitney, BS, Cornell University; Ph.D., University of Wisconsin-Madison—Assistant Professor

Kristoffer J. Whitney, BS, Rochester Institute of Technology; Ph.D., University of Pennsylvania—Assistant Professor

Sociology and Anthropology

Uli Linke, BA, Macalester College; MA, Ph.D., University of California at Berkeley—Department Chair; Professor

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Kijana Crawford, BA, Tougaloo College; MSW, Atlanta University; MA, Ed.D., University of Rochester—Professor

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Jessica Hardin, BA, Fordham University; MA, Ph.D., Brandeis University—Assistant Professor

Anthony Jimenez, BA, MA, The University of Texas at El Paso; Ph.D., University of Minnesota—Assistant Professor

Christine Kray, BA, New Mexico State University; Ph.D., University of Pennsylvania—Undergraduate Program Director; Professor

Wenji Liao, BS, China Foreign Affairs University (China); MS, Ph.D., University of Minnesota—Assistant Professor

David C. Meiggs, BA, University of Colorado at Boulder; MS, Ph.D., University of Wisconsin at Madison—Associate Professor

William D. Middleton, BA, University of California at San Diego; MA, San Francisco State University; Ph.D., University of Wisconsin at Madison—Associate Professor

Vincent Serravallo, BA, State University College at Oswego; MA, University of Kansas; Ph.D., City University of New York Graduate Center—Associate Professor

Robert C. Ulin, BA, Whittier College; MA, Ph.D., New School for Social Research—Professor

Distinguished Professorships

Caroline Werner Gannett Professorship in the Humanities

Established: 1974

Donor: Mrs. Frank E. Gannett

Purpose: To perpetuate Mrs. Gannett's lifelong interest in education, especially in those fields of study that have a humanistic perspective

Held by: Lisa Hermsen

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Held by: Amit Batabyal

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Purpose: To establish a permanent memorial to a long-time and valued friend of RIT, Ezra A. Hale, and

to provide instruction in applied ethics in keeping with his beliefs in sportsman-like conduct, fair play and honesty

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William A. Kern Professorship in Communication

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Held by: Jonathan E. Schroeder

Barber B. Conable Jr. Professorship in International Studies

Established: 2004

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Purpose: To honor the late statesman and former World Bank President and ensure that Barber Conable's legacy of principled and innovative leadership in the national and international arenas will be preserved for all time.

Held by: Dongryul Kim

National Technical Institute for the Deaf

Gerard Buckley, President, NTID; Vice President and Dean, RIT
www.rit.edu/ntid

Programs of study

3D Graphics Technology, AAS	11
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Precision Manufacturing Technology, AOS	44

The National Technical Institute for the Deaf (NTID), one of RIT's nine colleges, provides deaf and hard-of-hearing students with career-focused educational programs that lead to employment in business, industry, government, and education. Among RIT's nearly 19,000 undergraduate and graduate students are more than 1,100 deaf and hard-of-hearing students from across the United States, several U.S. territories, and other countries. The college offers the most accessible educational community in the world, including faculty and staff who specialize in educating deaf and hard-of-hearing students, and a rich environment where students can fit in, feel comfortable, pursue their dreams, and fulfill their potential.

Students enrolled at NTID can earn associate degrees in more than 20 accredited programs, which prepare students for technical careers in a diverse set of fields. Qualified deaf and hard-of-hearing students can also earn bachelor's, master's, or doctoral degrees in professional programs offered by RIT's eight mainstream colleges and two degree-granting units: Art and Design, Business, Computing and Information Sciences, Engineering, Engineering Technology, Health Sciences and Technology, Liberal Arts, Science, the School of Individualized Study, and the Golisano Institute for Sustainability.

In support of its national mission, NTID has research, teaching, and learning activities that focus on understanding and enhancing the educational, social, and communication opportunities for deaf and hard-of-hearing individuals. NTID provides services and programs that enhance teaching and learning within the NTID community and beyond via broad-based research activities and dissemination strategies, curriculum development, instructional design and evaluation, and instructional media services.

Over the past five years, 95 percent of deaf and hard-of-hearing graduates who chose to enter the workforce have found employment.

NTID's academic programs

NTID provides student-oriented academic programming to ensure a rich, coherent set of educational experiences for students. NTID offers Associate+Bachelor's degree programs and career-focused associate degrees as well as general education course work in a variety of disciplines.

Associate+Bachelor's degree programs: NTID offers Associate+Bachelor's degree and pre-baccalaureate programs. Associate in science (AS) degrees in applied computer technology, applied liberal arts, business, and general science provide a transition to baccalaureate programs in the colleges of Art and Design, Business, Computing and Information Sciences, Health Sciences and Technology, Liberal Arts, Science, and the School of Individualized Study. In addition, several of our associate in applied science (AAS) degree programs, such as 3D graphics technology, accounting technology, administrative support technology, applied mechanical technology, business administration, civil technology, and laboratory science technology, provide students with the necessary skills to enroll in other RIT colleges. Pre-baccalaureate studies programs are

designed to prepare qualified students for several specific bachelor's degree programs in other colleges of RIT.

Career-focused programs: Numerous career-focused options and concentrations, designed to lead directly to employment, are available within the following areas: 3D graphics technology, accounting technology, administrative support technology, applied computer technology, business administration, business technology, computer aided drafting technology, design and imaging technology, laboratory science technology, mobile application development, and precision manufacturing technology (formerly computer integrated machining technology). Laboratories are equipped with the latest technology and maintain a curriculum that represents current industry trends and requirements, based on routine feedback from business and industry advisory groups. These programs lead to the associate in applied science degree and the associate in occupational studies degree. All career-focused programs require one cooperative education experience, typically a minimum of 350 hours scheduled over a 10-week period.

General education: NTID offers an array of general education courses to a broad-based population of NTID students, including those who are undecided about, or underprepared for, matriculation into a program. In addition, NTID offers a degree program in American Sign Language-English interpretation and provides a comprehensive sign language education program for students, faculty, and staff members.

Educational opportunities through NTID

Associate+Bachelor's degree programs

Associate+Bachelor's programs offered through NTID prepare qualified students to enroll in baccalaureate degree programs in other colleges of RIT.

Associate in science degree (AS) and selected associate in applied science degrees (AAS): Certification at this level requires the completion of 30-31 semester credit hours of technical course work, 30-32 semester credit hours in general education courses and other courses as appropriate to the degree. The majority of courses are offered through the other colleges of RIT. These degrees prepare students to enter and complete bachelor's degree programs in the colleges of Art and Design, Business, Computing and Information Sciences, Health Sciences and Technology, Liberal Arts, Science, and the School of Individualized Study. Admission to these programs is available in the fall semester only.

Pre-baccalaureate studies: The pre-baccalaureate studies programs are available as a bridge to baccalaureate degree programs for students who are accepted by NTID and are close to, but not fully ready for, direct entry into a baccalaureate-level program. Pre-baccalaureate programs are offered through the engineering studies, liberal studies, science and mathematics, and visual communications studies departments. The career exploration studies program is available to students who are undecided as to their program of study.

Pre-baccalaureate studies programs are appropriate for students who need to further develop mathematics, English, or discipline-related skills. This academic option is flexible and individualized and enables students to focus on needed skills while they progress toward their chosen field of study. Students take courses taught by NTID instructional/support faculty along with entry-level courses taught in other RIT colleges.

Career-focused programs

Career-focused programs offered through NTID lead to the associate in applied science degree or the associate in occupational studies degree. These programs permit students to enter their careers directly.

Associate in applied science degree (AAS): Certification at this level requires 48-52 semester credit hours of technical instruction. In addition, students must complete 24 semester credit hours in general education courses, primarily offered through the College of Liberal Arts, as well as other required semester credit hours determined by the program of study. In some programs, this degree prepares students to apply for entry to bachelor's degree programs in other colleges of RIT.

Associate in occupational studies degree (AOS): Certification at this level requires 45-52 semester credit hours of technical instruction. In addition to satisfactorily completing technical courses, students must complete 15 semester credit hours in the NTID general education curriculum, as well as other required semester credit hours determined by the program of study.

Career exploration studies

The career exploration studies program offers opportunities for students to collect information about NTID majors and career paths before deciding on a program of study. It also assists students who need additional academic preparation and study in order to be ready for their chosen major.

A counselor/academic advisor is assigned to help students evaluate the information and make career decisions. Students can remain in the career exploration studies program for up to two academic semesters.

Support and access services

For students who take courses at NTID, faculty members will communicate directly with them using a variety of communication strategies, which may include sign language with voice, sign language without voice, spoken language (FM systems are available), fingerspelling, printed/visual aids, web-based instructional materials and individual tutoring.

In cases where classroom communication strategies do not appropriately meet a student's needs, students can request access services from the Department of Access Services for courses at NTID via the myaccess.rit.edu website.

Students taking NTID courses will have access to a state-of-the-art learning center staffed by professional and peer tutors. Assigned counselors will work closely with students to help them plan their collegiate experience and provide them with personal, social, career, and academic advising and counseling services.

Educational opportunities in other RIT colleges

In addition to NTID's programs, qualified deaf and hard-of-hearing students may enroll as baccalaureate or master's degree students in one of the more than 200 professional programs offered through RIT's other colleges and degree-granting entities: College of Art and Design, Saunders College of Business, Golisano College of Computing and Information Sciences, Kate Gleason College of Engineering, College of Engineering Technology, College of Health Sciences and Technology, College of Liberal Arts, School of Individualized Study, College of Science, and Golisano Institute for Sustainability. NTID students also may take classes in the other RIT colleges individually, on a course-by-course basis.

Deaf and hard-of-hearing students who wish to enroll in a program in another RIT college must meet that college's admission requirements. Furthermore, deaf and hard-of-hearing students supported by NTID also must meet NTID admission requirements, submit an audiological record completed by a certified audiologist (CCC-A), and complete standard RIT admission forms. Please see the Admissions section for more information. Qualified students may choose to enroll in courses taught through the other eight colleges of RIT for several reasons: as part of the elective requirements in their NTID programs; to complete their programs of study at NTID, then continue their education at another RIT college; to enter a program of another RIT college directly from high school; or to enroll directly into a program in one of RIT's colleges from another postsecondary program.

CAREER-FOCUSED AND ASSOCIATE+BACHELOR'S DEGREE PROGRAMS OF NTID		RELATED EDUCATIONAL PROGRAMS OF OTHER RIT COLLEGES		
Leading to associate degrees		Leading to bachelor's or master's degrees in the other RIT colleges.		
NTID PROGRAMS	**OTHER RIT COLLEGES**	**OTHER RIT PROGRAMS**		
3D Graphics Technology	College of Art and Design	**School of Design** • 3D Digital Design		
Accounting Technology	School of Individualized Study	• Applied Arts and Science		
Administrative Support Technology	School of Individualized Study	• Applied Arts and Science		
Applied Computer Technology Concentrations: • PC Technical Support • Networking and Cyber Security AS Program	College of Computing and Information Sciences	• Computer Science • Computing and Information Technologies • Computing Security	• Game Design and Development • Human-Centered Computing • New Media Interactive Development	• Software Engineering • Web and Mobile Computing
Applied Liberal Arts	College of Liberal Arts	• Advertising and Public Relations • Criminal Justice • Communication • Digital Humanities and Social Sciences	• Economics • International and Global Studies • Journalism • Museum Studies • Philosophy	• Political Science • Psychology • Public Policy • Sociology and Anthropology
Applied Mechanical Technology	College of Engineering Technology	• Robotics and Manufacturing Engineering Technology	• Mechanical Engineering Technology	• Mechatronics Engineering Technology
Architectural and Civil Drafting Technology	College of Engineering Technology	• Civil Engineering Technology		
	College of Art and Design	• Interior Design		
Business Administration	School of Individualized Study	• Applied Arts and Science		
Business Technology Concentrations: • Accounting Technology • Administrative Support Technology				
Civil Technology	College of Engineering Technology	• Civil Engineering Technology		
Design and Imaging Technology Concentrations: • Graphic Design • Graphic Production	College of Art and Design, College of Engineering Technology	**School of Art** • Studio Arts • Illustration • Medical Illustration • Art Exploration	**School of Design** • Graphic Design • Industrial Design • Interior Design • New Media Design • Design Exploration **School of Film and Animation** • Film and Animation • Motion Picture Science	**School of Photographic Arts and Sciences** • Photography and Imaging Arts • Photographic Sciences • Photographic Arts and Sciences Exploration **Department of Graphic Media Science and Technology** • Media Arts and Technology
General Science	College of Health Science and Technology, College of Science	• Biomedical Sciences	**School of Life Sciences** • Biology • Biotechnolgy and Molecular Bioscience	**School of Chemistry and Materials Science** • Biochemistry • Chemistry
Laboratory Science Technology	College of Science, School of Individualized Study	• Applied Arts and Science • Biochemistry • Biology	• Biotechnology and Molecular Bioscience • Chemistry	• Environmental Science
Mobile Application Development	College of Computing and Information Sciences	• Computer Science • Game Design and Development	• Human-Centered Computing • New Media Interactive Development	• Software Engineering • Web and Mobile Computing
Precision Manufacturing Technology	College of Engineering Technology	• Robotics and Manufacturing Engineering Technology		

Note: In addition to the Associate+Bachelor's degree and career-focused programs noted above, NTID also offers pre-baccalaureate studies. This program is available as a bridge for qualified students accepted by NTID and interested in enrolling in another RIT college but not yet ready to enter a baccalaureate-level program.

Support and access services
If students qualify to take courses in other RIT colleges, RIT will provide the educational access services students need. Students can choose from among sign language interpreting services, FM systems, notetaking, or real-time captioning services. Alternative services also may be provided. Students also have access to a unique array of educational support services, including experienced faculty tutors, personal and career counseling, and academic advising. Academic advising services are provided by the student's home college.

First-Year Experiences Programming

NTID programs

Beginning with a summer orientation program, NTID provides a special array of curricular and co-curricular activities to help maximize each student's potential for success in the first year. These experiences are designed to enhance students' bonding with the community while providing time and support to select and enter into a major and/or progress within a career program.

First-year students qualified to enter NTID in the fall semester are required to participate in a summer orientation program called the Summer Vestibule Program. This program includes:

- placement testing in English and mathematics
- orientation/transition to college life activities
- career sampling
- counseling
- application to a career-focused or Associate+Bachelor's degree program, career exploration studies, pre-baccalaureate studies, or baccalaureate program

This summer program is followed by additional first-year experiences that allow students to work with a counselor to select courses and activities that meet individual goals and needs. Components of first-year experiences programming include:

- enrollment in the Freshman Seminar (NCAR-010) during the first semester; this course helps students identify personal, social, and academic skills that lead to a successful college experience
- completion of preparatory courses, as needed
- work with an academic advisor and counselor
- participation in career exploration and introductory courses, when and if appropriate
- completion of degree requirements, as appropriate
- participation in co-curricular and mentoring activities of choice
- if undecided, declaring a major and degree level by the end of the first year

RIT's other colleges

Students who qualify to enter baccalaureate programs in other colleges of RIT participate in the first-year programming and activities designed by the affiliated instructional/support faculty and the colleges. Most first-year students enrolled in colleges other than NTID are required to:

- participate in the summer orientation options and in RIT's New Student Orientation program as well as NTID's Support Service Orientation workshops
- enroll in the RIT 365: RIT Connections (YOPS-010) course during the first semester
- participate in opportunities to explore and select a major, if needed
- work with an academic advisor and NTID counselor

NTID General Education Curriculum

The NTID general education curriculum-liberal arts and sciences (LAS) supports the preparation of students for lifelong learning, for success in their chosen fields, and for their role in society as well-educated and knowledgeable citizens. The general education curriculum provides for a broad academic base of courses, with some organized into foundation and perspective categories. In general, AOS students complete all of their general education requirements through course work in the college of NTID, whereas students in the AAS and AS programs complete some required course work in the other colleges of RIT.

Students must complete a minimum number of general education credits for each degree. The general education distribution requirements chart shows the credit hour and distribution requirements for NTID AS, AAS, and AOS degrees. Students enrolled in colleges other than NTID should consult with their program departments about required general education courses.

NTID General Education Requirements

	AS Degree	AAS Degree	AOS Degree
Foundation	6*	6*	9†
ASL-Deaf Cultural Studies	—	(3)‡	—
Perspectives	15§	15§	6**
Electives	9††	3‡‡	—
Minimum Total General Education Semester Credit Hours	**30**	**24**	**15**

** RIT LAS Foundation courses First Year Writing: Writing Seminar (UWRT-150) (or another approved First Year Writing course) and a General Education Elective.*
† Career English I, II (NENG-212, 213) and mathematics (NMTH-120 or higher).
‡ An ASL-Deaf cultural studies (AASASLDCS) course is required for graduation. It can be taken in any semester and can be taken at NTID or another RIT college. In order to fulfill this requirement as part of the credits in the program, it must be a course approved for both AASASLDCS and aGeneral Education – Perspective, or General Education – Elective, or it can be used to fulfill an Open Elective.
§ One course from the following RIT general education perspective categories: ethical, artistic, global, social, and scientific principles. The scientific principles course should be NSCI-250 level or higher for AS; NSCI-120 level or higher for AAS
*** Two courses from NTID general education perspective categories: ASL-Deaf cultural studies; communication, social, and global awareness; creative and innovative exploration; and scientific processes. See program for specific requirements.*
†† One NTID mathematics course (NMTH-250 and higher) or a College of Science mathematics course, plus two General Education Committee-approved elective courses.
‡‡ One NTID mathematics course (NMTH-120 or higher).

AS and AAS foundation and perspectives—RIT's framework for general education specifies the requirements for NTID AS and AAS students, including foundation and perspective courses. (See NTID general education requirements chart.)

All AS and AAS students are required to take two foundation courses: a First Year Writing (FYW) course approved by the RIT University Writing Program, and a General Education Elective, NTID AS and AAS students are advised to take First Year Writing: Writing Seminar (UWRT-150). This course provides students with experience in writing, reading and critical thinking techniques needed for success in LAS general education courses. Deaf and hard-of-hearing students

are advised to earn a passing grade in the First Year Writing course before taking any addi- tional general education courses, other than science and mathematics.

Placement into a First Year Writing course, such as FYW: Writing Seminar (UWRT-150), is based on the Writing Placement Exam or upon the satisfactory completion of Critical Reading and Writing (UWRT-100). AS and AAS students who enter NTID with English skills below the level required for their degree of choice will need to successfully complete additional courses before taking the First Year Writing course.

Deaf and hard-of-hearing students enrolled in AS and AAS degree programs are required to take courses that satisfy RIT's general education perspectives in five areas: ethical, artistic, global, social andmscientific principles. (See RIT graduation requirements for a description of the perspective categories.) For many of the perspective courses, students can choose between sections taught by either NTID faculty members or by faculty members from other colleges of RIT, including the College of Liberal Arts.

Where general education courses are taught by NTID faculty members, instructors communicate directly with students utilizing a variety of strategies which may include sign language without voice, sign language with voice, spoken language (FM systems are available), fingerspelling, printed/visual aids, Web-based instructional materials and individual tutoring. In cases where a faculty member's communication strategies do not appropriately meet a student's needs, students can request access services from the Department of Access Services for courses at NTID via the myaccess.rit.edu website.

General education courses in the other colleges of RIT include both deaf and hearing students. Educational access services, such as sign language interpreting services, FM systems, notetaking, or real-time captioning services may be requested by students. Alternative services also may be provided. Students also may request educational support services such as tutoring or academic advising.

NTID AOS General Education Framework

AOS students take three NTID foundation courses and two NTID perspective courses, following the specific requirements determined by each AOS program. Approved student learning outcomes associated with the NTID AOS general education framework ensure that students are provided with courses and experiences consistent with NTID's mission, strategic direction, and values. General education AOS courses typically also incorporate aspects of ASL-Deaf cultural studies, critical thinking, and communication. To the extent possible and when appropriate, AOS courses promote community service and active learning components and support writing.

NTID AOS General Education Foundation Courses

Career English—Courses in this category expose students to basic reading and writing that might be encountered in the workplace.

Mathematics—Courses in this category help students identify and understand the role that mathematics plays in the world.

NTID AOS Perspective Courses

Communication, Social, and Global Awareness—Courses in this category promote an understanding of self and advocacy in relation to one's interactions with others in personal, professional, and civic lives. Courses address social dynamics as they vary across communities, ranging from local to global. Courses introduce students to contrasting cultural approaches to allow communication in situations such as face-to face, electronic format (such as e-mail or text), and group presentation situations.

Creative and Innovation Exploration—Courses in this category explore the creative process that leads to technological innovation, artistic expression and their products, in a variety of forms, while examining the influence of society and culture on the process and its end results. These courses provide insight into the creative process through innovative approaches to assignments or projects.

Scientific Processes—Courses in this category apply methods of scientific inquiry and problem solving in a laboratory or field experience. Science is more than a collection of facts, so students will be expected to participate in the processes of science as they collect and analyze data, and state conclusions.

Course placement

The goal of assessment for course placement is to ensure that students begin their studies at the appropriate level. Assessment for initial course placement will be made during summer orientation in the following areas: mathematics, American Sign Language, and writing and reading.

NTID science and mathematics curriculum

AS and AAS students are required to take a science course that satisfies the RIT scientific principles perspective (P6) general education requirement as well as a mathematics course that satisfies a general education elective. AS students typically take two additional mathematics and/or science courses as electives. All AOS programs require an NTID mathematics foundation course and some require an NTID scientific processes perspective course.

AS and AAS students, as well as AOS students, typically take mathematics and science courses in the college of NTID. These courses foster the reasoning and problem-solving skills that are a part of the foundation of their technical studies. In addition, the NTID science and mathematics curriculum provides an opportunity to develop the mathematical and scientific literacy demanded in today's society. (See typical courses listings in each program for specific requirements.)

American Sign Language-Deaf Cultural Studies curriculum

NTID deaf and hard-of-hearing students have an opportunity to study American Sign Language and learn about their heritage as deaf people through the ASL-Deaf cultural studies (ASL-DCS) curriculum. An ASL-Deaf cultural studies (AASASLDCS) course is required for AAS students for graduation. It can be taken in any semester and can be taken at NTID or another RIT college. In order to fulfill this requirement as part of the credits in the program, it can be a course approved for AASASLDCS and a General Education Perspective, or it can be used in some programs as a free elective. AOS students can take ASL-DCS courses to satisfy NTID perspective requirements.

NTID English program

The NTID English program is designed to enable students to

develop their English literacy skills. The program includes course sequences that offer instruction in reading and writing.

Students who plan to graduate with the AOS degree are required to complete 6 credits of English. Career English I and II (NENG-212 and 213) provide the English literacy skills needed for career-focused associate degrees. Students who enter NTID with English skills below the level required for their degree of choice will need to successfully complete additional courses before taking the required English courses.

The course sequence Analytical Reading & Writing I and II (NENG-221 and 222) and Bridge to College English I and II (NENG-231 and 232) is for students who demonstrate strong potential for improving their skills sufficiently to access the University Writing Program's curriculum for the AS and AAS degrees. A grade of C or better is required at the completion of each course in order to progress through the sequence, and each course must be taken in conjunction with its co-requisite course. Students who earn a D in or withdraw from one or both courses may repeat the course(s) once and must earn a grade of C or better before enrolling in the next sequential course.

NTID Student Life

NTID Resources

www.rit.edu/ntid/sas

The National Technical Institute for the Deaf offers an array of educational and service activities for deaf and hard-of-hearing students. These activities and services include career and mental health counseling, student-life programming, and communication skills development in the form of speech-language instruction, speechreading, and listening/audiological services, as well as a state-of-the-art learning center.

NTID Learning Consortium

www.rit.edu/ntid/nlc/

The NTID Learning Consortium is a partnership among RIT and NTID academic departments and educational programs. The goal is to support student success in the college curriculum. A primary resource of the Learning Consortium is the NTID Learning Center (NLC).

The NLC represents a creative combination of human, physical, and technological resources through which partnerships can be realized. Resources include:

- regular tutorial support from faculty and advanced students directly tied to discipline-specific curricula and classroom activities. Tutoring is offered in a range of disciplines, including English, math, and technical program majors. Tutorial support for students is available on a walk-in, scheduled, or assigned basis, either individually or in small groups;
- computers supporting tutorial activities and course assignments as well as independent student work;
- designated areas for individual and small-group tutoring and studying, and
- designated areas for faculty/staff/students to record and edit videos for classroom materials and activities. The Video Production Studio hosts state-of-the-art hardware, HD cameras, a blue-screen backdrop, and editing software to facilitate optimal video quality.

The NLC also sponsors the Sprint Relay Experimental Distance Learning/Access Demonstration Lab. The Sprint Relay Lab is an RIT-wide resource for experimenting with innovative technologies in support of remote learners. Key features of the lab include:

- focusing on both instructional activities and access strategies for deaf and hard-of-hearing learners participating in remote educational experiences;
- evaluating alternative technologies in the context of varied educational objectives, access goals, and student and teacher preferences;
- serving as a beta testing site where instructional and access technologies in support of remote learning can be developed, refined, and exported for use throughout RIT. For example, during AY18-19, a Revolution Lightboard was purchased and is being used to record immersive presentations for online instructional materials.
- providing a forum for information exchange; exploration of new instructional and access strategies; and training among teachers, students, access service providers, instructional designers and technologists, and researchers; and
- sponsoring vendor-display/consumer-testing for new products related to instructional and access technologies.

The lab includes two side-by-side short-throw interactive projectors; a central projector/display system; a matrix router enabling versatile distribution of information to computer monitors and wall-mounted displays throughout the room; and four wall-mounted video cameras to record in various settings and configurations. The lab supports the creation of online course materials for on-campus and online courses.

Communication Studies and Services

www.ntid.rit.edu/css

NTID strongly encourages all students to expand their communication skills to communicate with diverse audiences in educational, civic, and professional settings. Communication studies focuses on the effective expression of ideas independent of the language (ASL or English) that the student chooses to use. The communication studies and services department, the department of American Sign Language and interpreting education, and the department of cultural and creative studies provide intensive support and instruction for the development of communication competencies needed to enhance students' professional and personal success. The faculty and staff of the communication studies program conduct assessments and provide course work, workshops, and individualized instruction. They also work in collaboration with faculty and staff across the university.

Speech and language services: Pathologists provide learning activities that focus on the development of a full range of communication competencies. These activities include individual speech-language assessment and instruction, speech-language lab activities that support technical vocabulary/communication and second-language learning, and individualized use of multimedia and computerized visual feedback systems. Through these activities, students can work on conversational interactions, job-related

communication skills, technical and formal presentations, and job interviews.

These services are open to all RIT students and are available through individual appointments with pathologists or on a walk-in basis through the Speech & Language Center (Johnson Hall, room 3225). This lab has individual private rooms for pronunciation practice, computers for speech and language practice and visual feedback, and stations for digital recording and playback. There is no charge for utilizing these services. The faculty and staff in the department are certified by the American Speech-Language-Hearing Association.

Audiology services: The audiology faculty and staff offer a variety of services and information related to hearing aids, cochlear implants, communication strategies, telecommunications, assistive technologies, auditory training, speechreading, and job interviewing. Hearing and hearing-aid evaluations are available through the Audiology Center (Johnson Hall, room 3130). Evaluations are provided by audiologists certified by the American Speech-Language-Hearing Association and licensed through the State of New York. Faculty and staff are available daily in the center to discuss issues related to hearing loss, tinnitus, cochlear implants, and other areas. FM and Roger systems can be loaned to students for the academic year at no cost.

Students can go to the Audiology Center to purchase hearing aid and cochlear implant accessories, including batteries, earhooks, and earmolds, and for hearing aid or cochlear implant repairs, as well as other services. In addition, students can schedule appointments for audiology and cochlear implant clinics with faculty and staff as well as with consultant ophthalmologists and otolaryngologists in the Eye and Ear Clinic. Services are available to all students, and most are provided at no cost.

NTID Counseling and Academic Advising Services

www.ntid.rit.edu/caas
(585) 475-6468 (V), (585) 286-3485 (VP)

NTID Counseling and Academic Advising Services (CAAS) is committed to supporting students to realize their full potential for a successful college experience. In pursuit of this goal, each NTID-supported associate level student is assigned a Counselor/Academic Advisor (CAA). Each CAA is professionally trained in providing a full complement of counseling, academic advising, career assessment, advocacy, and referral services. NTID-supported bachelor level students receive all the services listed above with the exception of academic advising This is provided by the primary academic advisor in their college. CAA's assist with student orientation, educational and career planning, adjustment to college life, study-skills development, personal and interpersonal concerns, and referral to on-campus and community resources.

NTID Mental Health Services

(585) 475-2261 or (855) 436-1245 (after hours)

The Counseling Center provides confidential mental health counseling to all hearing, deaf, and hard-of-hearing students requesting assistance. Members of the center work closely with RIT's Student Health Center, the Center for Residence Life, the NTID Counseling and Academic Advising Services department, Public Safety, and related campus units. Some of the counselors at the center are fluent in sign language.

Some concerns that students may need help resolving include medication referral and management, depression, anxiety, family conflicts, intimate relationships, and sexual and personal identity matters. Workshops, discussion groups, and group counseling on topics such as stress management, eating disorders, managing emotions, and improving relationships also are offered.

A 24-hour emergency crisis intervention service for students experiencing mental or emotional trauma is provided in conjunction with other relevant campus units.

NTID Student Life Team

(866) 761-3896 (VP/VRS)

The Student Life Team is committed to providing quality co-curricular programs designed to help students enhance their quality of life, sense of relevancy to their studies, and overall satisfaction with and success in college. Through collaboration with other units within NTID and RIT, creative program strategies, and commitment to utilizing student paraprofessionals, the Student Life Team facilitates cultural diversity awareness, minority student support, leadership development, and exposure to deaf culture, ASL, and other communication modes. It also addresses contemporary social issues that impact college students.

NTID Wellness and Intramural Athletics

www.rit.edu/studentaffairs/criw/
(585) 475-6559

NTID provides services that maximize access and success for deaf and hard-of-hearing students engaged in health/wellness seminar discipline courses and other programs offered by the Center for Wellness Education and Center for Recreation & Intramurals. Support services ensure that education, consultation, communication, and resource opportunities are available to deaf and hard-of-hearing students taking courses, engaging in programs, or participating in intramural athletics.

Varsity Intercollegiate Athletics

www.ntid.rit.edu/athletes/athlete-development/program
(585) 371-7044

NTID established the RIT/NTID Athlete Development Program to provide support and training to improve the quality of NTID-supported student-athletes' experience as key members of their respective varsity athletic programs. Services offered for NTID-supported student-athletes and members of the athletic department include: academic support, career development, educational workshops, mentoring, leadership training, and access services.

NTID Summer Vestibule Program

www.rit.edu/ntid/svp

The Summer Vestibule Program (SVP) is NTID's required orientation program for new deaf and hard-of-hearing students who have been accepted into a program in RIT's College of NTID. SVP that

assists and prepares them for complex tasks; i.e., career awareness, decision making, adjustment to college life, and assessment of academic skills and competencies. During the program, students learn about the programs offered at NTID and the other RIT colleges, while faculty and staff members evaluate students' skills, abilities, and motivation. Through this process, students gain information that assists in the selection or confirmation of an appropriate program and the design of their individual academic plans.

Acceptance into SVP does not automatically guarantee admission to the program the student selects. The final decision on acceptance into a program of study for the fall semester is the responsibility of each academic department. Admission to a program depends on successfully completing SVP, having requisite skills to begin the program of study, and availability of space in that program.

During SVP, students participate in various activities, including orientation to college services and academic expectations, career sampling, career planning, and placement assessments in mathematics and English. Recreational and social activities also are part of the program.

NTID Support Services Orientation Workshops

www.rit.edu/ntid/ssorientation

Support Services Orientation (SSO) workshops are designed for deaf and hard-of-hearing students who have been accepted into an RIT bachelor's degree program. These workshops provide students with information on how to use the various NTID educational access and support services available to them, acquaint them with RIT's campus and services, and allow them to meet other new students as well as their department's chairperson and faculty members, who will assist them with fall semester class registration and support services needed throughout the year.

NTID Student Congress

www.ntid.rit.edu/nsc

The NTID Student Congress is an organization comprised of deaf and hard-of-hearing students who represent and provide programs for members of their community. The organization helps interested students communicate their needs, ideas, and concerns about campus life to faculty members, administrators, and other student organizations within RIT; provides opportunities for developing leadership skills; and encourages student activities and integration by providing deaf and hard-of-hearing students with opportunities to interact with their peers socially, academically, athletically, and culturally. Students interested in getting involved may stop in at the NTID Student Congress office in the CSD Student Development Center.

NTID Performing Arts

www.rit.edu/ntid/performing-arts

RIT/NTID Dance Company: The RIT/NTID Dance Company is a unique ensemble of deaf, hard-of-hearing, and hearing students that enriches the educational life of its dancers by providing challenging and rewarding choreographic and performance opportunities. Membership in the company is open to the entire RIT community (dancers as well as nondancers, from every level of ability and experience) at an annual audition in the fall semester.

The RIT/NTID Dance Company has presented a diverse repertoire consisting of full-length ballets and student and faculty choreography in modern dance, jazz, and a variety of ethnic-based dance. The company also has had guest choreographers and performers, including Garth Fagan, Sahomi Tachibana, Tim Draper, Michael Thomas, Sean McLeod, Carolyn Dorfman, Thomas Warfield, Hong Kong-based choreographer Andy Wong, deaf choreographer Christopher Smith, the Nrityagram Dance Ensemble of India, and Jim Donovan, lead drummer for Rusted Root. For information, contact Thomas Warfield, director of dance, at (585) 475-6252 (voice) or tfwnvc@rit.edu.

Panara Theatre: Students and faculty produce major plays and performances featuring deaf and hearing actors, dancers, and technical staff. For more information, please visit www.rit.edu/ntid/performing-arts

Lab Theater: Lab Theater features experimental, new, or unusual productions. New directors and student writers also use the space for developing their skills.

NTID performing arts course offerings: For information regarding acting, mime, technical theater, lighting, play creating, script translation, or dance classes, call NTID's Performing Arts Department, (585) 475-6069 (voice) or Aaron Kelstone, Chair (585) 286-1659 (VP).

NTID Admission Information

Costs of attending RIT through NTID

The total cost of attending RIT through NTID sponsorship includes tuition, room, board, and fees. Charges to NTID-supported students are updated each year. The cost of books and supplies is students' responsibility. These costs vary depending on each student's program of study. The estimated cost for books and supplies for the 2020-21 academic year is $2,088.

New students attending the Summer Vestibule Program will be charged a fee. Students participating in cooperative education are not charged tuition or fees for that particular term. They will be charged room, board, and residence hall fees, however, if they live on campus while participating in a co-op.

All students are required to carry accident and health insurance. Students may choose insurance coverage through RIT, or they may waive this coverage if they provide evidence of other insurance coverage. Waiver cards will be sent to all accepted students during the summer and will be available at registration. The fee for health insurance for 2019-20 is $1,849.

For information about NTID tuition, room and board, and fees, please see the RIT/NTID website www.rit.edu/admissions/tuition-and-fees

Deaf and hard-of-hearing applicants

Deaf and hard-of-hearing students may apply for admission to any of RIT's colleges. All applicants with a hearing loss should check

the appropriate box on the application and submit an unaided audiological record completed by a certified audiologist (CCC-A) in order to qualify for educational access and support services as well as NTID's federally supported tuition rate. All audiograms must be unaided and have been completed within three years of the application date. Send application materials to the NTID Office of Admissions. For further details regarding application requirements, please refer to the information in the Undergraduate Admission section of this bulletin.

Transfer credit

Deaf and hard-of-hearing students may transfer into an NTID program, or they may qualify to enroll directly in a program in another RIT college with NTID sponsorship. The transfer credit of deaf students accepted to the Summer Vestibule Program will be evaluated in the fall, when they are accepted into a specific program.

Campus visits

Deaf and hard-of-hearing students who wish to visit RIT may contact NTID's Office of Admissions at (585) 475-6700 (voice), by videophone at (585) 743-1366, or via e-mail at visitNTID@rit.edu. Students may take tours of campus and arrange personal interviews. Both of these are strongly encouraged but are not required for admission.

Facilities

A modern academic and residential building complex on the RIT campus is designed to meet the specific needs of deaf and hard-of-hearing students. Lyndon Baines Johnson Hall and Hugh L. Carey Hall house laboratories, offices, communication studies and services centers, classrooms, and a theater. These classrooms and laboratories support the latest technologies for teaching and include high-resolution projection displays, digital document displays, DVDs, FM systems, Internet access, smart display boards, and other computer-based services. In addition, classrooms are specifically designed to meet the unique needs of both students and teachers.

The Communication Service for the Deaf (CSD) Student Development Center, interconnecting Johnson Hall and The Commons, which is an adjacent dining hall, is the focal point for students, faculty, and staff to engage in social events and community activities. In addition to a large multipurpose space for formal and informal lectures, small meeting rooms and offices provide workspace for student government groups, clubs, and organizations.

Sebastian and Lenore Rosica Hall, adjoining The Commons, is NTID's center for sponsored research. Rosica Hall is the home for several research centers which promote collaboration between faculty and staff. Rosica Hall also boasts an Innovation Center which will be a place where students, faculty, and mentors will work together using multidisciplinary collaborative innovation teams to turn their ideas into realities.

NTID's main academic building, Johnson Hall, boasts a state-of-the-art learning center. Using the latest technologies available, this center provides academic experiences, tutorial services, and course enrichment opportunities for all students. It provides students with access to networked computer workstations, videoconferencing capability, and a special technology-centered classroom.

One of the features of Johnson Hall is the Joseph F. and Helen C. Dyer Arts Center. This 7,000-square-foot facility features art exhibits as well as NTID's permanent art collection. The center also incorporates art-related educational activities, such as lectures and demonstrations, while serving as a multiuse facility. Johnson Hall also includes the Panara Theatre, a 500-seat facility where theatrical productions are produced simultaneously in American Sign Language and English. The theater also hosts a wide range of cultural activities from all over the world, enriching student life and broadening students' world view.

All residence hall rooms, campus apartments, classrooms, laboratories, and administrative areas can access the campus-wide computer network with wired or wireless connections.

All RIT and NTID residence halls are aggressively maintained and provide students with an appealing, highly functional living environment. Special rooms have been created to serve physically challenged students. Students are encouraged to bring their own computers to connect to the campus network and Internet from their rooms. A selection of apartment units also is available.

NATIONAL TECHNICAL INSTITUTE FOR THE DEAF FIXED CHARGES 2020-2021 (DOMESTIC STUDENTS)

	Summer Vestibule Program Aug. 10-18, 2020	SSO* Aug. 12, 2020	Fall Semester Aug. 26-Dec. 18, 2020	Spring Semester Jan. 13-May 6, 2021
Tuition	$820	0	$8,907	$8,907
Room	$280**	0	$4,070	$4,070
Board (standard meal plan)	$269**	0	$2,918	$2,918
Student fees†	0	0	$338	$383
Orientation fee‡	0	0	$300	0
Total	**$1,379**	**0**	**$16,522**	**$16,233**

** SSO (Support Services Orientation) workshops for NTID-supported students accepted to other RIT colleges. Date subject to change.*

† Student fees are required of all full-time students and include: student health fee ($185 per semester) and student activities fee ($153 per semester).

‡ Charge to defray cost of fall Orientation program, for freshmen and new students only.

*** Potential rate reduction if the on-campus dates are shortened.*

Notes: Required books and supplies will impact these figures.

The standard academic year includes fall and spring semesters.

New students accepted to the Summer Vestibule Program will be charged according to the prorated fee schedule indicated above.

Students in co-op will not be charged tuition or fees for that particular semester and will be charged room and board only if they live on campus while they work.

Visual emergency strobe lights and visual doorbells are present throughout residence halls, apartments, and academic buildings.

Television, a basic part of the college's communication network, is used for both education and entertainment. RIT provides a streaming service that provides the ability to watch live television and record shows for future viewing. All students living in RIT housing with access to RIT's network will have access to 64 channels as well as HBO, HBO Go, and Cinemax through their RIT student login.

A well-equipped television facility provides studio services to produce class and self-instruction media for use within the university.

Telecommunications

NTID students can access telephone services through VRS and computer-based relay services. CapTel service also is available in New York state.

Public videophones are available to students in several on campus locations. Students who have their own videophones are encouraged to bring them to campus at move-in, and students who do not yet have videophones will be encouraged to work with the VRS provider of their choice to acquire one.

Communication skills

Communication competence is considered an important component of the student's educational experience at NTID. Students have opportunities to develop skills through a wide range of curricular and co-curricular activities that promote communication success in educational, social, and work situations. The communication studies and services department, the department of American Sign Language and interpreting education, and the department of cultural and creative studies provide intensive support and instruction for the development of communication skills. Faculty and staff conduct assessments and provide coursework, workshops, and individualized instruction. They also work collaboratively with instructional/support faculty and professional staff.

The Audiology Center

The NTID Audiology Center provides the RIT community with services related to hearing loss, hearing aids, cochlear implants, and accessories. Students may visit the center to receive information or to schedule clinical appointments, obtain new ear molds and batteries, have equipment repaired and other services. The center is located in Johnson Hall, room 3130 and can be contacted by calling (585) 475-6473 (voice) or by emailing audiology@rit.edu.

NTID Counseling and Academic Advising Services

Every NTID-supported student is assigned a Counselor/Academic Advisor (CAA) in NTID Counseling and Academic Advising Services (CAAS). CAA's provide individual, personal, social, and career counseling to all of their students as well as academic advising services to students enrolled in NTID associate degree programs. CAAS also oversees the Career Resource and Testing Center (CRTC) which is available to all NTID supported students. Students can complete self-assessments and research college majors and career opportunities in the CRTC. NTID CAAS also serves as a confidential Title IX site. In addition, CAA's work closely with students and faculty in students' academic programs to encourage students achieve academic success. CAA's also consult and network extensively with families and on-campus and community resources with the goal of assisting students to achieve personal, career, and educational success. CAA's teach Freshman Seminar to assist students with transition to college. Students can contact their assigned Counselor/Academic Advisors to arrange for appointments

Career resource and testing center

The innovative Career Resource and Testing Center provides NTID students with useful educational, career, and assessment services. Print, video, and online sources of information allow students to learn about personal interests, values, and skills as well as suitable college and career options. Computerized guidance and assessment programs allow students to compare their personal characteristics with occupations. The center also supports our college's career-counseling groups, which help undecided students develop a personal career path. The center is coordinated by a professional counselor/academic advisor from NTID Counseling and Academic Advising Services and is open weekdays. For additional information or an appointment, call Eileen Contestabile, senior staff assistant for NTID Counseling and Academic Advising Services at (585) 475-6468 (V), (585) 286-3485 (VP) or e-mail: excnod@rit.edu.

Mental health/psychological counseling

Mental health counseling services for deaf and hard-of-hearing students are part of a range of services at the RIT Counseling Center. Individual and group therapy are offered for psychological and adjustment issues such as depression, anxiety, family conflicts, relationships, college success, and identity issues. Mental health emergency services and crisis intervention are provided by the RIT Counseling Center on a 24-hour basis in collaboration with other campus service providers. The Counseling Center also coordinates medication consultation and management, when appropriate, through the RIT psychiatrist.

Psychoeducational programs and workshops also are offered on a variety of topics, including body image, stress management, depression, and social skills.

Counseling Center staff provides consultation about mental health issues and deafness on campus, locally, nationally, and internationally.

Cooperative education

A feature of most RIT academic programs, including those offered through NTID, is cooperative education. Co-op provides students with the opportunity to gain hands-on experience in their chosen career field. NTID AAS and AOS programs require a co-op education experience. A majority of students complete the co-op experience during the summer. However, co-op can be completed any time during the year, consistent with a student's course schedule.

Employment

Employment of deaf and hard-of-hearing graduates is a high priority for NTID. To help ensure that graduates obtain program-related employment, NTID's Center on Employment assigns each new student an advisor experienced in employment assistance in the various academic concentrations. To help prepare them for obtaining cooperative education experiences and full-time

employment, students in AAS and AOS programs take required job preparation courses.

The center's employment advisors are in constant contact with potential employers throughout the United States. In addition, the center hosts an annual career fair attended by national employers. Such services have contributed to a high employment rate of deaf and hard-of-hearing graduates. Over the past five years, 95 percent of deaf and hard-of-hearing graduates who chose to enter the workforce have found employment.

Research

NTID has been in the forefront of research on deaf education since its inception. While research on this topic, especially at the postsecondary level, remains central to NTID's mission, in recent years, an increasing amount and diversity of research foci have emerged at NTID. Today, NTID faculty explore a wide variety of research topics pertaining to the deaf experience, including education, occupational dynamics, linguistics, early childhood development, cognition, culture, sign language interpreting, access technology and more. Other NTID faculty explore discipline-specific topics such as astrophysics, psychology, chemistry, history, and engineering – whether or not the research question at hand pertains directly to deaf and hard-of-hearing people. Students at NTID are deeply engaged in all these forms of research which is an invaluable part of an NTID education. Paid positions as research assistants are widely available. Otherwise, faculty strive to engage students in research via classroom assignments and mentoring.

3D Graphics Technology, AAS

www.rit.edu/study/3d-graphics-technology-aas
Edward Mineck, Chairperson
585-475-6341, enmnvc@rit.edu
Kurt Stoskopf, Program Director
585-286-5345 (VP), kwsnda@rit.edu

Program overview

The associate in applied science (AAS) degree in 3D graphics technology introduces concepts related to three dimensional (3D) graphics, and teaches you the creative and technical skills required to produce 3D graphics, 3D prints, environmental renderings that range from artistic to photorealistic in quality, and 3D models used in multimedia and animation. A combination of traditional design skills and digital design techniques are taught, along with the representation of concepts of time, motion, and lighting principles. This program prepares you for one of two options: entering the 3D graphics industry after graduation or continuing your studies in the 3D digital design BFA program offered by RIT's College of Art and Design. This program is available for qualified deaf and hard of hearing students.

The program's curriculum prepares and trains you for entry-level employment in the 3D graphics industry. The 3D graphics technology program, offered by RIT's National Technical Institute for the Deaf, covers the artistic and technical sides of the industry, with a specific focus on the modeling, animation, and visualization processes in 3D graphics. You acquire the creative and technical skills required to create 3D graphics, 3D printouts, environmental visualization graphics, and 3D models used in multimedia and animation.

The program also requires you to acquire skills in traditional media drawing and painting, as well as in animation, modeling, 3D printing, and reading and understanding design plans and blueprints. You acquire computer-based skills in 2D and 3D graphics software. In addition, you'll learn skills related to project management and teamwork.

The capstone course offered in the final semester provides you with an opportunity to utilize your skills on an applied skill-focused project that is completed with advice and guidance of faculty from the visual communications studies department. The structure of the capstone course is that of a self-directed, semester-long project that is completed either on an individual basis or as part of a team-based project.

You gain real work experience through one term of required cooperative education employment.You also complete a required portfolio workshop course in which you refine and complete your portfolio as needed for application to the BFA program in 3D digital design in RIT's College of Art and Design, or for an employment search.

The 3D graphics technology program is available as an associate of applied science (AAS) degree or as an Associate+Bachelor's Degree Program.

The AAS degree in 3D graphics technology is a career-focused degree program that leads to immediate entry into well-paying careers in the graphic arts industry.

The Associate+Bachelor's Degree Program in 3D graphics technology prepares you to complete an RIT's bachelor's degree. In this option, upon successful completion of the AAS degree in 3D graphics technology, provided you have a 3.0 or higher grade point average in the program and a strong portfolio, you will enroll into RIT's College of Arts and Design where you can pursue a bachelor's degree in 3D digital design.

Learn more about the benefits of pursuing an Associate+Bachelor's Degree Program.

STEM and the 3D graphics technology program

Education in STEM (science, technology, engineering, math) careers is a major emphasis for students, parents, and counselors as they consider which college programs match students' interests and aptitudes. Funding for STEM career preparation is often a driving factor. The NTID 3D graphics technology program is a STEM career program. 3D graphics is listed in the technology/computer science STEM disciplines. 3D graphics and production for 3D printing, print media, and digital media cannot happen without immersion in computer technology.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the 3D graphics technology program are required to complete a cooperative education work experience prior to graduation. You may schedule your co-op after completing your second-year academic requirements.

Curriculum

3D Graphics Technology, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
N3DG-100	Design Drawing	3
N3DG-110	Basic 3D Modeling	3
N3DG-115	Intermediate 3D Modeling and Techniques	3
N3DG-140	3D Lighting and Materials	3
NAIS-120	Principles of Design and Color	3
NAIS-130	Raster and Vector Graphics	3
NCAR-010	Freshman Seminar	0
UWRT-150	General Education-First Year Writing: FYW: Writing Seminar	3
	General Education – Elective†	0
	General Education – Elective‡	3
Second Year		
ARTH-135	General Education – Artistic Perspective: History of Western Art: Ancient to Medieval	3
ARTH-136	General Education – Global Perspective: History of Western Art: Renaissance to Modern	3
NAIS-201	Employment Seminar	3
NAIS-299	Co-op Visual Communications Studies	0
N3DG-210	Advanced 3D Modeling and Techniques	3
N3DG-220	Principles of 4D Design	3
N3DG-225	3D Motion	3
N3DG-230	3D Printing	3
N3DG-260	Professional Practices	3
	NGRD or NGRP Electives	6
Third Year		
NAIS-292	Portfolio Workshop	3
N3DG-270	Capstone	3
	General Education – Ethical Perspective†	3
	General Education – Social Perspective†	3
	General Education – Scientific Principles Perspective§	3
Total Semester Credit Hours		**72**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
† An ASL-Deaf Cultural Studies (AASASLDCS) course is required for graduation. It can be taken in any semester and can be taken at NTID or another college of RIT. In order to fulfill this requirement as part of the credit hours in the program, it can be a course approved for both AASASLDCS and a General Education - Perspective.
‡ Any mathematics course numbered NMTH-120 or higher.
§ Any science course numbers NSCI-153 or higher.

Admission requirements

For the career-focused AAS Degree

- 2 years of math required
- 1 year of science required
- English language skills as evidenced by application materials determine associate degree options.

For the AAS Degree Leading to Bachelor's Degree (Associate+Bachelor's Program)

- 2 years of math required; students interested in engineering, math and science transfer programs should have three or more years of math.
- 1 year of science required; students interested in engineering, math and science transfer programs should have two or more years of science.
- Physics is recommended for students interested in engineering.
- English language skills as evidenced by application materials determine associate degree options.

Specific English, Mathematics, and Science Requirements and other Recommendations

Successful completion of a sampling experience offered during the Summer Vestibule Program and during the academic year is required. The sampling activities provide opportunities for students to learn about the visual communications field, identify career opportunities, and evaluate their interest and aptitude for a degree program.

- English: Placement into the Critical Reading and Writing (UWRT-100) course.
- Mathematics: Placement into the Mathematics in Society (NMTH-140) course. Typically, students entering this major will have completed at least two years of high school mathematics.
- Science: Typically, students entering this major will have completed at least two years of high school science.
- ACT (optional): The ACT middle 50% composite score is 14-17.

Accounting Technology, AAS

www.rit.edu/study/accounting-technology-aas
Mark Pfuntner, Chairperson
585-286-4640 (V/VP), mjpnvd@rit.edu

Program overview

The accounting technology program prepares you for a career in accounting-related occupations. You'll learn the functions of the complete accounting cycle for service, merchandising, and manufacturing businesses. As a graduate of the program, you'll use computers to maintain and reconcile various financial records, verify business records, and perform other clerical and administrative duties. This program is available for qualified deaf and hard of hearing students.

Accounting technology, offered by RIT's National Technical Institute for the Deaf, is available as an associate in applied science (AAS) degree or as an Associate+Bachelor's Degree Program.

The AAS degree in accounting technology is a career-focused degree program that leads to immediate entry into well-paying careers at the paraprofessional or technician level.

The Associate+Bachelor's Degree Program in accounting technology prepares you to complete an RIT bachelor's degree. In this option, upon successful completion of the AAS degree in accounting technology, provided you maintain a 2.5 or higher grade point average in the program, you will enroll into RIT's School of Individualized Study where you can pursue a bachelor's degree in applied arts and science.

Learn more about the benefits of pursuing an Associate+Bachelor's Degree Program.

Microsoft Certification

NTID's business studies department operates an authorized testing center for Microsoft Office Specialist. Preparatory courses are offered for several exams each semester.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the accounting technology program are required to complete a cooperative education experience prior to graduation. You may schedule your co-op after completing your second-year academic requirements.

Curriculum

Accounting technology, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NACC-130	Personal Finance	3
NACC-201	Accounting 1	3
NAST-140	Essential Document Production	3
NAST-150	Advanced Document Production	3
NAST-160	Fundamentals of Spreadsheet Applications	3
NBUS-200	Orientation to Business	3
NCAR-010	Freshman Seminar	0
	General Education – Elective*	3
	General Education – Elective†	3
	General Education – Ethical Perspective*	3
	General Education – First Year Writing (WI)	3
Second Year		
NACC-202	Accounting 2	3
NACC-203	Accounting 3	3
NACC-299	Co-op: Accounting Technology/Business Technology	0
NAST-210	Essentials of Business Communication	3
NAST-215	Integrated Document Production	3
NAST-220	Fundamentals of Database Applications	3
NBUS-213	Applied Ethics	3
NBUS-217	Fundamentals of Management	3
	General Education – Artistic Perspective*	3
	General Education – Global Perspective*	3
	General Education – Social Perspective*	3
Third Year		
NACC-204	Accounting Capstone	3
NBUS-220	Introduction to Economics	3
NBUS-223	Fundamentals of Marketing	3
	Open Elective*	3
	General Education – Scientific Principles Perspective	3
Total Semester Credit Hours		**75**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
* An ASL-Deaf Cultural Studies (AASASLDCS) course is required for graduation. It can be taken in any semester and can be taken at NTID or another college of RIT. In order to fulfill this requirement as part of the credit hours in the program, it can be a course approved for both AASASLDCS and a General Education – Perspective or General Education – Elective or it can be used to fulfill an Open Elective.
† Any mathematics course numbered NMTH-140 or higher.

Admission requirements

For the career-focused AAS Degree

- 2 years of math required
- 1 year of science required
- English language skills as evidenced by application materials determine associate degree options.

For the AAS Degree Leading to Bachelor's Degree (Associate+Bachelor's Program)

- 2 years of math required; students interested in engineering, math and science transfer programs should have three or more years of math.
- 1 year of science required; students interested in engineering, math and science transfer programs should have two or more years of science.
- Physics is recommended for students interested in engineering.
- English language skills as evidenced by application materials determine associate degree options.

Specific English, Mathematics, and Science Requirements and other Recommendations

- English: Placement into a First Year Writing course, such as FYW: Writing Seminar (UWRT-150). Students typically enter First Year Writing with reading scores equivalent to 130 or higher on the NTID Reading Test and writing scores of 67 or higher on the NTID Writing Test. However, students who complete AAS degrees typically enter NTID with reading scores above 98 on the NTID Reading Test and writing scores above 50 on the NTID Writing Test.
- Mathematics: Any math course numbered NMTH-120 or higher is required. Typically, students entering this program will have completed at least two years of high school mathematics.
- Science: Typically, students entering this major will have completed at least two years of high school science.
- ACT: For the Career-Focused AAS degree, the ACT middle 50% composite score is 14-17. For the Associate+Bachelor AAS degree, the ACT middle 50% composite score is 18-21 (optional).

Administrative Support Technology, AAS

www.rit.edu/study/administrative-support-technology-aas
Mark Pfuntner, Chairperson
585-286-4640 (V/VP), mjpnvd@rit.edu

Program overview

In the administrative support technology program you will receive a foundation in computer software applications, business office procedures, and document preparation as well as opportunities to develop appropriate professional interpersonal and human relations skills. You'll be prepared for a career in a variety of business settings that include government, education, corporate settings, health care, and more This program is available for qualified deaf and hard of hearing students.

The administrative support technology program, offered by RIT's National Technical Institute for the Deaf, provides students with opportunities to develop skills needed in processing information using a variety of integrated office software applications as well as appropriate professional interpersonal communication skills. Graduates will input, manipulate, and retrieve data; use interactive office software and e-mail; learn information processing skills for applications such as word processing, spreadsheet, presentation, and database; and perform other office duties.

The administrative support technology is available as an associate in applied science (AAS) degree or as an Associate+Bachelor's Degree Program.

The AAS degree in administrative support technology is a career-focused degree program that leads to immediate entry into well-paying careers at the paraprofessional or technician level.

The Associate+Bachelor's Degree Program in administrative support technology prepares you to complete an RIT bachelor's degree. In this option, upon successful completion of the AAS degree in administrative support technology, provided you maintain a 2.5 or higher grade point average in the program, you will enroll into RIT's School of Individualized Study, where you can pursue a bachelor's degree in applied arts and science.

Learn more about the benefits of pursuing an Associate+Bachelor's Degree Program.

Microsoft Certification

NTID's business studies department operates an authorized testing center for Microsoft Office Specialist. Preparatory courses are offered for several exams each semester.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the administrative support technology program are required to complete a cooperative education work experience prior to graduation. You may schedule your co-op after completing your second-year academic requirements.

Curriculum

Administrative Support Technology, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NACC-130	Personal Finance	3
NACC-201	Accounting 1	3
NAST-140	Essential Document Production	3
NAST-150	Advanced Document Production	3
NAST-160	Fundamentals of Spreadsheet Applications	3
NBUS-200	Orientation to Business	3
NCAR-010	Freshman Seminar	0
	General Education - Elective*	3
	General Education - Elective†	3
	General Education - Ethical Perspective*	3
	General Education - First Year Writing (WI)	3
Second Year		
NAST-210	Essentials of Business Communication	3
NAST-215	Integrated Document Production	3
NAST-220	Fundamentals of Database Applications	3
NAST-225	Fundamentals of Graphic Applications	3
NAST-240	Administrative Support Technology Seminar	3
NAST-299	Co-op: Administrative Support Technology/Business Technology	0
NBUS-213	Applied Ethics	3
NBUS-217	Fundamentals of Management	3
	General Education - Global Perspective*	3
	General Education - Social Perspective*	3
	General Education - Scientific Principles Perspective	3
Third Year		
NAST-230	Fundamentals of Desktop Publishing	3
NBUS-221	Essentials of Human Resource Management	3
NBUS-223	Fundamentals of Marketing	3
	Open Elective	3
	General Education - Artistic Perspective*	3
Total Semester Credit Hours		**75**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
* An ASL-Deaf Cultural Studies (AASASLDCS) course is required for graduation. It can be taken in any semester and can be taken at NTID or another college of RIT. In order to fulfill this requirement as part of the credit hours in the program, it can be a course approved for both AASASLDCS and a General Education - Perspective or General Education - Elective or it can be used to fulfill an Open Elective.
† Any mathematics course numbered NMTH-140 or higher.

Admission requirements

For the career-focused AAS Degree

- 2 years of math required
- 1 year of science required
- English language skills as evidenced by application materials determine associate degree options.

For the AAS Degree Leading to Bachelor's Degree (Associate+Bachelor's Program)

- 2 years of math required; students interested in engineering, math and science transfer programs should have three or more years of math.
- 1 year of science required; students interested in engineering, math and science transfer programs should have two or more years of science.
- Physics is recommended for students interested in engineering.
- English language skills, as evidenced by application materials, determine associate degree options.

Specific English, Mathematics, and Science Requirements and other Recommendations

- English: Placement into a First Year Writing course, such as FYW: Writing Seminar (UWRT-150). Students typically enter First Year Writing with reading scores equivalent to 130 or higher on the NTID Reading Test and writing scores of 67 or higher on the NTID Writing Test. However, students who complete AAS degrees typically enter

NTID with reading scores above 98 on the NTID Reading Test and writing scores above 50 on the NTID Writing Test.
- Mathematics: Mathematics course NMTH-120 or higher is required. Typically, students entering this program will have completed at least two years of high school mathematics.
- Science: Typically, students entering this program will have completed at least two years of high school science.
- ACT: For the Career-Focused AAS degree, the ACT middle 50% composite score is 14-17. For the Associate+Bachelor AAS degree, the ACT middle 50% composite score is 18-21 (optional).

Applied Computer Technology, AAS

www.rit.edu/study/applied-computer-technology-aas
Brian Trager, Department Chair
585-286-5318, brian.trager@rit.edu

Program overview

Computers are important to all parts of the economy, and the number of careers that involve work with computers is constantly expanding. Students in the associate in applied science (AAS) degree program in applied computer technology take courses to prepare them for careers that involve maintaining computer software and hardware, installing and maintaining computer networks, and working with a variety of computer applications. This program is available for qualified deaf and hard of hearing students.

The associate in applied science (AAS) degree in applied computer technology, offered by RIT's National Technical Institute for the Deaf, leads to immediate entry-level positions in the computing industry. It prepares you for a career in computer support occupations that involves:
- Installing, maintaining, upgrading and repairing computer hardware and software.
- Networking and security that allows computers to be secured and safely communicate and share resources with one another.

Concentrations

As a student in the applied computer technology program, you will select an area to specialize in by choosing a program concentration in either computer technical support or networking and cyber security.

Computer Technical Support Concentration: If you select this concentration, you will develop skills specific to working with people to solve their computer-related problems. These skills prepare you to work at a help desk responding to client's computer problems, and perform setup, upgrades and repairs to computers and computer peripherals.

Networking and Cyber Security Concentration: If you select this concentration, you will develop skills specific to network and network security support, including server set-up, support and administration; network set-up, troubleshooting and repair; identifying and implementing security policies; and installing appropriate hardware and software to support a secure and robust network.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the applied computer technology program are required to complete a cooperative education work experience prior to graduation. You may schedule your co-op after completing your second-year academic requirements.

Curriculum

Applied Computer Technology (computer technical support concentration), AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NACT-150	Intro to PC Hardware	3
NACT-151	Windows Operating Systems	3
NACT-155	Non-Windows Operating Systems	3
NACT-160	Networking Essentials	3
NACT-161	Client-Server Networks	3
NACT-170	Intro to Web Development	3
NCAR-010	Freshman Seminar	0
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar (WI)	3
	General Education – Elective†	3
	General Education – Elective‡	3
	General Education – Ethical Perspective†	3
Second Year		
NACT-200	Help Desk Support	3
NACT-230	Introduction to Programming	3
NACT-235	Intro to Database Applications	3
NACT-240	The World of Work	3
NACT-250	Computer and Data Security	3
NACT-251	Digital Systems Integration	3
NACT-295	ACT Technical Capstone	3
NACT-299	Co-op: Applied Computer Tech	0
	General Education - Artistic Perspective†	3
	General Education - Global Perspective†	3
	General Education - Social Perspective†	3
Third Year		
NACT-252	Server Management and Security	3
	ACT Program Electives**	6
	General Education – Scientific Principles Perspective	3
Total Semester Credit Hours		**72**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
† An ASL-Deaf Cultural Studies (AASASLDCS) course is required for graduation. It can be taken in any semester and can be taken at NTID or another college of RIT. In order to fulfill this requirement as part of the credit hours in the program, it can be a course approved for both AASASLDCS and General Education - Perspective or General Education - Elective.
‡ NTID mathematics course NMTH-120 or higher. It is recommended that students take NMTH-140 Mathematics in Society.
** Please see list of ACT program electives below.

Applied Computer Technology (networking and cyber security concentration), AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NACT-150	Intro to PC Hardware	3
NACT-151	Windows Operating Systems	3
NACT-155	Non-Windows Operating Systems	3
NACT-160	Networking Essentials	3
NACT-161	Client-Server Networks	3
NACT-170	Intro to Web Development	3
NCAR-010	Freshman Seminar	0
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar (WI)	3
	General Education – Elective†	3
	General Education – Elective‡	3
	General Education – Ethical Perspective†	3
Second Year		
NACT-200	Help Desk Support	3
NACT-230	Introduction to Programming	3
NACT-235	Intro to Database Applications	3
NACT-240	The World of Work	3
NACT-260	LAN WAN Design	3
NACT-261	Network Security	3
NACT-295	ACT Technical Capstone	3
NACT-299	Co-op: Applied Computer Tech	0
	General Education – Artistic Perspective†	3
	General Education – Global Perspective†	3
	General Education – Social Perspective†	3
Third Year		
NACT-262	Fundamentals of System Administration	3
	ACT Program Electives**	6
	General Education – Scientific Principles Perspective	3
Total Semester Credit Hours		**72**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
† An ASL-Deaf Cultural Studies (AASASLDCS) course is required for graduation. It can be taken in any semester and can be taken at NTID or another college of RIT. In order to fulfill this requirement as part of the credit hours in the program, it can be a course approved for both AASASLDCS and General Education - Perspective or General Education - Elective.
‡ NTID mathematics course NMTH-120 or higher. It is recommended that students take NMTH-140 Mathematics in Society.
** Please see list of ACT program electives below.

ACT program electives

NACC-130	Personal Finance
NACT-250	Computer and Data Security§
NACT-251	Digital Systems Integration§
NACT-255	A+ Certification Prep
NACT-260	LAN WAN Design†
NACT-261	Network Security†
NACT-265	Network+ Certification Prep
NACT-266	Network Defense Technologies
NACT-270	Web Applications
NACT-271	Client-Side Scripting
NAIS-130	Raster and Vector Graphics
NAIS-160	Web Design I
NBUS-200	Orientation to Business
NBUS-227	Principles of Marketing
NGRP-220	Videography

§ Students taking the NCS concentration may take this course from the CTS concentration as an elective.
† Students taking the CTS concentration may take this course from the NCS concentration as an elective.

Admission requirements

For the career-focused AAS Degree

- 2 years of math required
- 1 year of science required
- English language skills as evidenced by application materials determine associate degree options.

Specific English, Mathematics and Science Requirements and other Recommendations

Successful completion of a sampling experience in applied computer technology, either through the Summer Vestibule Program or equivalent career exploration course, is a prerequisite for this program, as are the following:

- English: Placement into a First Year Writing course, such as the FYW: Writing Seminar (UWRT-150). Students typically enter First Year Writing with reading scores equivalent to 130 or higher on the NTID Reading Test and writing scores of 67 or higher on the NTID Writing Test. However, students who complete AAS degrees typically enter NTID with reading scores above 98 on the NTID Reading Test and writing scores above 50 on the NTID Writing Test.
- Mathematics: Placement into Mathematics in Society (NMTH-140) or a higher-level course. Typically, students entering this program will have completed at least three years of high school mathematics.
- Science: Typically, students entering this major will have completed at least two years of high school science.
- ACT (optional): The ACT middle 50% composite score is 14-17.

Applied Computer Technology, AOS

www.rit.edu/study/applied-computer-technology-aos
Brian Trager, Department Chair
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Program overview

Computers are important to all parts of the economy, and the number of careers that involve work with computers is constantly expanding. Students in the associate in occupational studies (AOS) degree program in applied computer technology take courses to prepare them for careers that involve maintaining computer software and hardware, installing and maintaining computer networks, and working with a variety of computer applications. This program is available for qualified deaf and hard of hearing students.

The associate in occupational studies (AOS) degree in applied computer technology, offered by RIT's National Technical Institute for the Deaf, leads to immediate entry-level positions in the computing industry. It prepares you for a career in computer support occupations that involves:

- Installing, maintaining, upgrading and repairing computer hardware and software.
- Networking and security that allows computers to be secured and safely communicate and share resources with one another.

Concentrations

As a student in the applied computer technology program, you will select an area to specialize in by choosing a program concentration in either computer technical support or networking and cyber security.

Computer Technical Support Concentration: If you select this concentration, you will develop skills specific to working with people to solve their computer-related problems. These skills prepare you to work at a help desk responding to client's computer problems, and perform setup, upgrades and repairs to computers and computer peripherals.

Networking and Cyber Security Concentration: If you select this concentration, you will develop skills specific to network and network security support, including server set-up, support and administration; network set-up, troubleshooting and repair; identifying and implementing security policies; and installing appropriate hardware and software to support a secure and robust network.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the applied computer technology program are required to complete a cooperative education work experience prior to graduation. You may schedule your co-op after completing your second-year academic requirements.

Curriculum

Applied Computer Technology (computer technical support concentration), AOS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NACT-150	Intro to PC Hardware	3
NACT-151	Windows Operating Systems	3
NACT-155	Non-Windows Operating Systems	3
NACT-160	Networking Essentials	3
NACT-161	Client-Server Networks	3
NACT-170	Intro to Web Development	3
NCAR-010	Freshman Seminar	0
NENG-212	NTID General Education Foundation – Career English: Career English I	3
NENG-213	NTID General Education Foundation – Career English: Career English II	3
	NTID General Education Foundation – Mathematics†	3
Second Year		
NACT-200	Help Desk Support	3
NACT-230	Introduction to Programming	3
NACT-235	Intro to Database Applications	3
NACT-240	The World of Work	3
NACT-250	Computer and Data Security	3
NACT-251	Digital Systems Integration	3
NACT-295	ACT Technical Capstone	3
NACT-299	Co-op: Applied Computer Tech	0
	NTID General Education – Perspective‡	3
Third Year		
NACT-252	Server Management and Security	3
	ACT Program Electives§	6
	NTID General Education – Perspective‡	3
Total Semester Credit Hours		**63**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
† NTID mathematics course NMTH-120 or higher. It is recommended that students take NMTH-140 Mathematics in Society. Students who place above NMTH-140 can take math or a 3-credit course from any non-science perspective category.
‡ NTID General Education Perspective courses may be from any of these three Perspective categories: ASL-Deaf Cultural Studies; Communication, Social & Global Awareness; and Creative and Innovative Exploration.
§ Please see list of ACT program electives below.

Applied Computer Technology (networking and cyber security concentration), AOS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NACT-150	Intro to PC Hardware	3
NACT-151	Windows Operating Systems	3
NACT-155	Non-Windows Operating Systems	3
NACT-160	Networking Essentials	3
NACT-161	Client-Server Networks	3
NACT-170	Intro to Web Development	3
NCAR-010	Freshman Seminar	0
NENG-212	NTID General Education Foundation – Career English: Career English I	3
NENG-213	NTID General Education Foundation – Career English: Career English II	3
	NTID General Education Foundation – Mathematics†	3
Second Year		
NACT-200	Help Desk Support	3
NACT-230	Introduction to Programming	3
NACT-235	Intro to Database Applications	3
NACT-240	The World of Work	3
NACT-260	LAN WAN Design	3
NACT-261	Network Security	3
NACT-295	ACT Technical Capstone	3
NACT-299	Co-op: Applied Computer Tech	0
	NTID General Education – Perspective‡	3
Third Year		
NACT-262	Fundamentals of System Administration	3
	ACT Program Electives§	6
	NTID General Education – Perspective‡	3
Total Semester Credit Hours		**63**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
† NTID mathematics course NMTH-120 or higher. It is recommended that students take NMTH-140 Mathematics in Society. Students who place above NMTH-140 can take math or a 3 credit-course from any non-science perspective category
‡ NTID General Education Perspective courses may be from any of these three Perspective categories: ASL-Deaf Cultural Studies; Communication, Social & Global Awareness; and Creative and Innovative Exploration.
§ Please see list of ACT program electives below.

ACT program electives

NACC-130	Personal Finance
NACT-250	Computer and Data Security§
NACT-251	Digital Systems Integration§
NACT-255	A+ Certification Prep
NACT-260	LAN WAN Design†
NACT-261	Network Security†
NACT-265	Network+ Certification Prep
NACT-266	Network Defense Technologies
NACT-270	Web Applications
NACT-271	Client-Side Scripting
NAIS-130	Raster and Vector Graphics
NAIS-160	Web Design I
NBUS-200	Orientation to Business
NBUS-227	Principles of Marketing
NGRP-220	Videography

§ Students taking the NCS concentration may take this course from the CTS concentration as an elective.
† Students taking the CTS concentration may take this course from the NCS concentration as an elective.

Admission requirements

For the career-focused AOS Degree

- 2 years of math required
- 1 year of science required
- English language skills as evidenced by application materials determine associate degree options.

Specific English, Mathematics, and Science Requirements and other Recommendations

Successful completion of a sampling experience in applied computer technology, either through the Summer Vestibule Program or equivalent career exploration course, is a prerequisite for this program, as are the following:

- English: Placement into Career English I (NENG-212) or above. Students successfully completing the AOS degree typically enter with reading scores of 79 or higher on the NTID Reading Test and writing scores of 39 or higher on the NTID Writing Test.
- Mathematics: Placement into Mathematics in Society (NMTH-140) or a higher-level course. Typically, students entering this major will have completed at least three years of high school mathematics.
- Science: Typically, students entering this major will have completed at least two years of high school science.
- ACT (optional): The ACT middle 50% composite score is 14-17.

Applied Computer Technology, AS

www.rit.edu/study/applied-computer-technology-as

Brian Trager, Department Chair
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Program overview

The associate in science (AS) in applied computer technology is an associate+bachelor's degree program designed to prepare deaf and hard-of-hearing students to enter and successfully complete a bachelor's degree in RIT's Golisano College of Computing and Information Sciences. This program is available for qualified deaf and hard of hearing students.

The associate of science degree in applied computer technology is an Associate+Bachelor's Degree Program, offered by RIT's National Technical Institute for the Deaf, that prepares students to enter and successfully complete a bachelor's degree program. The program offers you unparalleled academic support and students strengthen their skills by taking courses taught by NTID faculty.

You start with an AS is applied computer technology that provides you with the courses and credit you need to enroll in and successfully complete a bachelor's degree program. Upon completion of your AS in applied computer technology, provided you maintain a 2.8 or higher grade point average in the program, you will enroll in RIT's Golisano College of Computing and Information Sciences, where you can choose to complete a bachelor's degree in computing and information technologies, human-centered computing, or web and mobile computing.*

As a graduate of the Associate+Bachelor's Degree Program, you will be prepared for a variety of entry-level jobs in the computer support area including:

- Networking and System Administrator
- Web and Multimedia Content Developer
- Programming and Application Developer
- Wireless Data Networking Administrator

* Effective as of academic year 2018-2019 the web and mobile computing concentration in the applied computer technology AS program will not be offered. Students interested in a bachelor's degree in web and mobile computing should begin their studies through enrollment in the mobile application development AAS program.

Curriculum

Applied Computer Technology (computing and information technologies concentration), AS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-131	General Education – Elective: Discrete Mathematics	4
NACA-160	Programming Fundamentals I	3
NACA-161	Programming Fundamentals II	3
NACA-172	Website Development	3
NCAR-010	Freshman Seminar	0
NMTH-275	General Education – Elective: Advanced Mathematics	3
NSSA-102	Computer Systems Concepts	3
UWRT-100	General Education – Elective: Critical Reading and Writing†	3
	General Education – Artistic Perspective	3
	General Education – Scientific Principles Perspective	3
Choose one of the following:		3
ISTE-110	General Education – First Year Writing: FYW: Ethics in Computing	
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar	
Second Year		
ISTE-121	Computational Problem Solving in the Information Domain II	4
ISTE-190	Foundations of Modern Information Processing	3
ISTE-230	Introduction to Database and Data Modeling	3
ISTE-240	Web & Mobile II	3
MATH-161	General Education – Elective: Applied Calculus	4
NSSA-220	Task Automation Using Interpretive Languages	3
NSSA-241	Introduction to Routing and Switching	3
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Total Semester Credit Hours		**63**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
† Critical Reading and Writing (UWRT-100) is required based on placement. Students who satisfy the placement requirement may take any General Education Elective.

Applied computer technology (human-centered computing concentration), AS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NACA-160	Programming Fundamentals I	3
NACA-161	Programming Fundamentals II	3
NACA-172	Website Development	3
NCAR-010	Freshman Seminar	0
NMDE-111	New Media Design Digital Survey I‡	3
NMTH-275	General Education – Elective: Advanced Mathematics	3
PSYC-223	General Education – Elective: Cognitive Psychology	3
PSYC-101	General Education – Scientific Principles Perspective: Introduction to Psychology	3
STAT-145	General Education – Elective: Introduction to Statistics I	3
UWRT-100	General Education – Elective: Critical Reading and Writing†	3
Choose one of the following:		3
ISTE-110	General Education – First Year Writing: FYW: Ethics in Computing (WI)	
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar	
Second Year		
ISTE-121	Computational Problem Solving in the Information Domain II	4
ISTE-240	Web & Mobile II	3
ISTE-252	Foundations of Mobile Design	3
ISTE-262	Foundations of Human Centered Computing	3
PSYC-250	Research Methods I	3
STAT-146	General Education – Elective: Introduction to Statistics II	4
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Total Semester Credit Hours		**63**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
† Critical Reading and Writing (UWRT-100) is required based on placement. Students who satisfy the placement requirement may take any General Education Elective.
‡ Raster and Vector Graphics (NAIS-130) AS/BS Section (only) may be substituted for NMDE-111.

Applied Computer Technology (web and mobile computing concentration), AS degree, typical course sequence‡

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-131	General Education – Elective: Discrete Mathematics	4
NACA-160	Programming Fundamentals I	3
NACA-161	Programming Fundamentals II	3
NACA-172	Website Development	3
NCAR-010	Freshman Seminar	0
NMDE-111	New Media Design Digital Survey I§	3
NMTH-275	General Education – Elective: Advanced Mathematics	3
UWRT-100	General Education – Elective: Critical Reading and Writing†	3
	General Education – Artistic Perspective	3
	General Education – Scientific Principles Perspective	3
Choose one of the following:		3
ISTE-110	General Education – First Year Writing: FYW: Ethics in Computing	
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar	
Second Year		
ISTE-121	Computational Problem Solving in the Information Domain II	4
ISTE-222	Computational Problem Solving in the Information Domain III	3
ISTE-230	Introduction to Database and Data Modeling	3
ISTE-240	Web & Mobile II	3
ISTE-260	Designing the User Experience	3
MATH-161	General Education – Elective: Applied Calculus	3
NSSA-290	Networking Essentials for Developers	3
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Total Semester Credit Hours		**62**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
† Critical Reading and Writing (UWRT-100) is required based on placement. Students who satisfy the placement requirement may take any General Education Elective.
‡ Effective as of academic year 2018-19, the web and mobile computing concentration in the applied computer technology AS program will not be offered. Students interested in a bachelor's degree in web and mobile computing should begin their studies through enrollment in the mobile application development AAS program.
§ Raster and Vector Graphics (NAIS-130) AS/BS Section (only) may be substituted for NMDE-111.

Admission requirements

For the AS Degree Leading to Bachelor's Degree (Associate+Bachelor's Program)

- 2 years of math required; students interested in engineering, math and science transfer programs should have three or more years of math.
- 1 year of science required; students interested in engineering, math and science transfer programs should have two or more years of science.
- Physics is recommended for students interested in engineering.
- English language skills as evidenced by application materials determine associate degree options.

Specific English and Mathematics Requirements and other Recommendations

The following prerequisites are necessary for admission into the applied computer technology AS major:

- English: Placement into a First Year Writing course, such as FYW: Writing Seminar (UWRT-150).
- Mathematics: Entrance into NTID's NMTH-275 Advanced Math.
- ACT (optional): The ACT middle 50% composite score is 18-21

Applied Liberal Arts, AS

www.rit.edu/study/applied-liberal-arts-as

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Program overview

The associate in science (AS) degree in applied liberal arts is designed to prepare deaf and hard-of-hearing students to enter and successfully complete a bachelor's degree in RIT's College of Liberal Arts. This program is available for qualified deaf and hard of hearing students.

Applied liberal arts is an Associate+Bachelor's Degree Program, offered by RIT's National Technical Institute for the Deaf, that prepares students to enter and successfully complete a bachelor's degree program. The program offers you unparalleled academic support and students strengthen their skills by taking courses taught by NTID faculty.

By the end of the first year, students choose a College of Liberal Arts major they wish to enroll in after completing the AS degree. During the second year, students take four professional courses in their chosen liberal arts major. In addition, as a part of the AS course work, students complete one mathematics and one science course to meet the graduation requirements of their major.

You'll start with an AS in applied liberal arts, which provides you with the courses and credits you need to enroll in and successfully complete a bachelor's program in RIT's College of Liberal Arts. Upon completion of your AS program, provided you earn a cumulative grade point average of 2.5 or higher, you will enroll in RIT's College of Liberal Arts, where you can choose to complete a bachelor's degree in advertising and public relations, applied modern language and culture, communication, criminal justice, digital humanities and social sciences, economics, international and global studies, journalism, museum studies, philosophy, political science, psychology, public policy, or sociology and anthropology.

Learn more about the benefits of pursuing an Associate+Bachelor's Degree Program.

Curriculum

Applied Liberal Arts, AS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
NMTH-250	General Education – Elective: Elementary Statistics	3
UWRT-100	General Education – Elective: Critical Reading and Writing	3
	General Education – Scientific Principles Perspective†	3
	General Education Foundation – Mathematics‡	3
	NTID General Education - Elective	3
	General Education – Elective	3
	General Education – First Year Writing (WI)	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Second Year		
	Professional Electives**	12
	General Education – Ethical Perspective	3
	General Education – Electives‡	6
	General Education – Immersion 1, 2, 3	9
Total Semester Credit Hours		**60**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
† NTID science course numbered NSCI-250 or higher, or College of Science course required by chosen professional area.
‡ Mathematics and science courses as required by chosen professional area.
** Four courses in a College of Liberal Arts professional area of study.

Admission requirements

For the AS Degree Leading to Bachelor's Degree (Associate+Bachelor's Program)

- 2 years of math required; students interested in engineering, math and science transfer programs should have three or more years of math.
- 1 year of science required; students interested in engineering, math and science transfer programs should have two or more years of science.
- Physics is recommended for students interested in engineering.
- English language skills as evidenced by application materials determine associate degree options.

Specific English, Mathematics, and Science Requirements and other Recommendations

- English: Placement into Critical Reading and Writing (UWRT-100), or a First Year Writing course, such as FYW: Writing Seminar (UWRT-150).
- Mathematics: Placement into NMTH-250 or higher from NTID, RIT's College of Science, or another RIT college. Students will enroll in the mathematics course required by their prospective baccalaureate program. Typically, students entering this major will have completed at least three years of high school mathematics.
- Science: Readiness for NSCI-250 or higher from NTID, RIT's College of Science, or another RIT college. Students will enroll in the science course required by their prospective baccalaureate program. Typically, students entering this program will have completed at least two years of high school science.
- ACT (optional): The ACT middle 50% composite score is 18-21.

Applied Mechanical Technology, AAS

www.rit.edu/study/applied-mechanical-technology-aas

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Program overview

The associate in applied science (AAS) in applied mechanical technology is an Associate+Bachelor's degree program that prepares students to enter and successfully complete a bachelor's degree program in RIT's College of Engineering Technology. The program offers you unparalleled academic support and students strengthen their skills by taking courses taught by NTID faculty. This program is available for qualified deaf and hard of hearing students.

You'll start with an AAS degree in applied mechanical technology through RIT's National Technical Institute for the Deaf, which provides you with the courses and credit you need to enroll in an RIT bachelor's degree program. Upon completion of your AAS program, provided you maintain a 2.5 grade point average or higher, you will enroll in RIT's College of Engineering Technology, where you can major either in electrical mechanical engineering technology, mechanical engineering technology, or robotics and manufacturing engineering technology

Students who graduate in good standing and have maintained a grade of C or better in the six "NETS" courses should be well prepared for RIT's College of Engineering Technology.

Learn more about the benefits of pursuing an Associate+Bachelor's Degree Program.

Curriculum

Applied Mechanical Technology, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-131	General Education – Elective: General Chemistry for Engineers	3
MATH-171	General Education – Elective: Calculus A	3
MATH-172	General Education – Elective: Calculus B	3
NCAR-010	Freshman Seminar	0
NETS-101	Fundamentals of Engineering	3
NETS-110	Foundations of Materials	2
NETS-111	Foundations of Materials Lab	1
NETS-120	Manufacturing Processes	3
NETS-150	Mechanical Design & Fabrication	3
NETS-151	Mechanical Design & Fabrication Lab	1
PHYS-111	General Education – Scientific Principles Perspective: College Physics I	4
UWRT-100	Critical Reading and Writing	3
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar (WI)	3
Second Year		
EEET-215	Circuits and Electronics	2
EEET-216	Circuits and Electronics Laboratory	1
MATH-211	Elements of Multivariable Calculus and Differential Equations	3
MCET-210	Foundations of Non-Metallic Materials	2
MCET-211	Characterization of Non-Metallic Materials Lab	1
MCET-220	Principles of Statics	3
MCET-221	Strength of Materials	4
PHYS-112	General Education – Elective: College Physics II	4
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Total Semester Credit Hours		**64**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.

Admission requirements

For the AAS Degree Leading to Bachelor's Degree (Associate+Bachelor's Program)

- 2 years of math required; students interested in engineering, math and science transfer programs should have three or more years of math.
- 1 year of science required; students interested in engineering, math and science transfer programs should have two or more years of science.
- Physics is recommended for students interested in engineering.
- English language skills, as evidenced by application materials, determine associate degree options.

Specific Requirements

- English: Placement into a First Year Writing course, such as FYW: Writing Seminar (UWRT-150) or Critical Reading and Writing (UWRT-100).
- Mathematics: Entrance into NTID's Advanced Math (NMTH-275) or higher, such as Pre-calculus (MATH-111).
- Science: Entrance into the College of Science's College Physics I (PHYS-111) course; however, students who did not take physics in high school are recommended to take a bridging physics course at NTID, such as Concepts of College Physics (NSCI-270).
- ACT (optional): The ACT middle 50% composite score is 18-21.

Architectural and Civil Drafting Technology, AAS

www.rit.edu/study/computer-aided-drafting-technology-aas
Dino Laury, Chairperson
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Program overview

People who work in architectural and civil drafting technology use their skills to create two- and three-dimensional drawings on the computer. These drawings are used to visually represent buildings, bridges, canals, and houses. This program is available for qualified deaf and hard of hearing students.

The associate in applied science (AAS) in architectural and civil drafting technology (formerly known as computer aided drafting technology), offered by RIT's National Technical Institute for the Deaf, will prepare you for a rewarding career as a CAD technician. The program provides you with the skills to become a support technician in the architecture, engineering and construction field. You might work with architects or engineers on projects such as buildings, highways, or bridges. Construction companies and building suppliers also hire CAD technicians.

CAD operators, also called CAD technicians, take the sketches of an engineer, architect, or designer and produce a set of technical drawings. In addition to a strong emphasis on computer-aided drafting, the major provides you with a background in mathematics, building systems, construction regulations, site utilities, and materials and methods used in the architecture, engineering, and construction industries.

The AAS degree in architectural and civil drafting technology prepares students to find immediate employment upon graduation or to continue their education by working towards a bachelor's degree. Transfer requirements into RIT's bachelor degree programs vary by program.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the architectural and civil drafting technology program are required to complete a cooperative education work experience prior to graduation. You may schedule your co-op after completing your second-year academic requirements.

Curriculum

Architectural and Civil Drafting Technology, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
NCAD-108	Data Collection & Analysis	3
NCAD-112	Computing Tools for Engineering Technology	3
NCAD-150	Engineering Graphics in AEC	3
NCAD-170	Construction CAD I	3
NCAD-180	Civil Technology Graphics	3
NMTH-220	General Education – Elective: Trigonometry	3
NMTH-275	Advanced Mathematics	3
	General Education – Elective*	3
	General Education – Ethical Perspective*	3
	General Education – First-Year Writing (WI)	3

COURSE		SEMESTER CREDIT HOURS
Second Year		
NCAD-201	Job Search Process for CADT	3
NCAD-220	Construction CAD II	3
NCAD-230	Construction CAD III	3
NCAD-245	Energy Modeling for Sustainable Construction	3
NCAD-255	Construction Material and Methods I	3
NCAD-265	Construction Materials and Methods II	3
NCAD-275	Principles of Structural Systems	3
NCAD-285	MEP Systems	3
NCAD-299	Co-op: CADT	0
NSCI-201	General Education – Scientific Principles Perspective: Principles of Physics	3
	General Education – Artistic Perspective*	3
Third Year		
NCAD-240	Advanced Construction CAD	3
NCAD-250	Presentation Graphics	3
	Technical Elective†	3
	General Education – Global Perspective*	3
	General Education – Social Perspective*	3
Total Semester Credit Hours		**75**

Please see the NTID General Education Curriculum (GE) for more information.

Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.

* An ASL-Deaf Cultural Studies (AASASLDCS) course is required for graduation. It can be taken in any semester and can be taken at NTID or another college of RIT. In order to fulfill this requirement as part of the credit hours in the program, it can be a course approved for both AASASLDCS and a General Education – Perspective or General Education – Elective.

† Choose one from the following list of courses, or another course by departmental approval, Principles of Design and Color (NAIS-120), Raster and Vector Graphics (NAIS-130), Scenic and Lighting Technology (PRFN-203), Materials of Construction (CVET-140) and Materials of Construction Laboratory (CVET-141), Surveying (CVET-160) and Surveying Laboratory (CVET-161), Theatre Practicum (Lighting [PRFN-218-02] and/or Set Construction [PRFN-218-08]), GIS Fundamentals (NCAD-280). Permission required for CVET-140, 141 and CVET-160, 161.

Admission requirements

For the career-focused AAS Degree

- 2 years of math required
- 1 year of science required
- English language skills as evidenced by application materials determine associate degree options.

Specific English, Mathematics, and Science Requirements and other Recommendations

- English: Placement in a First Year Writing course, such as FYW: Writing Seminar (UWRT-150). Students typically enter First Year Writing with reading scores equivalent to 130 or higher on the NTID Reading Test and writing scores of 67 or higher on the NTID Writing Test. However, students who complete AAS degrees typically enter NTID with reading scores above 98 on the NTID Reading Test and writing scores above 50 on the NTID Writing Test.
- Mathematics: Placement in Trigonometry (NMTH-220). Typically, students entering this program will have completed at least three years of high school mathematics.
- Science: Placement into Principles of Physics (NSCI-201) or a higher level course. Typically, students entering this program will have completed at least three years of high school science. High school physics would be beneficial.
- ACT (optional): The ACT middle 50% composite score is 14-17.

Architectural and Civil Drafting Technology, AOS

www.rit.edu/study/computer-aided-drafting-technology-aos

Dino Laury, Chairperson
585-286-4613 (VP), dino@mail.rit.edu

Program overview

People who work in architectural and civil drafting technology use their skills to create two- and three-dimensional drawings on the computer. These drawings are used to visually represent buildings, bridges, canals, and houses. This program is available for qualified deaf and hard of hearing students.

The associate in occupational studies (AOS) in architectural and civil drafting technology (formerly known as computer aided drafting technology), offered by RIT's National Technical Institute for the Deaf, will prepare you for a rewarding career as a CAD technician. The program provides you with the skills to become a support technician in the architecture, engineering and construction field. You might work with architects or engineers on projects such as buildings, highways, or bridges. Construction companies and building suppliers also hire CAD technicians.

CAD operators, also called CAD technicians, take the sketches of an engineer, architect, or designer and produce a set of technical drawings. In addition to a strong emphasis on computer-aided drafting, the program provides you with a background in mathematics, building systems, construction regulations, site utilities, and materials and methods used in the architecture, engineering, and construction industries.

Graduates will enter businesses and industries that need technical employees with skills in computer aided drafting technology and a broad knowledge of applications and procedures. Graduates find work in a variety of settings, including engineering firms, government agencies, and architectural and construction firms. Positions for which graduates qualify include drafters/technicians for architectural, highway design, and civil environments.

The AOS degree in architectural and civil drafting technology prepares you to find immediate employment upon graduation.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the architectural and civil drafting technology program are required to complete a cooperative education work experience prior to graduation. You may schedule your co-op after completing your second-year academic requirements.

Curriculum

Architectural and Civil Drafting Technology, AOS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAD-108	Data Collection & Analysis	3
NCAD-112	Computing Tools for Engineering Technology	3
NCAD-150	Engineering Graphics in AEC	3
NCAD-170	Construction CAD I	3
NCAD-180	Civil Technology Graphics	3
NCAR-010	Freshman Seminar	0
NENG-212	NTID General Education Foundation – Career English: Career English I	3
NENG-213	NTID General Education Foundation – Career English: Career English II	3
NMTH-212	NTID General Education Foundation – Mathematics: Integrated Algebra	3
NMTH-220	Trigonometry	3
Second Year		
NCAD-201	Job Search Process for CADT	3
NCAD-220	Construction CAD II	3
NCAD-230	Construction CAD III	3
NCAD-245	Energy Modeling for Sustainable Construction	3
NCAD-255	Construction Material and Methods I	3
NCAD-265	Construction Materials and Methods II	3
NCAD-275	Principles of Structural Systems	3
NCAD-285	MEP Systems	3
NCAD-299	Co-op: CADT	0
NSCI-154	NTID General Education – Scientific Processes Perspective: Physics of Matter	3
Third Year		
NCAD-240	Advanced Construction CAD	3
NCAD-250	Presentation Graphics	3
	Technical Elective‡	3
	NTID General Education – Perspective†	3
Total Semester Credit Hours		**66**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
† NTID General Education Perspective course may be from any of these three Perspective categories: ASL-Deaf Cultural Studies; Communication, Social & Global Awareness; and Creative and Innovative Exploration.
‡ Choose one from the following list of courses, or another course by departmental approval, Principles of Design and Color (NAIS-120), Raster and Vector Graphics (NAIS-130), Scenic and Lighting Technology (PRFN-223), Materials of Construction (CVET-140) and Materials of Construction Laboratory (CVET-141), Surveying (CVET-160) and Surveying Laboratory (CVET-161), Theatre Practicum (Lighting [PRFN-218-02] and/or Set Construction [PRFN-218-08]), NCAD-280 GIS Fundamentals. Permission required for CVET-140, 141 and CVET-160, 161.

Admission requirements

For the career-focused AOS Degree

- 2 years of math required
- 1 year of science required
- English language skills as evidenced by application materials determine associate degree options.

Specific English, Mathematics and Science Requirements and other Recommendations

Successful completion of a sampling experience either through the Summer Vestibule Program or an equivalent career exploration course is a prerequisite, as are the following:

- English: Placement into Career English I (NENG-212) or above. Students successfully completing an AOS degree typically enter with reading scores of 79 or higher on the NTID Reading Test and writing scores of 39 or higher on the NTID Writing Test.
- Mathematics: Placement into Integrated Algebra (NMTH-212) or a higher-level course. Typically, students entering this major will have completed at least three years of high school mathematics.
- Science: Placement into Physics of Matter (NSCI-154) or a higher-level course. Typically, students entering this major will have completed at least three years of high school science. High school physics would be beneficial.
- ACT (optional): The ACT middle 50% composite score is 14-17.

ASL-English Interpretation, BS

www.rit.edu/study/asl-english-interpretation-bs
Keith Cagle, Associate Professor
kmcnss@rit.edu

Program overview

The ASL-English interpretation major prepares sign language interpreters for work in settings where deaf, hard-of-hearing, and hearing people interact and communicate. This degree allows students to develop foundation skills for general interpreting, with opportunities to explore specialized fields such as those in educational and medical settings, and/or community interpreting.

The bachelor of science degree program in American Sign Language (ASL)–English interpretation provides specialized preparation for you to develop interpreting skills as well as practical experience and course work. The program is designed to provide graduates with a solid foundation on which to develop the skills needed to pass the National Interpreter Certification exam offered through the Registry of Interpreters for the Deaf or the Educational Interpreting Performance Assessment.

Interpreting students enjoy small class sizes and one-on-one discussions and advisement with knowledgeable faculty. By keeping classes small, our instructors are able to focus on you, building your strengths and developing your skills. Faculty and staff members work with you on all aspects of interpreting. As an interpreting student, you will have practicum experiences which provide the opportunity to work with a professional interpreter acting as a mentor in a college, school, or in the community. These practicums give you real-world experiences as an interpreter. There is no better place to prepare for a career in sign language interpreting than at the National Technical Institute for the Deaf (NTID).

To succeed in this program, students must be able to understand a speaker who is behind them; understand a speaker who is far away; focus on what a speaker is saying in a noisy room; and understand recorded voices through headphones. To see a list of the major skills and abilities needed to study sign language interpreting, see "Is Interpreting the Career for Me".

Why should you pursue your interpreting degree at RIT/NTID?

- More than 1,100 Deaf and hard-of-hearing students live, study and socialize on the RIT campus with more than 8,000 hearing students, providing interpreting students like you with excellent opportunities to interact with students and enhance your language and interpreting skills as well as your experience with Deaf culture.
- The faculty of NTID's Department of American Sign Language and Interpreting Education are nationally respected interpreter educators. All of our American Sign Language classes are taught by Deaf faculty members who are certified by the American Sign Language Teachers Association, and all of our interpreting instructors are certified as sign language interpreters by the Registry of Interpreters for the Deaf and are active in the Conference of Interpreter Trainers.
- Our labs are state-of-the-art facilities with a wealth of interpreting and sign language materials.
- RIT/NTID receives special federal support for students in the interpreting program, you pay less than one-half of RIT's regular tuition rate.
- You have access to more than 100 interpreters on campus and more than 300 off campus in the Rochester community.
- Rochester has one of the largest concentrations of Deaf and hard-of-hearing residents in the United States. As an interpreting student at RIT/NTID, there are many opportunities for you to interact with Deaf and hard-of-hearing people, including numerous Deaf student clubs

and sports, the Rochester Recreation Club for the Deaf, Deaf theater and much more. Deaf culture programs also are held throughout the year on campus and at various venues in the community.
- Rochester is home to a local chapter of the Registry of Interpreters for the Deaf, which offers many skill development workshops.

Curriculum

ASL-English Interpretation, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
INTP-125	General Education – Elective: American Sign Language II	4
INTP-126	General Education – Elective: American Sign Language III	4
INTP-210	Introduction to the Field of Interpreting	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – Elective	3
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Mathematical Perspective A	3
	General Education – Mathematical Perspective B	3
	General Education – First-Year Writing (WI)	3
Second Year		
INTP-215	Processing Skills Development	3
INTP-220	Discourse Analysis	3
INTP-225	American Sign Language IV	3
INTP-226	American Sign Language V	3
MLAS-351	General Education – Elective: Linguistics of American Sign Language	3
	General Education – Elective: Deaf Cultural Studies Elective †	3
	General Education – Elective	3
	General Education – Artistic Perspective	3
	General Education – Natural Science Inquiry Perspective ‡	4
	General Education – Scientific Principles Perspective	3
Third Year		
INTP-310	Interpreting I	3
INTP-315	Practical and Ethical Applications	3
INTP-325	American Sign Language VI	3
INTP-326	American Sign Language VII	3
INTP-335	Interpreting II: English to ASL	3
INTP-336	Interpreting II: ASL to English	3
	Professional Elective	3
	General Education – Immersion 1	3
	General Education – Elective	3
	Open Elective	3
Fourth Year		
INTP-350	Practicum and Seminar I	3
INTP-435	Interpreting III: English to ASL	3
INTP-436	Interpreting III: ASL to English	3
INTP-440	Interpreting with Diverse Consumers	3
INTP-450	Practicum and Seminar II	3
INTP-460	Issues in Interpreting (WI-PR)	3
	Open Elective	3
	Professional Elective	3
	General Education – Immersion 2	3
	General Education – Immersion 3	3
Total Semester Credit Hours		**123**

Please see General Education Curriculum (GE) for more information.
(WI-PR) refers to writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

† Deaf Cultural Studies courses include: American Sign Language Literature (MLAS-352), Deaf Art & Cinema (FNRT-440), Deaf Culture in America (SOCI-240), American Deaf History (HIST-230), Deaf People in Global Perspective (HIST-231), Deafness and Technology (HIST-330), Diversity in the Deaf Community (HIST-333), Oppression in the Lives of Deaf People (HIST-334), Women and the Deaf Community (HIST-335).

‡ Students will satisfy this requirement by taking a 4-credit hour lab science course. Students may select one of the lab science courses listed below to fulfill this requirement. Both the lecture and the laboratory sections must be taken. Human Biology I (MEDG-101) and Human Biology Lab I (MEDG-103), Human Biology II (MEDG-102) and Human Biology Lab II (MEDG-104), Field Biology (BIOG-110), General Biology I (BIOL-101) and General Biology Lab I (BIOL-103), General Biology II (BIOL-102) and General Biology Lab II (BIOL-104), Introductory Biology I (BIOL-121), Introductory Biology II (BIOL-122), General-Organic-Biochemistry I (CHMG-111), College Physics I (PHYS-111), College Physics II (PHYS-112).

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
- 4 years of English (minimum B average)
- 3 years of math and science required
- 2 years of a foreign language recommended
- Must demonstrate beginning ASL competency equivalent to ASL I

For those applicants who have had college experience, college transcripts should document a GPA of 3.0 or better, with evidence of very good performance in English courses. A writing sample will be judged on vocabulary, grammar, structure, style, and creativity.

Transfer Admission

Transfer course recommendations without associate degree
Transfer requirements vary by program

Appropriate associate degree programs for transfer
Transfer requirements vary by program.

Please note: In addition to RIT's general admissions procedures, the ASL-English interpretation major requires applicants to complete additional admission materials from the NTID Admissions Office.

Business Administration, AAS

www.rit.edu/study/business-administration-aas
Mark Pfuntner, Chairperson
585-286-4640 (V/VP), mjpnvd@rit.edu

Program overview

The business administration program focuses on general business operations and the critical decision-making process required for success in today's fast-paced work environment. Students learn the fundamentals of business planning, interpersonal skills, and communication skills needed to succeed on the job. This program is available for qualified deaf and hard of hearing students.

The business administration program, offered by RIT's National Technical Institute for the Deaf, blends practical business experiences with theory and teaches you how to apply these concepts in actual business situations through case studies, interactive sessions, and cooperative education work experience. This degree is for students contemplating careers in marketing, sales, retail, advertising, banking, management, human resources, hospitality, and other related fields. You'll receive leadership training in addition to becoming proficient in the use of computer software applications necessary to succeed in the business world. Decision-making skills will be stressed throughout the program as well as consensus-building skills that support working in team situations.

Business administration is available as an associate in applied science (AAS) degree or as an Associate+Bachelor's Degree Program.

The AAS degree in business administration is a career-focused degree program that leads to immediate entry into well-paying careers at the paraprofessional or technician level.

The Associate+Bachelor's Degree Program in business administration prepares you to complete an RIT bachelor's degree. In this option, upon successful completion of the AAS degree in business administration, provided you maintain a 2.5 or higher grade point average in the program, you will enroll into RIT's School of Individualized Study, where you can pursue a bachelor's degree in applied arts and science.

Learn more about the benefits of pursuing an Associate+Bachelor's Degree Program.

Microsoft Certification

NTID's business studies department operates an authorized testing center for Microsoft Office Specialist. Preparatory courses are offered for several exams each semester.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the business administration program are required to complete a cooperative education work experience prior to graduation. You may schedule your co-op after completing your second-year academic requirements.

Curriculum

Business Administration, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
NACC-130	Personal Finance	3
NACC-201	Accounting 1	3
NACT-170	Intro to Web Development	3
NAST-160	Fundamentals of Spreadsheet Applications	3
NBUS-200	Orientation to Business	3
NBUS-217	Fundamentals of Management	3
UWRT-150	General Education – First-Year Writing: FYW: Writing Seminar (WI)	3
	General Education – Elective‡	3
	General Education – Elective†	3
	General Education – Scientific Principles Perspective	3
Second Year		
NACC-202	Accounting 2	3
NAST-210	Essentials of Business Communication	3
NAST-220	Fundamentals of Database Applications	3
NBUS-213	Applied Ethics	3
NBUS-221	Essentials of Human Resource Management	3
NBUS-223	Fundamentals of Marketing	3
NBUS-224	Business Law	3
NBUS-226	Introduction to Organizational Behavior	3
NBUS-299	Co-op: Business Administration	0
	General Education – Global Perspective‡	3
	General Education – Social Perspective‡	3
Third Year		
NBUS-220	Introduction to Economics	3
NBUS-228	Leadership Essentials	3
	General Education – Ethical Perspective‡	3
	General Education – Artistic Perspective‡	3
	Open Elective‡	3
Total Semester Credit Hours		**75**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
† Must be an LAS elective course NMTH-140 or higher.
‡ An ASL-Deaf Cultural Studies (AASASLDCS) course is required for graduation. It can be taken in any semester and can be taken at NTID or another college of RIT. In order to fulfill this requirement as part of the credit hours in the program, it can be a course approved for both AASASLDCS and a General Education - Perspective or General Education - Elective or it can be used to fulfill an Open Elective.

Admission requirements

For the career-focused AAS Degree

- 2 years of math required
- 1 year of science required
- English language skills as evidenced by application materials determine associate degree options.

For the AAS Degree Leading to Bachelor's Degree (Associate+Bachelor's Program)

- 2 years of math required; students interested in engineering, math and science transfer programs should have three or more years of math.
- 1 year of science required; students interested in engineering, math and science transfer programs should have two or more years of science.
- Physics is recommended for students interested in engineering.
- English language skills as evidenced by application materials determine associate degree options.

Specific English, Mathematics, and Science Requirements and other Recommendations

- English: Placement into a First Year Writing course, such as FYW: Writing Seminar (UWRT-150). Students who qualify for Critical Reading and Writing (UWRT-100) will be considered for admission if they are at NMTH-250 or higher in mathematics.

- Mathematics: Placement into mathematics NMTH-250 or higher. Typically, students entering this major will have completed at least three years of high school mathematics.
- Science: Placement into science NSCI-250 or higher. Typically, students entering this major will have completed at least two years of high school science.
- ACT (optional): For the Career-Focused AAS degree, the ACT middle 50% composite score is 14-17. For the Associate+Bachelor AAS degree, the ACT middle 50% composite score is 18-21.

Business, AS

www.rit.edu/study/business-as
Mark Pfuntner, Chairperson
585-286-4640 (V/VP), mjpnvd@rit.edu

Program overview

The associate in science (AS) degree in business is an Associate+Bachelor's degree program designed to prepare deaf and hard-of-hearing students to enter and successfully complete a bachelor's degree program in RIT's Saunders College of Business. The program offers you unparalleled academic support and students strengthen their skills by taking courses taught by faculty in RIT's National Technical Institute for the Deaf (NTID). Admission to this major is available during the fall semester only. This program is available for qualified deaf and hard of hearing students.

You'll start with an AS degree in business, which provides you with the courses and credits you need to enroll in an RIT bachelor's degree program.

Upon completion of your AS program, provided you have earned a 2.5 or higher cumulative grade point average in the program, you will enroll into RIT's Saunders College of Business in one of the following bachelor's degree programs: accounting, finance, international business, management, management information systems, marketing, or supply chain management.

Learn more about the benefits of pursuing an Associate+Bachelor's Degree Program.

Microsoft Certification

NTID's business studies department operates an authorized testing center for Microsoft Office Specialist. Preparatory courses are offered for several exams each semester.

Curriculum

Business, AS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MGIS-101	Computer-based Analysis	1
NBUS-211	World of Business & Innovation	3
NBUS-225	Introduction to Entrepreneurship	3
NBUS-227	Principles of Marketing	3
NCAR-010	Freshman Seminar	0
STAT-145	General Education – Elective: Introduction to Statistics I	3
STAT-146	General Education – Elective: Introduction to Statistics II	4
	General Education – First Year Writing (WI)	3
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Scientific Principles Perspective*	3
	General Education – Elective	3
Second Year		
COMM-253	Communication	3
ECON-101	Principles of Microeconomics	3
ECON-201	Principles of Macroeconomics	3
INTB-225	Global Business Environment	3
MATH-161	General Education – Elective: Applied Calculus	4
MGMT-215	Organizational Behavior	3
NACC-205	Financial Accounting	3
NACC-206	Managerial Accounting	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Total Semester Credit Hours		**63**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
* Any science course numbered NSCI-250 or higher may fulfill this requirement.

Accreditation

Undergraduate and graduate programs in Saunders College of Business are accredited by the Association to Advance Collegiate Schools of Business (AACSB) International, the premier accrediting organization for business schools.

Admission requirements

For the AS Degree Leading to Bachelor's Degree (Associate+Bachelor's Program)

- 2 years of math required; students interested in engineering, math and science transfer programs should have three or more years of math.
- 1 year of science required; students interested in engineering, math and science transfer programs should have two or more years of science.
- Physics is recommended for students interested in engineering.
- English language skills as evidenced by application materials determine associate degree options.

Specific English, Mathematics, and Science Requirements and other Recommendations

- English: Placement into a First Year Writing course, such as FYW: Writing Seminar (UWRT-150). Students who qualify for Critical Reading and Writing (UWRT-100) will be considered for admission if they are at NMTH-250 or higher in mathematics.
- Mathematics: Placement into mathematics NMTH-250 or higher. Typically, students entering this major will have completed at least three years of high school mathematics.
- Science: Placement into science NSCI-250 or higher. Typically, students entering this major will have completed at least two years of high school science.
- ACT (optional): The ACT middle 50% composite score is 18-21.

Business Technology, AOS

www.rit.edu/study/business-technology-aos
Mark Pfuntner, Chairperson
585-286-4640 (V/VP), mjpnvd@rit.edu

Program overview

The business technology program prepares you for a career in general business operations. You'll learn the fundamentals of business planning, interpersonal skills, and communication skills needed to succeed on the job. You'll also receive leadership training in addition to becoming proficient in the use of computer software applications necessary to succeed in the business world. This degree is for students interested in the fields of marketing, sales, retail, advertising, banking, management, human resources, hospitality, and other related business disciplines. This program is available for qualified deaf and hard of hearing students.

The associate in occupational studies (AOS) in business technology, offered by RIT's National Technical Institute for the Deaf, will prepare you for a career in a variety of settings, including business, industry, government, and schools. You will take courses in accounting, payroll procedures, general office procedures, and document preparation, and you may also elect to complete a sequence of courses that provide a concentration in either accounting technology or administrative support technology.

This is a non-transfer occupational program, with primary emphasis on preparation for immediate employment upon graduation.

Microsoft Certification

NTID's business studies department operates an authorized testing center for Microsoft Office Specialist. Preparatory courses are offered for several exams each semester.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the business technology program are required to complete a cooperative education work experience prior to graduation. You may schedule your co-op after completing your second-year academic requirements.

Curriculum

Business Technology (administrative support technology option), AOS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NACC-130	Personal Finance	3
NACC-201	Accounting 1	3
NAST-140	Essential Document Production	3
NAST-150	Advanced Document Production	3
NAST-160	Fundamentals of Spreadsheet Applications	3
NBUS-200	Orientation to Business	3
NCAR-010	Freshman Seminar	0
NENG-212	NTID General Education Foundation – Career English: Career English I	3
NENG-213	NTID General Education Foundation – Career English: Career English II	3
	NTID General Education Foundation – Mathematics†	3
Second Year		
NAST-210	Essentials of Business Communication	3
NAST-215	Integrated Document Production	3
NAST-220	Fundamentals of Database Applications	3
NAST-225	Fundamentals of Graphic Applications	3
NAST-240	Administrative Support Technology Seminar	3
NAST-299	Co-op: Administrative Support Technology/Business Technology	0
NBUS-213	Applied Ethics	3
NBUS-217	Fundamentals of Management	3
	NTID General Education – Perspective‡	3
Third Year		
NAST-230	Fundamentals of Desktop Publishing	3
NBUS-223	Fundamentals of Marketing	3
	NTID General Education – Perspective‡	3
	Open Elective	3
Total Semester Credit Hours		**63**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information.
† Any mathematics course numbered NMTH-140 or higher. Students who place above NMTH-140 can take math or a 3-credit course from any non-science perspective category.
‡ NTID General Education Perspective courses may be from any of these three Perspective categories: ASL-Deaf Cultural Studies; Communication, Social & Global Awareness; and Creative and Innovative Exploration.

Business Technology (accounting technology option), AOS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NACC-130	Personal Finance	3
NACC-201	Accounting 1	3
NAST-140	Essential Document Production	3
NAST-150	Advanced Document Production	3
NAST-160	Fundamentals of Spreadsheet Applications	3
NBUS-200	Orientation to Business	3
NCAR-010	Freshman Seminar	0
NENG-212	NTID General Education Foundation – Career English: Career English I	3
NENG-213	NTID General Education Foundation – Career English: Career English II	3
	NTID General Education Foundation – Mathematics†	3
Second Year		
NACC-202	Accounting 2	3
NACC-203	Accounting 3	3
NACC-299	Co-op: Accounting Technology/Business Technology	0
NAST-210	Essentials of Business Communication	3
NAST-215	Integrated Document Production	3
NAST-220	Fundamentals of Database Applications	3
NBUS-213	Applied Ethics	3
NBUS-217	Fundamentals of Management	3
	NTID General Education – Perspective‡	3
Third Year		
NACC-204	Accounting Capstone	3
NBUS-223	Fundamentals of Marketing	3
	NTID General Education – Perspective‡	3
	Open Elective	3
Total Semester Credit Hours		**63**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information.
† Any mathematics course numbered NMTH-140 or higher. Students who place above NMTH-140 can take math or a 3-credit course from any non-science perspective category.
‡ NTID General Education Perspective courses may be from any of these three Perspective categories: ASL-Deaf Cultural Studies; Communication, Social & Global Awareness; and Creative and Innovative Exploration.

Admission requirements

For the career-focused AOS Degree

- 2 years of math required
- 1 year of science required
- English language skills as evidenced by application materials determine associate degree options.

Specific English, Mathematics, and Science Requirements and other Recommendations

- English: Placement into Career English I (NENG-212) or above. Students successfully completing AOS degrees typically enter with reading scores of 79 or higher on the NTID Reading Test and writing scores of 39 or higher on the NTID Writing Test.
- Mathematics: Math course (NMTH-120) or higher is required. Typically, students entering this major will have completed at least two years of high school mathematics.
- Science: Typically, students entering this major will have completed at least two years of high school science.
- ACT (optional): The ACT middle 50% composite score is 14-17.

Career Exploration Studies, Undeclared

www.rit.edu/study/career-exploration-studies
Kiersten Blankley,
585-475-5285, kesnhd@rit.edu

Program overview

The career exploration studies program allows you to collect information about associate degree programs in the National Technical Institute for the Deaf (NTID) and career paths before deciding on a major. It also supports deaf and hard-of-hearing students who need additional academic preparation to be ready for their chosen program of study.

This option allows students the opportunity to do an intensive career search while they develop a better understanding of themselves through career and personal counseling; intensive sampling of various majors at RIT/NTID; use of a computer guidance program in the Career Resource and Testing Center; interest testing; and interpretation of aptitude, ability, and achievement tests. In addition, students take courses in mathematics, English, and other liberal arts and sciences. Some students also take introductory courses in specific programs of study and are involved in extracurricular or other college-oriented activities.

A counselor/academic advisor is assigned to help you evaluate the information and make career decisions. You can remain in the career exploration studies program for up to two academic semesters.

Curriculum

Career Exploration Studies, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
Choose one of the following:		3
NCOM-120	Problem Solving	
NCOM-206	Effective Teams	
	Introductory Course in major	9
	English*	6
	Math*	6
Choose two of the following:		6
	English*	
	LAS perspective course	

* Specific course based on placement testing.

Civil Technology, AAS

www.rit.edu/study/civil-technology-aas
Dino Laury, Chairperson
585-286-4613 (VP), dino@mail.rit.edu

Program overview

The associate in applied science (AAS) in civil technology is an Associate+Bachelor's degree program that prepares students to enter and successfully complete a bachelor's degree program in civil engineering technology in RIT's College of Engineering Technology. The program offers you unparalleled academic support and students strengthen their skills by taking courses taught by NTID faculty. This program is available for qualified deaf and hard of hearing students.

Students receive a comprehensive foundation in civil engineering fundamentals: engineering graphics, computer aided design applications, construction materials and methods, surveying, statics, strength of materials, and elements of building construction.

You'll start with an AAS degree in civil technology in RIT's National Technical Institute for the Deaf, which provides you with the courses and credit you need to enroll in a bachelor's degree program.

Upon completion of your AAS program with a 2.5 or higher grade point average in the program, you will enroll in RIT's College of Engineering Technology, where you can major in civil engineering technology.

Students must graduate in good standing to enroll in the College of Engineering Technology. Transfer credit will be awarded for courses completed with a grade of B or better for courses coded "NCAD" and "NMTH" and a grade of C or better for other courses.

Learn more about the benefits of pursuing an Associate+Bachelor's Degree Program.

Curriculum

Civil Technology, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-171	Calculus A	3
NCAD-150	Engineering Graphics in AEC	3
NCAD-180	Civil Technology Graphics	3
NCAD-255	Construction Materials and Methods I	3
NCAR-010	Freshman Seminar	0
NMTH-275	General Education – Elective: Advanced Mathematics	3
PHYS-111	General Education – Scientific Principles Perspective: College Physics I	4
UWRT-150	General Education – First Year Writing: FYW: Writing Seminar (WI)	3
	Program Elective	3
	General Education – Elective	3
	General Education – Ethical Perspective	3
Second Year		
CHMG-141	General & Analytical Chemistry I	3
CHMG-145	General & Analytical Chemistry I Lab	1
CVET-160	Surveying	3
CVET-161	Surveying Laboratory	1
CVET-170	Elements of Building Construction	3
MATH-172	Calculus B	3
MCET-220	Principles of Statics	3
MCET-221	Strength of Materials	4
PHYS-112	College Physics II	4
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Total Semester Credit Hours		**65**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.

Admission requirements

For the AAS Degree Leading to Bachelor's Degree (Associate+Bachelor's Program)

- 2 years of math required; students interested in engineering, math and science transfer programs should have three or more years of math.
- 1 year of science required; students interested in engineering, math and science transfer programs should have two or more years of science.
- Physics is recommended for students interested in engineering.
- English language skills, as evidenced by application materials, determine associate degree options.

Specific English, Mathematics and Science Requirements and other Recommendations

- English: Placement into a First Year Writing course, such as FYW: Writing Seminar (UWRT-150) or Critical Reading and Writing (UWRT-100).
- Mathematics: Placement into NTID's Advanced Math (NMTH-275) course or higher
- Science: Readiness after a single NTID science course, Concepts of College Physics (NSCI-270), for entry into RIT's College of Science Physics I (PHYS-111) course.
- ACT (optional): The ACT middle 50% composite score is 18-21 (20 Math, 16 Reading).

Deaf Cultural Studies-American Sign Language, Certificate

www.rit.edu/study/deaf-cultural-studies-american-sign-language-certificate

Patti Durr, Program Contact
866-833-4374 (VP), paddhd@rit.edu

Program overview

The Deaf cultural studies-American Sign Language certificate offers deaf, hard-of-hearing, and hearing students the opportunity to understand the deaf community as an entity unto itself and within the context of society as a whole.

Knowledge, skills, and abilities learned through this program of study include: understanding the structure of ASL and the application of linguistic principles to other languages (specifically English); enhancement of bilingual skills to improve communication; increased knowledge of Deaf culture and Deaf history; a heightened sense of self-concept, self-esteem, and self-confidence; improved presentation skills; and enhanced literacy and critical thinking skills.

The certificate in Deaf cultural studies/ASL is offered to students enrolled in degree programs at RIT's National Technical Institute for the Deaf (NTID) and the other RIT colleges as an enhancement to their portfolio of general academic, career, and technical skills. It is not a stand-alone certification. The certificate offers you an opportunity to learn about historical, anthropological, linguistic, literary, artistic, and multicultural aspects of deaf people's lives. Courses expose you to a breadth and depth of topics in Deaf cultural studies and ASL, and address NTID General Education goals for critical thinking, writing, and public presentations.

The overall program goals of the Deaf cultural studies/ASL certificate are to:

- study the Deaf experience from the perspective of a disenfranchised minority group
- understand and appreciate Deaf culture
- promote the development of English and ASL literacy
- promote the development of critical thinking skills
- promote the development of communication skills

Curriculum

Deaf Cultural Studies and American Sign Language, certificate, typical course sequence

COURSE		SEMESTER CREDIT HOURS
Choose three of the following courses:		9
NHSS-159	Deaf Community in the Modern World	
NHSS-251	Deaf Culture and Contemporary Civilization	
NHSS-260	Deaf People and Civil Rights	
NHSS-270	Multiculturalism in the Deaf Community	
NASL-275	Structure of American Sign Language	
NHSS-275	Visual Expressions of Deaf Culture	
NHSS-279	Seminar in Deaf Cultural Studies	
Total Semester Credit Hours		**9**

Admission requirements

Applicants for the Deaf cultural studies-American Sign Language certificate must be students in good standing in an undergraduate program at RIT, or hold an undergraduate degree from RIT.

Candidates must complete or have already completed an undergraduate degree program from RIT to receive this certificate.

Design and Imaging Technology, AAS

www.rit.edu/study/design-and-imaging-technology-aas
Edward Mineck, Professor
585-475-6341, enmnvc@rit.edu

Program overview

People who work in the design and imaging field are responsible for designing, organizing, and producing print and Web-based media for business, communication, publishing, manufacturing, entertainment, and advertising markets. This is a large, exciting field that requires a variety of computer-based and traditional visual skills. The design and imaging technology program provides opportunities for students to enter various careers ranging from creative to highly technical positions at various degree levels. This program is available for qualified deaf and hard of hearing students.

As a student in the associate in applied science (AAS) degree in design and imaging technology, offered by RIT's National Technical Institute for the Deaf, you may choose a concentration in either graphic design or graphic production.

You will gain work experience through a required cooperative education experience. Depending on your specific program concentration and elective course selection, you will use traditional and computer-based methods to produce drawings, layouts, illustrations and digital photographic images; prepare documents for print, Web and digital distribution; produce interactive digital media; perform digital retouching and restoration of photographic images; produce composite digital images; design and produce websites; produce computer animations; plan and produce short-edited videos; and operate electrophotographic digital printing and inkjet systems.

Education in STEM (science, technology, engineering, math) careers is a major emphasis for students, parents and counselors as they consider which college programs match the students interests and aptitudes. Funding for STEM career preparation is often a driving factor. The design and imaging technology program is considered a STEM-career program. Graphic design and production for print, Web and digital media cannot happen without the use and application of technology and computing skills.

Read about the Career Skills you can learn in the design and imaging technology program.

O*Net Online lists STEM career clusters and graphic design is listed as being part of the Computer Science STEM disciplines.

The associate in applied science (AAS) degree in design and imaging technology is a career-focused program, designed to prepare you for direct employment in well-paying careers, following graduation. As a graduate of the AAS degree program, you also may apply for admission to a bachelor of fine arts degree program or a bachelor of science degree program in RIT's College of Art and Design after completing the AAS degree course of study.

We prepare students for jobs in the large visual communications industry which includes graphic design, commercial digital printing, website design and development, videography, animation, packaging design, photography, and specialty graphics. Jobs have evolved from a skilled trade craft to a high-tech digital design and production workflow.

The visual communications industry changes rapidly with the advent of new technologies and software programs. The world depends on text, graphics, illustrations, video and photos for communication using printed materials, web sites, and electronic media. There will always be a demand for graduates with skills in the visual communications field.

Some industry job outlook projections include:

- Summary Report for Web Developers
- Summary Report for Graphic Designers
- Summary Report for Multimedia Artists and Animators

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the design and imaging technology program are required to complete a cooperative education work experience prior to graduation. You may schedule your co-op after completing your second-year academic requirements.

Curriculum

Design and Imaging Technology, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NAIS-120	Principles of Design and Color	3
NAIS-130	Raster and Vector Graphics	3
NAIS-140	Graphic Design and Typography I	3
NAIS-150	Page Layout I	3
NAIS-160	Web Design I	3
NCAR-010	Freshman Seminar	0
Choose one of the following:		3
NGRD-111	Drawing I‡	
NGRP-110	Digital Photography I§	
	General Education – Scientific Principles Perspective††	3
	General Education – Elective**	3
	General Education – Elective†	3
	General Education – First-Year Writing (WI)	3
Second Year		
NAIS-201	Employment Seminar	3
NAIS-291	Production Workshop	3
NAIS-299	Co-op: Visual Communications Studies	0
Choose two of the following:		6
NGRD-221	History of Graphic Design‡	
NGRP-231	Image Preparation§	
NGRD-240	Graphic Design and Typography II‡	
NGRP-245	Color Theory and Management§	
Choose two of the following:		6
NGRD-255	Publication Design‡	
NGRD-256	Identity Design‡	
NGRP-252	PDF Production and Workflow§	
NGRP-250	Page Layout II§	
	Program Elective	3
	General Education – Ethical Perspective†	3
	General Education – Artistic Perspective†	3
	General Education – Global Perspective†	3
Third Year		
NAIS-292	Portfolio Workshop	3
Choose one of the following:		3
NGRD-230	Digital Illustration‡	
NGRP-270	Specialty Graphics Imaging§	
	Program Elective	3
	General Education – Social Perspective†	3
Total Semester Credit Hours		**72**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
† An ASL-Deaf Cultural Studies (AASASLDCS) course is required for graduation. It can be taken in any semester and can be taken at NTID or another college of RIT. In order to fulfill this requirement as part of the credit hours in the program, it can be a course approved for both AASASLDCS and a General Education – Perspective or General Education – Elective.
‡ NGRD courses/Graphic Design concentration
§ NGRP courses/Graphic Production concentration
** Any mathematics course numbered NMTH-140 or higher.
†† Any science course numbered NSCI-153 or higher.

Electives

COURSE	
NAIS-199	Independent Study-Visual Communications Studies
NAIS-289	Special Topics-Visual Communications Studies
NGRD-115	Visual Idea Development
NGRD-211	Drawing II
NGRD-257	Animation
NGRD-258	Cartooning
NGRP-210	Digital Photography II
NGRP-220	Videography
NGRP-232	Image Manipulation
NGRP-251	Publication Production
NGRP-260	Web Design II
NGRP-275	Digital Printing Systems

Admission requirements

For the career-focused AAS Degree

- 2 years of math required
- 1 year of science required
- English language skills as evidenced by application materials determine associate degree options.

Specific English, Mathematics, and Science Requirements and other Recommendations

Successful completion of a sampling experience offered during the Summer Vestibule Program and also during the academic year is required. The sampling activities provide opportunities for students to learn about the arts and imaging field, identify career opportunities, and evaluate their interest and aptitude for a degree program.

- English: Placement into the Critical Reading and Writing (UWRT-100) course.
- Mathematics: Placement into the Mathematics in Society (NMTH-140) course. Typically, students entering this major will have completed at least two years of high school mathematics.
- Science: Typically, students entering this major will have completed at least two years of high school science.
- ACT (optional): The ACT middle 50% composite score is 14-17.

Design and Imaging Technology, AOS

www.rit.edu/study/design-and-imaging-technology-aos

Edward Mineck, Professor
585-475-6341, enmnvc@rit.edu

Program overview

People who work in the design and imaging field are responsible for designing, organizing, and producing print and Web-based media for business, communication, publishing, manufacturing, entertainment, and advertising markets. This is a large, exciting field that requires a variety of computer-based and traditional visual skills. The design and imaging technology program provides opportunities for students to enter various careers ranging from creative to highly technical positions at various degree levels. This program is available for qualified deaf and hard of hearing students.

As a student in the associate in occupational studies (AOS) degree in design and imaging technology, offered by RIT's National Technical Institute for the Deaf, you may choose a concentration in either graphic design or graphic production.

You will gain work experience through a required cooperative education experience. Depending on your specific program concentration and elective course selection, you will use traditional and computer-based methods to produce drawings, layouts, illustrations and digital photographic images; prepare documents for print, Web and digital distribution; produce interactive digital media; perform digital retouching and restoration of photographic images; produce composite digital images; design and produce websites; produce computer animations; plan and produce short-edited videos; and operate electrophotographic digital printing and inkjet systems.

Education in STEM (Science, Technology, Engineering, Math) careers is a major emphasis for students, parents and counselors as they consider which college programs match the students interests and aptitudes. Funding for STEM career preparation is often a driving factor. The design and imaging technology program is considered a STEM-career program. Graphic design and production for print, Web and digital media cannot happen without the use and application of technology and computing skills.

Read about the Career Skills you can learn in the design and imaging technology program.

O*Net Online lists STEM career clusters and graphic design is listed as being part of the Computer Science STEM disciplines.

The associate in occupational studies (AOS) degree in design and imaging technology program is a career-focused program, designed to prepare you for direct employment in well-paying careers, following graduation.

We prepare students for jobs in the large visual communications industry which includes graphic design, commercial digital printing, website design and development, videography, animation, packaging design, photography, and specialty graphics. Jobs have evolved from a skilled trade craft to a high-tech digital design and production workflow.

The visual communications industry changes rapidly with the advent of new technologies and software programs. The world depends on text, graphics, illustrations, video and photos for communication using printed materials, web sites, and electronic media. There will always be a demand for graduates with skills in the visual communications field.

Some industry job outlook projections include:

- Summary Report for Web Developers
- Summary Report for Graphic Designers
- Summary Report for Multimedia Artists and Animators

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the design and imaging technology program are required to complete a cooperative education work experience prior to graduation. You may schedule your co-op after completing your second-year academic requirements.

Curriculum

Design and Imaging Technology, AOS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NAIS-120	Principles of Design and Color	3
NAIS-130	Raster and Vector Graphics	3
NAIS-140	Graphic Design and Typography I	3
NAIS-150	Page Layout I	3
NAIS-160	Web Design I	3
NCAR-010	Freshman Seminar	0
NENG-212	NTID General Education Foundation – Career English: Career English I	3
NENG-213	NTID General Education Foundation – Career English: Career English II	3
Choose one of the following:		3
NGRD-111	Drawing I‡	
NGRP-110	Digital Photography I§	
	NTID General Education Foundation – Mathematics†	3
Second Year		
NAIS-201	Employment Seminar	3
NAIS-291	Production Workshop	3
NAIS-299	Co-op Visual Communications Studies	0
Choose two of the following:		6
NGRD-240	Graphic Design and Typography II‡	
NGRD-221	History of Graphic Design‡	
NGRP-231	Image Preparation§	
NGRP-245	Color Theory and Management§	
Choose two of the following:		6
NGRD-255	Publication Design‡	
NGRD-256	Identity Design‡	
NGRP-252	PDF Production and Workflow§	
NGRP-250	Page Layout II§	
	Program Elective	3
	NTID General Education – Perspective**	3
Third Year		
NAIS-292	Portfolio Workshop	3
Choose one of the following:		3
NGRD-230	Digital Illustration‡	
NGRP-270	Specialty Graphics Imaging§	
	Program Elective	3
	NTID General Education – Perspective**	3
Total Semester Credit Hours		**63**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
‡ NGRD courses/Graphic Design concentration
§ NGRP courses/Graphic Production concentration
† Any mathematics course numbered NMTH-120 or higher; students who place above NMTH-140 can take math or a 3-credit course from any of the four NTID LAS Perspective categories: ASL-Deaf Cultural Studies; Communication, Social & Global Awareness; Creative and Innovative Exploration; and Scientific Processes.
** NTID General Education Perspective courses may be from any of these three Perspective categories: ASL-Deaf Cultural Studies; Communication, Social & Global Awareness; and Creative and Innovative Exploration.

Electives

COURSE	
NAIS-199	Independent Study-Visual Communications Studies
NAIS-289	Special Topics-Visual Communications Studies
NGRD-115	Visual Idea Development
NGRD-211	Drawing II
NGRD-257	Animation
NGRD-258	Cartooning
NGRP-210	Digital Photography II
NGRP-220	Videography
NGRP-232	Image Manipulation
NGRP-251	Publication Production
NGRP-260	Web Design II
NGRP-275	Digital Printing Systems

Admission requirements

For the career-focused AOS Degree

- 2 years of math required
- 1 year of science required
- English language skills as evidenced by application materials determine associate degree options.

Specific English, Mathematics and Science Requirements and other Recommendations

Successful completion of a sampling experience offered during the Summer Vestibule Program and also during the academic year is required. The sampling activities provide opportunities for students to learn about the arts and imaging field, identify career opportunities, and evaluate their interest and aptitude for a degree program.

- English: Placement into Career English I (NENG-212) or above. Students successfully completing AOS degrees typically enter with reading scores of 79 or higher on the NTID Reading Test and writing scores of 39 or higher on the NTID Writing Test.
- Mathematics: Placement into the Mathematics in Society (NMTH-140) course. Typically, students entering this major will have completed at least two years of high school mathematics.
- Science: Typically, students entering this major will have completed at least two years of high school science.
- ACT (optional): The ACT middle 50% composite score is 14-17.

General Science, AS

www.rit.edu/study/general-science-as

Matthew A. Lynn, Chairperson
585-475-5923 (V), 585-286-4751 (VP), malntm@rit.edu

Program overview

The associate in science (AS) degree in general science is designed to prepare deaf and hard-of-hearing students who are close to, but not fully ready for, direct entry into a bachelor's-level program in the sciences. The degree is a pathway for completing the course work taken during the first two years of a BS degree program in RIT's College of Science or RIT's College of Health Sciences and Technology. This program is available for qualified deaf and hard of hearing students.

This AS degree, offered by RIT's National Technical Institute for the Deaf, serves as a bridge program for qualified students based on academic transcripts, admission test scores, and other evidence that support a reasonable expectation of success in the baccalaureate program. By combining preparatory studies in math and English with bachelor's-level science, math, and liberal arts courses, students can qualify to transfer as juniors into a BS program depending on the course work taken for the AS degree. Students acquire the foundational skills necessary for success in the scientific field of their choice as they also develop skills and knowledge in communication, critical thinking, problem-solving, and mathematics.

You'll start with an AS in general science, which provides you with the courses and credits you need to enroll in and successfully complete a bachelor's degree program. Qualified students who complete the AS in general science degree will be admitted to a bachelor's degree as juniors.

Upon successful completion of your AS program in general science, you will have several options from which to choose. You can enroll in RIT's College of Science, where you can pursue a bachelor's degree in biochemistry, biology, biotechnology and molecular bioscience, chemistry, or environmental science Or you can enroll in RIT's College of Health Sciences and Technology, where you can work towards a bachelor's degree in biomedical sciences.

Learn more about the benefits of pursuing an Associate+Bachelor's Degree Program.

Qualified students also may go on to enroll in graduate or professional school upon completion of the bachelor's degree.

Curriculum

General Science, AS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
NMTH-275	General Education – Elective: Advanced Mathematics	3
UWRT-150	General Education – First-Year Writing: FYW: Writing Seminar (WI)	
Choose one of the following course sequences:		8
CHMG-141	General Education – Scientific Principles Perspective: General & Analytical Chemistry I	
CHMG-142	General & Analytical Chemistry II	
CHMG-145	General & Analytical Chemistry I Lab	
CHMG-146	General & Analytical Chemistry II Lab	
or		
BIOL-101	General Education – Scientific Principles Perspective: General Biology I	
BIOL-102	General Biology II	
BIOL-103	General Biology I Lab	
BIOL-104	General Biology II Lab	
Choose one of the following:		3
NMTH-220	Trigonometry	
NMTH-250	Elementary Statistics	
	General Education – Electives	6
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
Second Year		
	Professional Elective Labs‡	4
	Professional Electives‡	15
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Electives	3
	General Education – Electives†	3
Total Semester Credit Hours		**60**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate's degrees are required to complete one Wellness course.
† Students take Applied Calculus (MATH-161) or Calculus A (MATH-171) depending on their focus area.
‡ These electives fulfill course work that aligns with the desired College of Science or College of Health Sciences and Technology BS degree program chosen by the student.

Admission requirements

For the AS Degree Leading to Bachelor's Degree (Associate+Bachelor's Program)

- 2 years of math required; students interested in engineering, math and science transfer programs should have three or more years of math.
- 1 year of science required; students interested in engineering, math and science transfer programs should have two or more years of science.
- Physics is recommended for students interested in engineering.
- English language skills as evidenced by application materials determine associate degree options.

Specific English, Mathematics and Science Requirements and other Recommendations

The proposed admission requirements are the same as those already established for admitting students into the NTID science pre-baccalaureate program.

- English: Placement into Critical Reading and Writing (UWRT-100) or a First Year Writing course, such as FYW: Writing Seminar (UWRT-150);
- Mathematics: NTID Math Placement score greater than or equal to 40, which equates to placement into Advanced Mathematics (NMTH-275). Students will enroll in the mathematics courses required by the intended bachelor's program. Typically, students entering this program will have completed at least three years of high school mathematics. Once in the program, students will take math courses that are appropriate for their intended focus area.
- Science: Students will enroll in science courses that lead to their intended bachelor's program. Typically, students entering this program will have completed at least three years of high school science.
- ACT (optional): The ACT middle 50% composite score is 18-21 with no sub-scores less than 19.

Laboratory Science Technology, AAS

www.rit.edu/study/laboratory-science-technology-aas
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Program overview

The laboratory science technology program, with its foundation of course sequences in chemistry, biology, and instrumental analysis, was developed primarily from an industry perspective to prepare students for employment as laboratory technicians. The program has several significant factors that set it apart, including the application of real-world analyses and a state-of-the-art instrumentation laboratory. Graduates are prepared to work in a broad range of fields, including chemical, biological, biotechnical, pharmaceutical, environmental, industrial, forensic, and food analysis. This program is available for qualified deaf and hard of hearing students.

If you're interested in doing scientific analysis and lab work in chemical, biological, biotechnical, pharmaceutical, environmental, forensic, food or industrial fields, then the laboratory science technology program is for you. You will study in laboratory settings with experienced faculty and learn to use state-of-the-art laboratory equipment for scientific analysis. Our advanced, high-tech analytical instrumentation is equivalent to that used by scientists on the job. You get hands-on experience using this instrumentation daily.

Laboratory science technology, offered by RIT's National Technical Institute for the Deaf, is available as an associate in applied science (AAS) degree or as an Associate+Bachelor's Degree Program.

The AAS degree in laboratory science technology is a career-focused degree program that leads to immediate entry into well-paying careers at the paraprofessional or technician level in municipal, public, private and industrial laboratories. Technicians are involved with the collection and preparation of samples and standards. They also perform instrumental, volumetric, gravimetric, and biological analyses. Additional job responsibilities may include the interpretation and reporting of experimental results and data.

The Associate+Bachelor's Degree Program in laboratory science technology prepares you to complete an RIT bachelor's degree. In this option, upon successful completion of the AAS in laboratory science technology, provided you maintain a 3.0 or higher grade point average, you will have several bachelor's degree options from which to choose. You can enroll in RIT's School of Individualized Study, where you can pursue a bachelor's degree in applied arts and science. Or you may enroll in RIT's College of Science, where you can work towards a bachelor's degree in biochemistry, biology, biotechnology and molecular bioscience, chemistry, or environmental science. Qualified laboratory science technology students also have continued their education in other majors in RIT's College of Science and College of Health Sciences and Technology upon completion of the laboratory science technology program. The length of time required to obtain a bachelor's degree upon completion of the AAS program and the number of credits transferred from the laboratory science technology curriculum vary by program.

Learn more about the benefits of pursuing an Associate+Bachelor's Degree Program.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the laboratory science technology program are required to complete a cooperative education work experience prior to graduation. You may schedule your co-op after completing your second-year academic requirements.

Curriculum

Laboratory Science Technology, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
NLST-120	Laboratory Tools	3
NLST-171	Fundamentals of Chemistry I	3
NLST-172	Fundamentals of Chemistry II	3
NLST-220	Analytical Chemistry	4
NMTH-212	General Education – Elective: Integrated Algebra‡	3
NSCI-161	General Education – Scientific Principles Perspective: Fundamentals of Biology I	3
NSCI-162	Fundamentals of Biology II	3
	General Education – First Year Writing (WI)	3
	General Education – Elective†	3
	General Education – Ethical Perspective†	3
Second Year		
NLST-225	Laboratory Applications	3
NLST-230	Principles of Organic Chemistry	4
NLST-232	Laboratory Mathematics	3
NLST-235	Principles of Biochemistry	3
NLST-240	Biotechnology I	3
NLST-245	Biotechnology II	3
NLST-250	Quantitative Instrumental Analysis	4
NLST-255	Chemical Separations & Chromatography	4
NLST-260	Laboratory Methods	3
NLST-299	Co-op: Laboratory Science Technology	0
	General Education - Artistic Perspective	3
Third Year		
	Technical Electives§	6
	General Education – Global Perspective†	3
	General Education – Social Perspective†	3
Total Semester Credit Hours		**76**

See NTID General Education Curriculum (GE) requirements for more information.
See Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
† An ASL-Deaf Cultural Studies (AASASLDCS) course is required for graduation. It can be taken in any semester and can be taken at NTID or another college of RIT. In order to fulfill this requirement as part of the credit hours in the program, it can be a course approved for both AASASLDCS and a General Education - Perspective or General Education - Elective.
‡ Students placing above NMTH-212 must take a higher-level NMTH or MATH (College of Science) course as appropriate.
§ Please see list of professional /technical electives below.

*Professional/Technical electives**

BIOL-101	General Biology I
BIOL-121	Introductory Biology I
CHEM-130	Chemical Connections
CHEM-151	General Chemistry
CHEM-155	Chemistry Workshop
CHMG-141	General & Analytical Chemistry I
MATH-161	Applied Calculus
MATH-171	Calculus A
MATH-181	Project-Based Calculus I
MEDG-101	Human Biology I
MEDS-201	Language of Medicine
MEDS-250	Human Anatomy and Physiology I
NLST-270	Chemical Technology
NLST-285	Undergraduate Research: Laboratory Science Technology
STAT-145	Introduction to Statistics I
STAT-155	Introduction to Biostatistics
	NMTH-220 or above
	NSCI-153 or above

* Some of these courses may require department approval. Additional courses may be used as electives, with department approval.

Admission requirements

For the career-focused AAS Degree

- 2 years of math required
- 1 year of science required
- English language skills as evidenced by application materials determine associate degree options.

For the AAS Degree Leading to Bachelor's Degree (Associate+Bachelor's Program)

- 2 years of math required; students interested in engineering, math and science transfer programs should have three or more years of math.
- 1 year of science required; students interested in engineering, math and science transfer programs should have two or more years of science.
- Physics is recommended for students interested in engineering.
- English language skills as evidenced by application materials determine associate degree options.

Specific English, Mathematics, and Science Requirements and other Recommendations

- English: Placement in a First Year Writing course, such as FYW: Writing Seminar (UWRT-150). Students typically enter First-Year Writing with reading scores equivalent to 130 or higher on the NTID Reading Test and writing scores of 67 or higher on the NTID Writing Test. However, students who complete AAS degrees typically enter NTID with reading scores above 98 on the NTID Reading Test and writing scores above 50 on the NTID Writing Test.
- Mathematics: Placement in Integrated Algebra (NMTH-212) or higher. Typically, students entering this major will have completed at least three years of high school mathematics.
- Science: Typically, students entering this major will have completed at least two years of high school science. Completion of high school chemistry is required.
- ACT (optional): The ACT middle 50% composite score is 18-21.

Laboratory Science Technology, AOS

www.rit.edu/study/laboratory-science-technology-aos
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Program overview

The laboratory science technology program, with its foundation of course sequences in chemistry, biology, and instrumental analysis, was developed primarily from an industry perspective to prepare students for employment as laboratory technicians. The program has several significant factors that set it apart, including the application of real-world analyses and a state-of-the-art instrumentation laboratory. Graduates are prepared to work in a broad range of fields, including chemical, biological, biotechnical, pharmaceutical, environmental, industrial, forensic, and food analysis. This program is available for qualified deaf and hard of hearing students.

If you're interested in doing scientific analysis and lab work in chemical, biological, biotechnical, pharmaceutical, environmental, forensic, food or industrial fields, then the laboratory science technology program is for you. You will study in laboratory settings with experienced faculty and learn to use state-of-the-art laboratory equipment for scientific analysis. Our advanced, high-tech analytical instrumentation is equivalent to that used by scientists on the job. You get hands-on experience using this instrumentation daily.

The associate in occupational studies (AOS) degree in laboratory science technology, offered by RIT's National Technical Institute for the Deaf, is a career-focused degree program that leads to immediate entry into well-paying careers at the paraprofessional or technician level in municipal, public, private and industrial laboratories. Technicians are involved with the collection and preparation of samples and standards. They also perform instrumental, volumetric, gravimetric, and biological analyses. Additional job responsibilities may include the interpretation and reporting of experimental results and data.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the laboratory science technology program are required to complete a cooperative education work experience prior to graduation. You may schedule your co-op after completing your second-year academic requirements.

Curriculum

Laboratory Science Technology, AOS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
NENG-212	NTID General Education Foundation – Career English: Career English I	3
NENG-213	NTID General Education Foundation – Career English: Career English II	3
NLST-120	Laboratory Tools	3
NLST-171	Fundamentals of Chemistry I	3
NLST-172	Fundamentals of Chemistry II	3
NLST-220	Analytical Chemistry	4
NMTH-212	NTID General Education Foundation – Mathematics: Integrated Algebra†	3
NSCI-161	NTID General Education – Scientific Processes Perspective: Fundamentals of Biology I	3
NSCI-162	Fundamentals of Biology II	3
Second Year		
NLST-225	Laboratory Applications	3
NLST-230	Principles of Organic Chemistry	4
NLST-235	Principles of Biochemistry	3
NLST-240	Biotechnology I	3
NLST-245	Biotechnology II	3
NLST-250	Quantitative Instrumental Analysis	4
NLST-255	Chemical Separations & Chromatography	4
NLST-260	Laboratory Methods	3
NLST-299	Co-op: Laboratory Science Technology	0
Third Year		
NLST-232	Laboratory Mathematics	3
	Technical Electives‡	6
	NTID General Education – Perspective§	3
Total Semester Credit Hours		**67**

See NTID General Education Curriculum (GE) requirements for more information.
See Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
† Students placing above NMTH-212 can take a higher-level NMTH course or any course from a non-science GE Perspective area.
‡ Courses that may be used as a technical elective include: Chemical Technology (NLST-270), Undergraduate Research: Laboratory Science Technology (NLST-285, with department approval), NSCI-120 or above with department approval, or NMTH-220 or above with department approval.
§ This GE Perspective course may be from any of the following three Perspective categories: ASL-Deaf Cultural Studies; Communication, Social & Global Awareness; or Creative and Innovative Exploration.

Admission requirements

For the career-focused AOS Degree

- 2 years of math required
- 1 year of science required
- English language skills as evidenced by application materials determine associate degree options.

Specific English, Mathematics, and Science Requirements and other Recommendations

- English: Placement into Career English I (NENG-212) or above. Students successfully completing AOS degrees typically enter with reading scores of 79 or higher on the NTID Reading Test and writing scores of 39 or higher on the NTID Writing Test.
- Mathematics: Placement into Integrated Algebra (NMTH-212) or above. Typically, students entering this major will have completed at least three years of high school mathematics.
- Science: Typically, students entering this major will have completed at least two years of high school science. Completion of high school chemistry is required.
- ACT (optional): The ACT middle 50% composite score is 14-17.

Mobile Application Development, AAS

www.rit.edu/study/mobile-application-development-aas
Brian Trager, Department Chair
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Program overview

The associate in applied science (AAS) degree in mobile application development prepares you for work in the software development industry with a focus on application design and development for mobile platforms. Mobile app development is a field that brings concepts in programming, web development, and interface design together. Using current and emerging technologies, you develop skills in app design, learn relevant programming languages for application development on a variety of smart-devices, and learn the policies and procedures for submitting apps for distribution. This program is available for qualified deaf and hard of hearing students.

Courses you will take cover multiple aspects of internet, mobile-related technologies, including programming languages and web markup, server side technologies and tools, mobile web development, responsive design, and application optimization for mobile devices.

Graduates of this program may work independently or with a team of programmers writing and developing software programs for mobile applications for contemporary devices. This requires skills in information gathering, user-centered design, effective deployment practices on a range of devices, and strong communication skills.

Mobile application development is available as AAS or as an Associate+Bachelor's Degree Program.

The AAS degree in mobile application development, offered by RIT's National Technical Institute for the Deaf, is a career-focused degree program that leads to immediate entry into the workforce.

The Associate+Bachelor's Degree Program in mobile application development prepares you to complete an RIT bachelor's degree. You start with an AAS in mobile application development, which provides you with the foundational courses and credits you need to enroll in and successfully complete a bachelor's degree program in RIT's Golisano College of Computing and Information Sciences. Upon completion of your AAS program, you will enroll in the Golisano College where you will complete a bachelor's degree in web and mobile computing.

Learn more about the benefits of pursuing an Associate+Bachelor's Degree Program.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the mobile application development program are required to complete a cooperative education work experience prior to graduation. You may schedule your co-op after completing your second-year academic requirements.

Curriculum

Mobile Application Development, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NACA-172	Website Development‡	3
NCAR-010	Freshman Seminar	0
NMAD-155	Survey of Emerging Visual Design	3
NMAD-180	Programming Fundamentals I: Mobile Domain	4
NMAD-181	Programming Fundamentals II: Mobile Domain	4
NMAD-182	Software Analysis and Design	3
NMAD-250	Mobile User Experience	3
NMTH-255	General Education – Elective: Introduction to Discrete Mathematics	3
UWRT-150	General Education – First-Year Writing: FYW: Writing Seminar (WI)	3
	General Education – Elective*	3
Second Year		
ISTE-230	Introduction to Database and Data Modeling	3
ISTE-240	Web & Mobile II	3
NACT-240	The World of Work	3
NMAD-252	Mobile User Interfaces	3
NMAD-260	Mobile App Development I	4
NMAD-261	Mobile App Development II	4
NMAD-262	Web Services and Data Storage Technologies	3
NMAD-299	Mobile Application Development Co-op	0
	General Education – Ethical Perspective*	3
	General Education – Social Perspective*	3
	General Education – Scientific Principles Perspective	3
Third Year		
NBUS-225	Introduction to Entrepreneurship	3
NMAD-290	Mobile Applications Development Capstone Projects	3
	Open Elective*	3
	General Education – Artistic Perspective*	3
	General Education – Global Perspective*	3
Total Semester Credit Hours		**76**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
* An ASL-Deaf Cultural Studies (AASASLDCS) course is required for graduation. It can be taken in any semester and can be taken at NTID or another college of RIT. In order to fulfill this requirement as part of the credit hours in the program, it can be a course approved for both AASASLDCS and a General Education – Perspective or General Education – Elective.
‡ NACA-172 and ISTE-140 are equivalents.

Admission requirements

For the career-focused AAS Degree

- 2 years of math required
- 1 year of science required
- English language skills as evidenced by application materials determine associate degree options.

For the AAS Degree Leading to Bachelor's Degree (Associate+Bachelor's Program)

- 2 years of math required; students interested in engineering, math and science transfer programs should have three or more years of math.
- 1 year of science required; students interested in engineering, math and science transfer programs should have two or more years of science.
- Physics is recommended for students interested in engineering.
- English language skills, as evidenced by application materials, determine associate degree options.

Specific English, Mathematics and Science Requirements and other Recommendations

- English: Placement in a First Year Writing course such as FYW: Writing Seminar (UWRT-150). Students that place into Critical Reading and Writing (UWRT-100) would also be considered.
- Mathematics: Placement into NTID Introduction to Discrete Mathematics (NMTH-255) or higher. Typically, students entering this major will have completed at least three years of high school mathematics.
- Science: Typically, students entering this major will have completed at least two years of high school science.
- ACT (optional): The ACT middle 50% composite score is 18-21 with minimum scores of 18 in Mathematics, 16 in English, and 19 in Reading.

Performing Arts, Certificate

www.rit.edu/study/performing-arts-certificate

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Program overview

The performing arts certificate program offers deaf, hard-of-hearing, and hearing students the opportunity to develop knowledge of standard theatrical operating procedures as well as principles and practices of theater accessibility for deaf people, allowing them to work in professional, regional, and community theater. It also provides a solid foundation for those who wish to pursue further education in film, video, theater, and related forms of performing arts.

The performing arts certificate program was primarily developed to broaden employment opportunities for graduates in design and imaging, communications and related business areas, industrial technologies, and other fields by expanding their repertoire of marketable skills. It is designed to provide students with knowledge of theater terminology, practices and protocols, issues in script analysis, ASL translation and accessibility; and experience in performance and technical theater. Students must take three 3-credit courses from NTID's Performing Arts Program and a production practicum (at least one credit hour) to meet the certificate requirements. The three additional courses are in areas such as stagecraft, acting, scenic and lighting technology, and scenic painting and props, to name a few.

Curriculum

Performing Arts, certificate, typical course sequence

COURSE		SEMESTER CREDIT HOURS
PRFN-218	Theatre Practicum	1
Choose three of the following:		9
PRFN-100	Introduction to Performing Arts	
PRFN-102	Introduction to Stagecraft	
PRFN-110	Acting I	
PRFN-111	Sign Mime, Creative Movement, and Visual Theatre	
PRFN-144	Dance I: Jazz and Hip-Hop	
PRFN-199	Independent Study: Performing Arts	
PRFN-200	Appreciation of Theatrical Design	
PRFN-203	Scenic and Lighting Technology	
PRFN-204	Scenic Painting and Props	
PRFN-205	Costume, Mask, and Stage Make-Up	
PRFN-210	Acting II	
PRFN-245	Dance II: Modern Dance and Ballet	
PRFN-219	Seminar in Performing Arts	
PRFN-289	Special Topics: Performing Arts	
Total Semester Credit Hours		**10**

Admission requirements

Applicants for the performing arts certificate must be students in good standing in an undergraduate program at RIT, or hold an undergraduate degree from RIT.

Candidates must complete or have already completed an undergraduate degree program from RIT to receive this certificate.

Pre-Baccalaureate Engineering Studies

www.rit.edu/study/pre-baccalaureate-engineering-studies

Dino Laury (Lauria), Department Chair
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Program overview

The pre-baccalaureate studies program is available to students who are accepted by RIT's National Technical Institute for the Deaf (NTID) and are close to, but not fully ready for, direct entry into a baccalaureate-level program through one of the other colleges of RIT. It is a bridge program for qualified students, based on academic transcripts, scores on admissions tests, and other evidence that supports a reasonable expectation of success in baccalaureate course work. Qualified students who are undecided as to a program of study may choose the career exploration studies program.

Enrollment in the pre-baccalaureate studies program is appropriate for students who need to further develop mathematics, English, or discipline-related skills. The academic program is flexible and individualized and allows students to focus on needed skills while concurrently progressing toward their chosen field of study. Students may take courses taught by NTID faculty, as well as entry-level courses taught in other RIT colleges. While in the program, students receive academic advising as well as career counseling.

Students cannot receive a degree in pre-baccalaureate studies. Rather, they will apply for admission into a baccalaureate program as soon as they are academically ready and the college offering their chosen baccalaureate program reviews their application for admission. After completing an entire academic year in the program, a student must transfer to a degree-granting program in NTID or one of the other colleges of RIT.

Curriculum

Pre-baccalaureate Studies, Engineering Option, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
PHYS-211	University Physics I	4
PHYS-212	University Physics II	4
MATH-181	Project-Based Calculus I‡	4
MATH-182	Project-Based Calculus II‡	4
	General Education Courses	6
	Pre-baccalaureate Courses†	0-3
	Major Courses	6
	General Education – Elective	3
Total Semester Credit Hours		**31-34**

Please see the General Education Curriculum (GE) in the Graduation Requirements section of this bulletin for more information.

† Pre-baccalaureate courses strengthen students' skills in critical thinking, learning strategies, and specific discipline areas.

‡ Alternative mathematics courses may be required as prerequisites, depending on placement. If pursuing the physics option, students must choose the physics sequence.

Pre-baccalaureate Studies, Engineering Technology Option, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
PHYS-111	College Physics I	4
MATH-111	Precalculus	3
MATH-171	Calculus A‡	3
MATH-172	Calculus B‡	3
	General Education - Elective	3
	Pre-baccalaureate Courses†	0-3
	Undeclared Engineering Technology Seminar	1
	Major Courses	6
	General Education Courses	6
Total Semester Credit Hours		**29-32**

Please see the General Education Curriculum (GE) in the Graduation Requirements section of this bulletin for more information.

† Pre-baccalaureate courses strengthen students' skills in critical thinking, learning strategies, and specific discipline areas.

‡ Alternative mathematics courses may be required as prerequisites, depending on placement. If pursuing the physics option, students must choose the physics sequence.

Admission requirements

Specific English, Mathematics and Science Requirements and other Recommendations

Students entering pre-baccalaureate studies in engineering studies will typically be required to have:

- English: Placement into a First Year Writing course, such as FYW: Writing Seminar (UWRT-150), or Critical Reading and Writing (UWRT-100).
- Mathematics: Placement into NTID's Advanced Math (NMTH-275) course or higher, such as Pre-calculus (MATH-111).
- Science: Readiness after a single NTID science course, Concepts of College Physics (NSCI-270), for entry into RIT's College of Science Physics I (PHYS-111) course.
- ACT (optional): The ACT middle 50% composite score is 18-21 (20 Math, 18 Reading).

Pre-Baccalaureate Liberal Studies

www.rit.edu/study/pre-baccalaureate-liberal-studies

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Program overview

The pre-baccalaureate studies program is available to students who are accepted by NTID and are close to, but not fully ready for, direct entry into a baccalaureate-level program through one of the other colleges of RIT. It is a bridge program for qualified students, based on academic transcripts, scores on admissions tests, and other evidence that supports a reasonable expectation of success in baccalaureate course work. Qualified students who are undecided as to a program of study may choose the career exploration studies program.

Enrollment in the pre-baccalaureate studies program is appropriate for students who need to further develop mathematics, English, or discipline-related skills. The academic program is flexible and individualized and allows students to focus on needed skills while concurrently progressing toward their chosen field of study. Students may take courses taught by NTID faculty, as well as entry-level courses taught in other RIT colleges. While in the program, students receive academic advising as well as career counseling.

Students cannot receive a degree in pre-baccalaureate studies. Rather, they will apply for admission into a baccalaureate program as soon as they are academically ready and the college offering their chosen baccalaureate program reviews their application for admission. After completing an entire academic year in the program, a student must transfer to a degree-granting program in NTID or one of the other colleges of RIT.

Curriculum

Pre-baccalaureate Studies, Liberal Studies, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
	First Year Major Courses	6
	General Education Courses*	6-9
	Mathematics or Science Course‡	3
	NTID Humanities or Social Science Courses§	3
	Pre-Baccalaureate Courses†	6-9
Total Semester Credit Hours		**24-30**

* Please see the NTID General Education Curriculum (GE) for more information. Depending on placement, the writing sequence may begin with Critical Reading and Writing (UWRT-100) or a First Year Writing course, such as FYW: Writing Seminar (UWRT-150). Students should also choose a course that satisfies one of the RIT GE Perspectives: ethical, artistic, global, or social.

† Pre-baccalaureate courses strengthen students' skills in critical thinking, learning strategies, and specific discipline areas.

‡ Students may choose one of the following: NMTH-210, NMTH-250, NMTH-260, or a science course numbered NSCI-250 or higher.

§ Students may choose one of the following: any communication studies course numbered NCOM-201 or higher, or any humanities and social sciences course numbered NHSS-260 or higher.

Admission requirements

Specific English, and Mathematics Requirements and other Recommendations

Students entering pre-baccalaureate studies in liberal studies will typically be required to have:

- English: Placement into Critical Reading and Writing (UWRT-100)
- Mathematics: Placement into the NTID Advanced Mathematics (NMTH-275) course or higher
- ACT (optional): The ACT middle 50% composite score is 18-21 with a reading score of 20 and all other skill area scores of 18 or higher.

Pre-Baccalaureate Science and Mathematics

www.rit.edu/study/pre-baccalaureate-science-and-mathematics

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Program overview

The pre-baccalaureate studies program is available to students who are accepted by NTID and are close to, but not fully ready for, direct entry into a baccalaureate-level program through one of the other colleges of RIT. It is a bridge program for qualified students, based on academic transcripts, scores on admissions tests, and other evidence that supports a reasonable expectation of success in baccalaureate course work. Qualified students who are undecided as to a program of study may choose the career exploration studies program.

Enrollment in the pre-baccalaureate studies program is appropriate for students who need to further develop mathematics, English, or discipline-related skills. The academic program is flexible and individualized and allows students to focus on needed skills while concurrently progressing toward their chosen field of study. Students may take courses taught by NTID faculty, as well as entry-level courses taught in other RIT colleges. While in the program, students receive academic advising as well as career counseling.

Students cannot receive a degree in pre-baccalaureate studies. Rather, they will apply for admission into a baccalaureate program as soon as they are academically ready and the college offering their chosen baccalaureate program reviews their application for admission. After completing an entire academic year in the program, a student must transfer to a degree-granting program in NTID or one of the other colleges of RIT.

Curriculum

Pre-Baccalaureate Studies (Environmental Management or Medical Sciences), typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-101	General Biology I	3
BIOL-102	General Biology II	3
BIOL-103	General Biology I Lab	1
BIOL-104	General Biology II Lab	1
MATH-101	College Algebra	3
MATH-161	Applied Calculus‡	4
NCAR-010	Freshman Seminar	0
	Pre-baccalaureate courses*	3-6
	General Education Courses†	9
Total Semester Credit Hours		**27-30**

* Pre-baccalaureate courses are an available option to strengthen students' skills in critical thinking, learning strategies, and specific discipline areas.
† Please see General Education Requirements for more information. Depending on placement, the writing sequence may begin with Critical Reading and Writing (UWRT-100) or FYW: Writing Seminar (UWRT-150).
‡ Alternative mathematics courses may be required as prerequisites, depending on placement.

Pre-Baccalaureate Studies in Science (Chemistry Option), typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHMG-141	General & Analytical Chemistry I	3
CHMG-142	General & Analytical Chemistry II	3
CHMG-145	General & Analytical Chemistry I Lab	1
CHMG-146	General & Analytical Chemistry II Lab	1
MATH-181	Project-Based Calculus I	4
MATH-182	Project-Based Calculus II	4
NCAR-010	Freshman Seminar	0
	General Education Courses*	9
	Pre-baccalaureate courses†	3-6
Total Semester Credit Hours		**28-31**

* Please see General Education Requirements for more information. Depending on placement, the writing sequence may begin with Critical Reading and Writing (UWRT-100) or FYW: Writing Seminar (UWRT-150).
† Pre-baccalaureate courses are available to strengthen students' skills in critical thinking, learning strategies, and specific discipline areas.

Pre-Baccalaureate Studies in Science (Math or Physics Option), typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
Choose one of the following course sequences:§		8
CHMG-141	General & Analytical Chemistry I	
CHMG-142	General & Analytical Chemistry II	
CHMG-145	General & Analytical Chemistry I Lab	
CHMG-146	General & Analytical Chemistry I Lab	
or		
PHYS-211	University Physics I	
PHYS-212	University Physics II	
Choose one of the following course sequences:‡		6-8
MATH-171	Calculus A	
MATH-172	Calculus B	
or		
MATH-181	Project-Based Calculus I	
MATH-182	Project-Based Calculus II	
	General Education Courses*	9
	Pre-baccalaureate Courses†	3-6
Total Semester Credit Hours		**26-31**

* Please see General Education Requirements for more information. Depending on placement, the writing sequence may begin with Critical Reading and Writing (UWRT-100) or FYW: Writing Seminar (UWRT-150).
† Pre-baccalaureate courses are an option to strengthen students' skills in critical thinking, learning strategies, and specific discipline areas.
‡ Alternate mathematics courses may be required as prerequisites, depending on placement.
§ If pursuing the physics option, students must choose the physics sequence.

Admission requirements

Specific English and Mathematics Requirements and other Recommendations

Students entering pre-baccalaureate studies in science or mathematics will typically be required to have:

- English: Placement into Critical Reading and Writing (UWRT-100)
- Mathematics: Placement in NTID Advanced Mathematics (NMTH-275) course or higher
- ACT (optional): The ACT middle 50% composite score is 18-21 with subscores of at least 19.

Pre-Baccalaureate Visual Communications Studies

www.rit.edu/study/pre-baccalaureate-visual-communications-studies

Edward Mineck, Professor
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Program overview

The pre-baccalaureate studies program is available to students who are accepted by NTID and are close to, but not fully ready for, direct entry into a baccalaureate-level program through one of the other colleges of RIT. It is a bridge program for qualified students, based on academic transcripts, scores on admissions tests, and other evidence that supports a reasonable expectation of success in baccalaureate course work. Qualified students who are undecided as to a program of study may choose the career exploration studies program.

Enrollment in the pre-baccalaureate studies program is appropriate for students who need to further develop mathematics, English, or discipline-related skills. The academic program is flexible and individualized and allows students to focus on needed skills while concurrently progressing toward their chosen field of study. Students may take courses taught by NTID faculty, as well as entry-level courses taught in other RIT colleges. While in the program, students receive academic advising as well as career counseling.

Students cannot receive a degree in pre-baccalaureate studies. Rather, they will apply for admission into a baccalaureate program as soon as they are academically ready and the college offering their chosen baccalaureate program reviews their application for admission. After completing an entire academic year in the program, a student must transfer to a degree-granting program in NTID or one of the other colleges of RIT.

Curriculum

Pre-Baccalaureate Studies, Visual Communications Studies (Schools of American Crafts, Art, and Design), typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NAIS-120	Principles of Design and Color	3
NAIS-130	Raster and Vector Graphics	3
NAIS-140	Graphic Design and Typography I	3
NCAR-010	Freshman Seminar	0
NGRD-111	Drawing I	3
NGRD-115	Visual Idea Development	3
NGRD-211	Drawing II	3
	General Education Courses	12
	Elective	3
Total Semester Credit Hours		**33**

Please see the General Education Requirements for more information.
Note: Portfolio of original artwork is required to determine admission. See the College of Art and Design support coordinator for further information.

Pre-Baccalaureate Studies, Visual Communications Studies (School of Photographic Arts and Sciences), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NAIS-120	Principles of Design and Color	3
NAIS-130	Raster and Vector Graphics	3
NAIS-140	Graphic Design and Topography I	3
NCAR-010	Freshman Seminar	0
NGRD-111	Drawing I	3
NGRD-115	Visual Idea Development	3
NGRP-110	Digital Photography I	3
NGRP-210	Digital Photography II	3
	General Education Courses	12
Total Semester Credit Hours		**33**

Please see the General Education Requirements for more information.

Pre-Baccalaureate Studies, Visual Communications Studies (School of Photographic Arts and Sciences), BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NAIS-120	Principles of Design and Color	3
NAIS-130	Raster and Vector Graphics	3
NCAR-010	Freshman Seminar	0
NGRP-110	Digital Photography I	3
NGRP-231	Image Preparation	3
NGRP-232	Image Manipulation	3
	General Education Courses	12
	Math Course*	3
	Science Course†	3
Total Semester Credit Hours		**33**

Please see the General Education Requirements for more information.
* Students may choose any mathematics course numbered NMTH-120 or higher.
† Students may choose any science course numbered NSCI-120 or higher.

Pre-Baccalaureate Studies, Visual Communications Studies (Film and Animation Option), typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
NGRP-220	Videography	3
SOFA-107	Principles of Animation	3
SOFA-103	Introduction to Imaging and Video Systems	3
SOFA-106	Film Syntax	2
	Theatre Electives/Performing Arts†	3-9
	General Education Courses	12
Total Semester Credit Hours		**26-32**

Please see the General Education Requirements for more information.
† Please see the College of Art and Design support coordinator for a list of current theatre electives.

Pre-Baccalaureate Studies, Visual Communications Studies (Department of Graphic Media Science and Technology), typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NAIS-130	Raster and Vector Graphics	3
NAIS-150	Page Layout I	3
NCAR-010	Freshman Seminar	0
NGRP-231	Image Preparation	3
NGRP-232	Image Manipulation	3
NGRP-245	Color Theory and Management	3
	Math Course†	3
	Science Course‡	3
	General Education Courses	12
Total Semester Credit Hours		**33**

Please see the General Education Requirements for more information.
† Students may choose any mathematics course numbered NMTH-120 or higher.
‡ Students may choose any science course numbered NSCI-120 or higher.

Admission requirements

Specific English, Mathematics, and Science Requirements and other Recommendations

Students entering pre-baccalaureate studies in arts and imaging studies will typically be required to have:

- English: Placement into a First Year Writing course, such as FYW: Writing Seminar (UWRT-150)
- Mathematics: Placement into mathematics course NMTH-120 or higher for BFA degrees or NMTH-250 or higher for BS degrees
- Science: Placement into science NSCI-120 or higher for BFA degrees or NSCI-250 or higher for BS degrees
- ACT (optional): The ACT middle 50% composite score is 18-21

Precision Manufacturing Technology, AOS

www.rit.edu/study/precision-manufacturing-technology-aos
Dino Laury, Chairperson
585-286-4613 (VP), dino@mail.rit.edu

Program overview

Students in the associate in occupational studies (AOS) degree in precision manufacturing technology (formerly computer integrated machining technology) are prepared for employment in precision machining and/or precision optics manufacturing occupations. These include tool and die making, mold making, instrument making, manufacturing of optical elements, and computer numerical control machining (CNC). Graduates are successfully employed in both large manufacturing corporations and small contract manufacturing shops. This program is available for qualified deaf and hard of hearing students.

The precision manufacturing technology program, offered by RIT's National Technical Institute for the Deaf, prepares you for immediate employment upon graduation. Some of the job responsibilities for graduates include: set up and operate lathes, milling machine tools, grinders, polishers, computer numerical controlled machine tools, and computer-aided manufacturing (i.e., 5-axis); shape material into precision parts by conventional and nonconventional processes; follow blueprints; and use advanced measuring techniques to inspect work.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the precision manufacturing technology program are required to complete a cooperative education work experience prior to graduation. You may schedule your co-op after completing your second-year academic requirements.

Curriculum

Precision Manufacturing Technology, AOS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
NPMT-101	Blueprint Reading I	3
NPMT-121	Precision Measurement I	3
NPMT-131	Precision Manufacturing Technology I	3
NPMT-132	Precision Manufacturing Technology II	3
NPMT-214	CAD Applications	3
NENG-212	NTID General Education Foundation – Career English: Career English I	3
NENG-213	NTID General Education Foundation – Career English: Career English II	3
NMTH-206	Trigonometry for Coordinate Analysis	3
	NTID General Education Foundation – Mathematics†	3
Second Year		
NPMT-201	Job Search for PMT	2
NPMT-222	Precision Measurement II	3
NPMT-233	Precision Manufacturing Technology III	3
NPMT-234	Precision Manufacturing Technology IV	3
NPMT-241	Precision Optics Manufacturing I	3
NPMT-251	Computer Numerical Control I	3
NPMT-252	Computer Numerical Control II	3
NPMT-254	Introduction to Computer Aided Manufacturing	3
NPMT-299	Co-op: Precision Manufacturing Technology	0
	NTID General Education – Scientific Processes Perspective§	3
	NPMT Program Technical Elective	3
Third Year		
NPMT-235	Precision Manufacturing Technology V	3
NCIM-236	Precision Manufacturing Technology V Lab	3
	NTID General Education – Perspective‡	3
	NPMT Program Technical Elective	3
Total Semester Credit Hours		**68**

Please see the NTID General Education Curriculum (GE) for more information.
Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
† Any mathematics course numbered NMTH-180 or higher
‡ NTID LAS Perspective course may be from any of these three Perspective categories: ASL-Deaf Cultural Studies; Communication, Social & Global Awareness; and Creative and Innovative Exploration
§ Any scientific processes course NSCI-120 or higher.

Electives

COURSE	
NPMT-102	Blueprint Reading II
NPMT-237	Precision Grinding
NPMT-242	Precision Optics Manufacturing II
NPMT-253	Advanced CNS Concepts

Admission requirements

For the career-focused AOS Degree

- 2 years of math required
- 1 year of science required
- English language skills as evidenced by application materials determine associate degree options.

Specific English, Mathematics and Science Requirements and other Recommendations
Successful completion of a sampling experience either through the Summer Vestibule Program or an equivalent career exploration course is a prerequisite, as are the following:

- English: Placement into Career English I (NENG-212) or above. Students successfully completing AOS degrees typically enter with reading scores of 79 or higher on the NTID Reading Test and writing scores of 39 or higher on the NTID Writing Test.
- Mathematics: Placement into Foundations of Algebra (NMTH-180) or a higher-level course. Typically, students entering this major will have completed at least three years of high school mathematics.
- Science: Typically, students entering this major will have completed at least two years of high school science.
- ACT (optional): The ACT middle 50% composite score is 14-17.

Faculty

Gerard J. Buckley, BS, Rochester Institute of Technology; MSW, University of Missouri; Ed.D., University of Kansas—President, NTID and Vice President and Dean, RIT; Associate Professor

Todd E. Pagano, BA, State University College at Oswego; MS, Ph.D., Tufts University—Associate Dean for Teaching and Scholarship Excellence; Professor

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The National Advisory Group

Belladarius Bell, Jr., State Coordinator of Deaf & Hard of Hearing Services for Alabama Department of Rehabilitation Services

Joyce Bender, CEO, Bender Consulting Services

Tina Childress, Freelance Presenter/Educational Audiologist

Rachel Coleman, President, Signing Times Foundation

History Estill-Varner, Co-Executive Director, Discovering Deaf Worlds

Ernest Garrett, Superintendent, Louisiana Special School District; Chairman, Louisiana Commission for the Deaf

Tracy Ivy, Teacher, Minnetonka High School

Christopher Lehfeldt, Elmwood Dental Group

Pamela Lloyd-Ogoke, Chief of Community Integration Services and Support and ADA Compliance Officer, North Disability Services, NC

Cham Leung

Norma Moran, Hands & Voices, DC Chapter

Mary Beth Mothersell, Sprint Relay

Karen Putz, Owner, Ageless Passions

Annette Reichman, Superintendent, Arizona School for the Deaf and Blind

Robert Sidansky, California State University

Kathleen Treni, Principal of the Continuum of Services for the Deaf and Hard of Hearing, Bergen County

Scott Van Nice, Cybersecurity, Proctor & Gamble

Scott Wills, Research Scientist, Dow Chemical Company

U.S. Government Representatives

The Honorable Joseph Morelle, Member, U.S. House of Representatives, New York State

The Honorable Charles E. Schumer, Member, U.S. Senate, New York State

Honorary Members

W. Frank Blount

Nancy R. Horton

Jane Ratcliffe Pulver

College of Science

Sophia Maggelakis, Dean
rit.edu/science

Programs of study

#	Applied Mathematics, BS	234
#	Applied Statistics and Actuarial Science, BS	237
	Biochemistry, BS	239
#	Bioinformatics and Computational Biology, BS	241
#	Biology, BS	244
	Biotechnology and Molecular Bioscience, BS	247
#	Chemistry, BS	248
#	Computational Mathematics, BS	251
#	Environmental Science, BS	253
	Imaging Science, BS	257
#	Physics, BS	258
	Science Exploration, Undeclared	263

Accelerated dual degree available

Undergraduates in the College of Science receive a unique education, one that emphasizes the applications of science and mathematics in the professional world while providing a comprehensive liberal arts education in the humanities and social sciences. The College of Science curricula reflects current trends in the application of science and mathematics while preparing students for graduate study or for immediate employment in business, industry, government, and the medical science professions.

All of the college's undergraduate programs serve as excellent preparation for graduate, medical, law, or business school.

Within an academic community committed to diversity and student centeredness, our emphasis is on the practical aspects of science and mathematics as found in science and computer laboratories. Students learn important skills in critical and analytical thinking, problem solving, and technical communication. While we are career-oriented, we recognize the value of the liberal arts for the intellectual enrichment of our students. In addition to technical competence, many of the skills acquired through the study of the liberal arts also are required by employers for promotion and career advancement.

Please visit the college's website–**rit.edu/science**–for in depth information on academics, faculty, facilities, research initiatives, advising services, and more.

Admission requirements

For more information on undergraduate admission, including freshman and transfer admission guidelines, please refer to individual program descriptions and the Undergraduate Admission section of this bulletin.

Financial aid and scholarships

Please refer to the Financial Aid and Scholarships section of this bulletin for information regarding financial aid, scholarships, loans, and grants.

Applied Mathematics, BS

www.rit.edu/study/applied-mathematics-bs
Mary Lynn Reed, Professor
585-475-2163, mlrsma@rit.edu

Program overview

Applied mathematicians develop models for perfecting global positioning systems, analyzing cost-effectiveness in manufacturing processes, or improving digital encryption software. The applied mathematics major focuses on the study and solution of problems that can be mathematically analyzed across industrial fields and research disciplines.

The applied mathematics major focuses on the study and solution of problems that can be mathematically analyzed. Industry, academia, and government all have a great need for individuals with this type of education. You will gain the knowledge and skills to collaborate on complex problems with scientists, engineers, computer specialists, or other analysts. Some application areas include applied statistics; biology; business; economics; chemistry; electrical, industrial, or mechanical engineering; operations research; and imaging science.

Graduates typically are employed in scientific, engineering, business, or government environments, applying their mathematics background to the analysis and solution of real-world problems.

Course of Study

You can choose courses from one more than twenty application areas that provide them with the knowledge and skills to collaborate on com-

plex problems with scientists, engineers, computer specialists, or other analysts. Some of those areas include applied statistics; biology; business; economics; chemistry; electrical, industrial, or mechanical engineering; operations research; or imaging science.

Real World Experiences

You'll collaborate with a faculty researcher on a variety of projects in both applied and theoretical mathematics providing you with valuable exposure to real-world problems faced by America's top companies and research organization. As a result, RIT undergraduates in mathematics are highly-sought as co-op employees.

You'll also have the opportunity to work with researchers in the School of Mathematical Sciences studying interesting problems in areas such as computational photonics, mathematical biology, microelectromechanical systems, and network analysis.

Nature of Work

Mathematicians use theory, computational techniques, algorithms, and the latest computer technology to solve economic, scientific, engineering, physics, and business problems. The work of mathematicians falls into two broad classes — theoretical (pure) mathematics and applied mathematics. These classes, however, often overlap. Applied mathematicians start with a practical problem, envision its separate elements, and then reduce the elements to mathematical variables. They often use computers to analyze relationships among the variables, and they solve complex problems by developing models with alternative solutions.

Training Qualifications

Industry, academia, and government all have a great need for individuals with this type of education. Typically, graduates are employed in scientific, engineering, business, or government environments, applying their mathematics background to the analysis and solution of real-world problems.

In the federal government, entry-level job candidates usually must have a four-year degree with a major in mathematics or a four-year degree with the equivalent of a mathematics major. Outside the federal government, a graduate-level education is usually a minimum requirement; many seek advanced degrees in mathematics or a related discipline. However, those with bachelor's degrees who meet state certification requirements may become primary or secondary school mathematics teachers.

The majority of those with a master's degree in mathematics who work in private industry do so not as mathematicians but in related fields. For jobs in applied mathematics, training in the field in which mathematics will be used is very important. Mathematics is used extensively in physics, actuarial science, statistics, engineering, and operations research. Computer science, business and industrial management, economics, finance, chemistry, geology, life sciences, and behavioral sciences are likewise dependent on applied mathematics. Mathematicians also should have substantial knowledge of computer programming, because most complex mathematical computation and much mathematical modeling are done on a computer.

Graduate School

Master's Degrees and Doctorates

Graduate programs offered by the School of Mathematical Sciences introduce students to rigorous advanced applied mathematical and statistical methodology. Students realize the potential for that cutting-edge methodology as a general tool in the study of exciting problems in science, business, and industry. The school offers the following advanced degrees: an advanced certificate in applied statistics, master of science degrees in applied and computational mathematics and applied statistics, and a doctorate degree in mathematical modeling.

Accelerated 4+1 MBA option

An accelerated 4+1 option is available for students who wish to earn a BS in applied mathematics and an MBA. The option is offered in conjunction with Saunders College of Business and allows students to obtain both degrees in five years of study.

Curriculum

Applied Mathematics, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSCI-101	General Education – Elective: Principles of Computing	3
CSCI-141	General Education – Elective: Computer Science I	4
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-199	Mathematics and Statistics Seminar	1
YOPS-10	RIT 365: RIT Connections	0
	General Education – Elective	3
	General Education – First-Year Writing (WI)	3
	General Education – Artistic Perspective	3
	General Education – Natural Science Inquiry Perspective 5‡	4
Second Year		
MATH-200	Discrete Mathematics and Introduction to Proofs	3
MATH-251	Probability and Statistics I	3
MATH-252	Probability and Statistics II	3
MATH-231	Differential Equations	3
MATH-399	Mathematical Sciences Job Search Seminar	0
Choose one of the following:		3
MATH-241	Linear Algebra	
MATH-241H	Honors Linear Algebra	
Choose one of the following:		4
MATH-221	General Education – Elective: Multivariable and Vector Calculus	
MATH-221H	General Education – Elective: Honors Multivariable and Vector Calculus	
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Scientific Principles Perspective‡	4
Third Year		
MATH-431	Real Variables I	3
	Program Electives	18
	General Education – Immersion 1, 2	6
	Open Elective	3
Fourth Year		
MATH-411	Numerical Analysis	3
MATH-421	Mathematical Modeling (WI-PR)	3
MATH-441	Abstract Algebra I	3
	General Education – Immersion 3	3
	General Education – Electives	6
	Program Electives	3
	Open Electives	9
Total Semester Credit Hours		**121**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either University Physics I (PHYS-211) and University Physics II (PHYS-212) or General & Analytical Chemistry I and Lab (CHMG-141/145) and General & Analytical Chemistry II and Lab (CHMG-142/146) or General Biology I and Lab (BIOL-101/103) and General Biology II and Lab (BIOL-102/104).

Accelerated dual degree options

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic advisor for more information.

Applied Mathematics, BS degree/Applied and Computational Mathematics (thesis option), MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSCI-101	General Education – Elective: Principles of Computing	3
CSCI-141	General Education – Elective: Computer Science I	4
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-199	Mathematics and Statistics Seminar	1
YOPS-10	RIT 365: RIT Connections	0
	General Education – Elective	3
	General Education – First-Year Writing (WI)	3
	General Education – Artistic Perspective	3
	General Education – Natural Science Inquiry Perspective‡	4
Second Year		
MATH-200	Discrete Mathematics and Introduction to Proofs	3
MATH-231	Differential Equations	3
MATH-251	Probability and Statistics I	3
MATH-252	Probability and Statistics II	3
MATH-399	Mathematical Sciences Job Search Seminar	0
Choose one of the following:		4
MATH-221	Multivariable and Vector Calculus	
MATH-221H	Honors Multivariable and Vector Calculus	
Choose one of the following:		3
MATH-241	Linear Algebra	
MATH-241H	Honors Linear Algebra	
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Scientific Principles Perspective‡	4
Third Year		
MATH-431	Real Variables I	3
	Program Electives	15
	General Education – Immersion 1, 2	6
	Open Electives	6
	General Education – Elective	3
Fourth Year		
MATH-411	Numerical Analysis	3
MATH-421	Mathematical Modeling (WI-PR)	3
MATH-441	Abstract Algebra I	3
MATH-606	Graduate Seminar I	1
MATH-607	Graduate Seminar II	1
	Math Graduate Core Electives	9
	General Education – Immersion 3	3
	General Education – Elective	3
	Open Electives	6
Fifth Year		
MATH-790	Research and Thesis	7
	MATH Graduate Electives	12
Total Semester Credit Hours		**145**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either University Physics I (PHYS-211) and University Physics II (PHYS-212) or General & Analytical Chemistry I and Lab (CHMG-141/145) and General & Analytical Chemistry II and Lab (CHMG-142/146) or General Biology I and Lab (BIOL-101/103) and General Biology II and Lab (BIOL-102/104).

Applied Mathematics, BS degree/Applied and Computational Mathematics (project option), MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSCI-101	General Education – Elective: Principles of Computing	3
CSCI-141	General Education – Elective: Computer Science I	4
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-199	Mathematics and Statistics Seminar	1
YOPS-10	RIT 365: RIT Connections	0
	General Education – Elective	3
	General Education – First-Year Writing (WI)	3
	General Education – Artistic Perspective	3
	General Education – Natural Science Inquiry and Scientific Principles Perspective‡	4
Second Year		
MATH-200	Discrete Mathematics and Introduction to Proofs	3
MATH-221	General Education – Elective: Multivariable and Vector Calculus	4
MATH-231	Differential Equations	3
MATH-241	Linear Algebra	3
MATH-251	Probability and Statistics I	3
MATH-252	Probability and Statistics II	3
MATH-399	Mathematical Sciences Job Search Seminar	0
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Natural Science Inquiry and Scientific Principles Perspective‡	4
Third Year		
MATH-431	Real Variables I	3
	Program Electives	15
	General Education – Immersion 1, 2	6
	Open Electives	6
	General Education – Elective	3
Fourth Year		
MATH-411	Numerical Analysis	3
MATH-421	Mathematical Modeling (WI-PR)	3
MATH-441	Abstract Algebra I	3
MATH-606	Graduate Seminar I	1
MATH-607	Graduate Seminar II	1
	Math Graduate Core Electives	9
	General Education – Immersion 3	3
	General Education – Elective	3
	Open Electives	6
Fifth Year		
MATH-790	Research and Thesis	4
	MATH Graduate Electives	15
Total Semester Credit Hours		**145**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either University Physics I (PHYS-211) and University Physics II (PHYS-212) or General & Analytical Chemistry I and Lab (CHMG-141/145) and General & Analytical Chemistry II and Lab (CHMG-142/146) or General Biology I and Lab (BIOL-101/103) and General Biology II and Lab (BIOL-102/104).

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended

Transfer Admission

Transfer course recommendations without associate degree

Courses in liberal arts, physics, math, and chemistry

Appropriate associate degree programs for transfer

AS degree in liberal arts with math/science option

Applied Statistics and Actuarial Science, BS

www.rit.edu/study/applied-statistics-and-actuarial-science-bs
Mary Lynn Reed, Professor
585-475-2163, mlrsma@rit.edu

Program overview

The applied statistics and actuarial science degree will provide you with a strong foundation in mathematical and statistical methodology, experience in its applications, a solid background in the use of statistical computing packages, and the skills to communicate the results of statistical analysis. The actuary degree gives you an advantage in the fields of business, government, and industry, and also prepares you for advanced study in graduate school. You'll collaborate with specialists in both scientific and non-technical areas to design and conduct experiments and interpret the results. Diverse application areas for graduates include product design, biostatistics, actuarial science, quality control, and statistical forecasting.

As an accelerated dual degree program that allows students to earn a BS and an MS with one additional year of graduate study, the applied statistics and actuarial science degree provides you with a strong foundation in mathematical and statistical methodology, experience in its applications, a solid background in the use of statistical computing packages, and the skills to communicate the results of statistical analysis. The actuary degree gives you an advantage in the fields of business, government, and industry, and also prepares you for advanced study in graduate school. You'll collaborate with specialists in both scientific and non-technical areas to design and conduct experiments and interpret the results. Diverse application areas for graduates include product design, biostatistics, actuarial science, quality control, and statistical forecasting.

Educational Approach

Early courses are designed to give you a foundation in calculus, statistics, algebra, and computer science. Application areas are very diverse and include product design, biostatistics, actuarial science, quality control, and statistical forecasting.

Real World Experiences

Students collaborate with specialists in both scientific and non-technical areas to design and conduct experiments and interpret the results. Application areas are very diverse and include product design, biostatistics, actuarial science, quality control, and statistical forecasting.

Nature of Work

Statisticians contribute to scientific inquiry by applying their mathematical and statistical knowledge to the design of surveys and experiments; collection, processing, and analysis of data; and interpretation of the results. Statisticians may apply their knowledge of statistical methods to a variety of subject areas, such as biology, economics, engineering, medicine, public health, psychology, marketing, education, and sports. Many economic, social, political, and military decisions cannot be made without the use of statistical techniques, such as the design of experiments to gain federal approval of a newly manufactured drug. In industry, statisticians play an important role in quality control and product/process improvement based on data analysis.

Graduate School

Advanced Degrees
Graduate programs offered by the School of Mathematical Sciences introduce students to rigorous advanced applied mathematical and statistical methodology. Students realize the potential for that cutting-edge methodology as a general tool in the study of exciting problems in science, business, and industry. The school offers the following advanced degrees: an advanced certificate in applied statistics, master of science degrees in applied and computational mathematics and applied statistics, and a doctorate degree in mathematical modeling.

Accelerated 4+1 MBA option
An accelerated 4+1 option is available for students who wish to earn a BS in applied statistics and actuarial science and an MBA. The option is offered in conjunction with Saunders College of Business and allows students to obtain both degrees in five years of study.

Curriculum

Applied Statistics and Actuarial Science, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSCI-101	General Education – Elective: Principles of Computing	3
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-199	Mathematics and Statistics Seminar	1
YOPS-10	RIT 365: RIT Connections	0
	General Education – Elective	3
	General Education – First-Year Writing (WI)	3
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Natural Science Inquiry Perspective‡	4
Second Year		
MATH-200	Discrete Mathematics and Introduction to Proofs	3
MATH-251	Probability and Statistics I	3
MATH-252	Probability and Statistics II	3
MATH-399	Mathematical Sciences Job Search Seminar	0
Choose one of the following:		4
MATH-221	General Education – Elective: Multivariable and Vector Calculus	
MATH-221H	General Education – Elective: Honors Multivariable and Vector Calculus	
Choose one of the following:		3
MATH-241	Linear Algebra	
MATH-241H	Honors Linear Algebra	
	Open Elective	3
	General Education – Elective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Scientific Principles Perspective‡	4
Third Year		
MATH-255	Actuarial Mathematics	3
MATH-261	Topics in the Mathematics of Finance	3
STAT-305	Regression Analysis	3
STAT-325	Design of Experiments (WI-PR)	3
	Program Electives**	9
	General Education – Immersion 1, 2	6
	General Education – Elective	3
Fourth Year		
STAT-405	Mathematical Statistics I	3
STAT-406	Mathematical Statistics II	3
STAT-500	Senior Capstone in Statistics	3
	General Education – Immersion 3	3
	Program Electives**	6
	Open Electives	6
	General Education – Electives	6
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either University Physics I (PHYS-211) and University Physics II (PHYS-212) or General & Analytical Chemistry I and Lab (CHMG-141/145) and General & Analytical Chemistry II and Lab (CHMG-142/146) or General Biology I and Lab (BIOL-101/103) and General Biology II and Lab (BIOL-102/104).
** Three of the five program electives must be from the following list of courses: Stochastic Processes (MATH-505), Introduction to Time Series (STAT-335), Nonparametric Statistics (STAT-345), Multivariate Analysis (STAT-425), Statistical Software (STAT-511), Statistical Quality Control (STAT-521), Data Mining (STAT-547), Survey Design and Analysis (STAT-572), Categorical Data Analysis (STAT-584). A program elective is any MATH or STAT course with a course number higher than 250.

Accelerated dual degree options

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

Applied Statistics and Actuarial Science, BS degree/Applied and Computational Mathematics (thesis option), MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSCI-101	Principles of Computing	3
MATH-181	LAS Perspective 7A: Project-Based Calculus I	4
MATH-182	LAS Perspective 7B: Project-Based Calculus II	4
MATH-199	Mathematics and Statistics Seminar	1
YOPS-10	RIT 365: RIT Connections	0
	LAS Elective	3
	First Year Writing (WI)	3
	LAS Perspective 1 (ethical)	3
	LAS Perspective 2 (artistic)	3
	LAS Perspective 5‡ (natural science inquiry)	4
	LAS Perspective 6‡ (scientific principles)	4
	Wellness Education*	0
Second Year		
MATH-200	Discrete Mathematics and Introduction to Proofs	3
MATH-221	Multivariable and Vector Calculus	4
MATH-231	Differential Equations	3
MATH-241	Linear Algebra I	3
MATH-251	Probability and Statistics I	3
MATH-252	Probability and Statistics II	3
MATH-399	Mathematical Science Job Search Seminar	0
	LAS Immersion 1, 2	6
	LAS Perspective 3 (global)	3
	LAS Perspective 4 (social)	3
Third Year		
MATH-255	Actuarial Mathematics	3
MATH-261	Topics in the Mathematics of Finance	3
STAT-305	Regression Analysis	3
STAT-325	Design of Experiments (WI)	3
STAT-511	Statistical Software	3
	Free Electives	6
	LAS Immersion 3	3
	Program Electives	9
Fourth Year		
MATH-606	Graduate Seminar I	1
MATH-607	Graduate Seminar II	1
STAT-405	Mathematical Statistics I	3
STAT-406	Mathematical Statistics II	3
STAT-500	Senior Capstone in Statistics	3
	Math Graduate Core Courses	9
	LAS Electives	12
Fifth Year		
MATH-790	Research and Thesis	7
	Math Graduate Core Course	3
	Graduate Electives	9
Total Semester Credit Hours		**147**

Please see General Education Curriculum–Liberal Arts and Sciences (LAS) for more information.
(WI) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either University Physics I (PHYS-211) and University Physics II (PHYS-212) or General & Analytical Chemistry I and Lab (CHMG-141/145) and General & Analytical Chemistry II and Lab (CHMG-142/146) or General Biology I and Lab (BIOL-101/103) and General Biology II and Lab (BIOL-102/104).

Applied Statistics and Actuarial Science, BS degree/Applied and Computational Mathematics (project option), MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSCI-101	Principles of Computing	3
MATH-181	LAS Perspective 7A: Project-Based Calculus I	4
MATH-182	LAS Perspective 7B: Project-Based Calculus II	4
MATH-199	Mathematics and Statistics Seminar	1
YOPS-10	RIT 365: RIT Connections	0
	LAS Elective	3
	First Year Writing (WI)	3
	LAS Perspective 1 (ethical)	3
	LAS Perspective 2 (artistic)	3
	LAS Perspective 5‡ (natural science inquiry)	4
	LAS Perspective 6‡ (scientific principles)	4
	Wellness Education*	0
Second Year		
MATH-200	Discrete Mathematics and Introduction to Proofs	3
MATH-221	Multivariable and Vector Calculus	4
MATH-231	Differential Equations	3
MATH-241	Linear Algebra I	3
MATH-251	Probability and Statistics I	3
MATH-252	Probability and Statistics II	3
MATH-399	Mathematical Science Job Search Seminar	0
	LAS Immersion 1, 2	6
	LAS Perspective 3 (global)	3
	LAS Perspective 4 (social)	3
Third Year		
MATH-255	Actuarial Mathematics	3
MATH-261	Topics in the Mathematics of Finance	3
STAT-305	Regression Analysis	3
STAT-325	Design of Experiments (WI)	3
STAT-511	Statistical Software	3
	Free Electives	6
	LAS Immersion 3	3
	Program Electives	9
Fourth Year		
MATH-606	Graduate Seminar I	1
MATH-607	Graduate Seminar II	1
STAT-405	Mathematical Statistics I	3
STAT-406	Mathematical Statistics II	3
STAT-500	Senior Capstone in Statistics	3
	Math Graduate Core Courses	9
	LAS Electives	12
Fifth Year		
MATH-790	Research and Thesis	4
	Math Graduate Core Course	3
	Graduate Electives	12
Total Semester Credit Hours		**147**

Please see General Education Curriculum–Liberal Arts and Sciences (LAS) for more information.
(WI) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either University Physics I (PHYS-211) and University Physics II (PHYS-212) or General & Analytical Chemistry I and Lab (CHMG-141/145) and General & Analytical Chemistry II and Lab (CHMG-142/146) or General Biology I and Lab (BIOL-101/103) and General Biology II and Lab (BIOL-102/104).

Applied Statistics and Actuarial Science, BS degree/Applied Statistics, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSCI-101	General Education – Elective: Principles of Computing	3
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4

COURSE		SEMESTER CREDIT HOURS
MATH-199	Mathematics and Statistics Seminar I	1
YOPS-10	RIT 365: RIT Connections	0
	General Education – Elective	3
	General Education – First-Year Writing (WI)	3
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Natural Science Inquiry Perspective‡	4
Second Year		
MATH-200	Discrete Mathematics and Introduction to Proofs	3
MATH-251	Probability and Statistics I	3
MATH-252	Probability and Statistics II	3
MATH-399	Mathematical Science Job Search Seminar	0
Choose one of the following:		4
MATH-221	General Education – Elective: Multivariable and Vector Calculus	
MATH-221H	General Education – Elective: Honors Multivariable and Vector Calculus	
Choose one of the following:		3
MATH-241	Linear Algebra	
MATH-241H	Honors Linear Algebra	
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Scientific Principles Perspective‡	4
	General Education – Elective	3
	Open Elective	3
Third Year		
MATH-255	Actuarial Mathematics	3
MATH-261	Topics in the Mathematics of Finance	3
STAT-305	Regression Analysis	3
STAT-325	Design of Experiments (WI-PR)	3
	General Education – Immersion 1, 2	3
	General Education – Elective	3
	Program Electives	9
Fourth Year		
STAT-405	Mathematical Statistics I	3
STAT-406	Mathematical Statistics II	3
STAT-500	Senior Capstone in Statistics	3
STAT-641	Applied Linear Models – Regression	3
STAT-642	Applied Linear Models – ANOVA	3
	Program Electives	6
	General Education – Electives	6
	General Education – Immersion 3	3
	Open Electives	6
Fifth Year		
STAT-790	Capstone/Thesis	6
	Statistics Graduate Electives	21
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either University Physics I (PHYS-211) and University Physics II (PHYS-212) or General & Analytical Chemistry I and Lab (CHMG-141/145) and General & Analytical Chemistry II and Lab (CHMG-142/146) or General Biology I and Lab (BIOL-101/103) and General Biology II and Lab (BIOL-102/104).

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended

Transfer Admission

Transfer course recommendations without associate degree
Courses in liberal arts, physics, math, and chemistry

Appropriate associate degree programs for transfer
AS degree in liberal arts with math/science option

Biochemistry, BS

www.rit.edu/study/biochemistry-bs
Paul Craig, Professor
585-475-6145, Paul.Craig@rit.edu

Program overview

Biochemists focus on the chemistry of life. The biochemistry major provides knowledge in chemistry, biochemistry, and biology which will prepare you to consider real-world problems from a variety of perspectives. You will be able to immediately contribute your skills in corporate, health care, or government positions. You will also be ready to enter professional education in medicine or other health-related fields or attend graduate programs in a variety of chemical and life sciences related programs.

Biochemistry majors often have an interest in combining the life and health sciences with a chemistry degree. You'll take a year of general biology in addition to a typical chemistry curriculum. During the upper-level years, you'll take a substantial core of courses in biochemistry, physical chemistry, the liberal arts, and elective courses in life sciences. You must take a minimum of two upper-division biology electives.

Employment opportunities for biochemistry students are available in the chemical, pharmaceutical, agricultural, forensic, and rapidly expanding biotechnological fields. You'll also be well-prepared to enter advanced degree programs in biochemistry, medicine, pharmacy, dentistry, and veterinary medicine.

Nature of work

Employment opportunities for biochemistry graduates exist in the chemical, pharmaceutical, agricultural, forensic, and rapidly expanding biotechnological fields. Graduates also are well-prepared to enter advanced degree programs in biochemistry, medicine, pharmacy, dentistry, and veterinary medicine.

Training/Qualifications

Biochemistry students who graduate with a BS degree are qualified for positions working at the bench in the pharmaceutical industry, medical research organizations, and environmental quality labs. According to the profile for biochemists in the U.S. Bureau of Labor Statistics' Occupational Outlook Handbook, many biochemistry students progress to earn more advanced degrees, sometimes combining their technical expertise with a law degree or an MBA to forge a new career path. Biochemists need a doctorate to work in independent research and development positions. Most holders of doctorate degrees begin their careers in temporary postdoctoral research positions. During their postdoctoral appointments, they work with experienced scientists, as they continue to learn about their specialties or develop a broader understanding of related areas of research. Postdoctoral positions frequently offer the opportunity to publish research findings. A solid record of published research is essential to get a permanent position doing basic research, especially for those seeking a permanent college or university faculty position. A significant number of our graduates have gone on to accept faculty appointments at numerous universities.

Graduate School

Advanced Degrees
Chemistry and materials science and engineering graduate programs offered by the School of Chemistry and Materials Science prepare professional scientists by offering curricula that allow students to specialize in their chosen fields while engaging in rigorous, meaningful research using state-of-the-art instrumentation and facilities, under the guidance of a faculty mentor. The school offers the following advanced degrees: an

advanced certificate in materials science and engineering, and master of science degrees in chemistry and materials science and engineering.

Accelerated 4+1 MBA option
An accelerated 4+1 option is available for students who wish to earn a BS in biochemistry and an MBA. The option is offered in conjunction with Saunders College of Business and allows students to obtain both degrees in five years of study.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Cooperative education is optional, but strongly encouraged for biochemistry majors.

Curriculum

Biochemistry, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-121	General Education – Elective: Introductory Biology I	4
BIOL-122	General Education – Elective: Introductory Biology II	4
CHEM-130	Chemical Connections	1
CHEM-151	General Education – Elective: General Chemistry	3
CHEM-155	General Education – Elective: Chemistry Workshop	2
CHMO-331	Comprehensive Organic Chemistry I	3
CHMO-335	Comprehensive Organic Chemistry Lab I	1
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – Elective	3
	General Education – First-Year Writing (WI)	3
Second Year		
BIOL-202	General Education – Elective: Molecular Biology	4
BIOL-302	Cell Biology	3
CHMA-161	Quantitative Analysis	3
CHMA-165	Analytical Methods Lab	1
CHMB-402	Biochemistry I	3
CHMO-332	Comprehensive Organic Chemistry II	3
CHMO-336	Comprehensive Organic Chemistry Lab II	2
PHYS-111	General Education – Natural Science Inquiry Perspective: College Physics I	4
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Immersion 1	3
Third Year		
CHMA-261	Instrumental Analysis	3
CHMA-265	Instrumental Analysis Lab	1
CHMB-405	Biochemistry Lab (WI-PR)	3
CHMP-441	Physical Chemistry I	3
PHYS-112	General Education – Scientific Principles Perspective: College Physics II	4
	Advanced Biochemistry Elective (C)*	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Immersion 2	3
	Open Elective	3
Fourth Year		
CHMI-351	Descriptive Inorganic Chemistry	3
	Advanced Biochemistry Electives (A)*	6
	Open Electives	9
	General Education – Electives	6
	General Education – Immersion 3	3
Choose one of the following:		2
CHEM-493	Chemistry Research (B)*	
	Biochemistry Independent Study (B)*	
Total Semester Credit Hours		**122**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
* Students must complete 6 credits from List A, 2 credits from List B, and 3 credits from List C.

Electives

List A

COURSE	
CHMB-403	Biochemistry II
CHMB-489	Advanced Special Topics
CHMB-498	Advanced Biochemistry Independent Study
CHMB-460	Infectious Disease: Impact on Society and Culture
CHMB-610	Advanced Protein Biochemistry
CHMB-702	Protein Conformation and Dynamics
CHMB-704	Biochemistry of Nucleic Acids

List B

COURSE	
CHEM-493	Chemistry Research
CHEM-495	Advanced Chemistry Research
CHMA-621	Advanced Instrumental Analysis Lab
CHMA-650	Separations and Mass Spectroscopy in Biological Chemistry
CHMA-740	Practical NMR
CHMB-493	Biochemistry Research
CHMB-495	Advanced Biochemistry Research
CHMI-565	Preparative Inorganic Chemistry Lab
CHMO-535	Advanced Techniques in Organic Synthesis

List C

COURSE	
BIOL-204	Introduction to Microbiology
BIOL-265	Evolutionary Biology
BIOL-296	Ethical Issues in Biology and Medicine
BIOL-303	Cell Physiology
BIOL-305	Plants, Medicine & Technology
BIOL-307	Microbiology of Wastewater
BIOL-310	Bioenergy: Microbial Production
BIOL-313	Comparative Animal Physiology
BIOL-321	Genetics
BIOL-322	Developmental Biology
BIOL-330	Bioinformatics
BIOL-340	Genomics
BIOL-365	Introduction to Population Genetics
BIOL-370	Environmental Microbiology
BIOL-375	Advanced Immunology
BIOL-380	Bioremediation
BIOL-401	Biological Separations: Principles and Practices
BIOL-403	Fundamentals of Plant Biochemistry and Pathology
BIOL-412	Human Genetics (WI)
BIOL-415	Virology
BIOL-416	Plant Biotechnology
BIOL-418	Plant Molecular Biology
BIOL-420	Bacterial-Host Interaction
BIOL-427	Microbial and Viral Genetics (WI)
BIOL-428	Eukaryotic Gene Regulation and Disease
BIOL-441	Genetic Engineering & Synthetic Biology (WI)
BIOL-530	Bioinformatics Algorithms
BIOL-594	Molecular Modeling & Proteomics
BIOL-599	Research Based Writing (WI)
MEDS-250	Human Anatomy and Physiology I
MEDS-251	Human Anatomy and Physiology II

Accreditation

The biochemistry program is approved by the American Chemical Society (ACS) and also follows the guidelines of the American Society for Biochemistry and Molecular Biology.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
- 3 years of math required; pre-calculus recommended
- Biology and chemistry required

Transfer Admission

Transfer course recommendations without associate degree
Courses in liberal arts, physics, math, and chemistry

Appropriate associate degree programs for transfer
AS degree in liberal arts with chemistry option; chemical technology, laboratory technology

Bioinformatics and Computational Biology, BS

www.rit.edu/study/bioinformatics-and-computational-biology-bs
Andre Hudson, Professor
585-475-4259, aohsbi@rit.edu

Program overview

Bioinformatics is the intersection of biology and computer science. In this major, you'll analyze big data collected by the healthcare industry to discover, diagnose, and treat a wide range of medical conditions. A rapidly growing field that requires professionals to possess problem-solving skills, you'll gain hands-on learning through distinct undergraduate research opportunities. Graduates pursue graduate degrees and go on to successful careers in bioinformatics software development, biomedical research, biotechnology, comparative genomics, genomics, molecular imaging, pharmaceutical research and development, proteomics, and vaccine development.

Bioinformaticists use computers to analyze, organize, and visualize biological data in ways that increase the understanding of this data and lead to new discoveries. In laboratory exercises and assignments, you'll learn to sequence DNA and use computer programs to analyze DNA sequences and predict molecular models.

The bioinformatics degree was developed by faculty in the departments of biological sciences, chemistry, computer science, mathematics and statistics, and information technology, with the guidance from leaders in the bioinformatics and biotechnology industries. The major meets the needs of prospective employers in this challenging and rapidly changing and growing field.

Bioinformatics is a field that has been developing over the last thirty years. It is a discipline that represents a marriage between biotechnology and computer technologies and has evolved through the convergence of advances in each of these fields. Today bioinformatics is a field that encompasses all aspects of the application of computer technologies to biological data. Computers are used to organize, link, analyze and visualize complex sets of biological data.

With the advent of high-throughput technologies such as Next Generation Sequencing and proteomics, bioinformatics has become essential to the biological sciences in general. In the past, laboratories were able to manage and analyze their experimental data in spreadsheets. Many research labs now require the expertise of dedicated bioinformatics core centers or their own in-house bioinformaticists.

Graduates of our programs have entered such laboratories, both in industry and academia, as bioinformaticists. Some have also gone on to leverage their biotechnology experiences as wet lab experimentalists themselves. The diversity of skills our students cultivate has given them access to a wide range of career choices.

Nature of work

Bioinformatics jobs come with several different areas of focus, which are less strictly hierarchical than bioscience discovery research jobs. The analyst/programmer job provides more focused computational analysis support. Analyst/programmers design and develop software, databases, and interfaces used to analyze and manipulate genomic databases. They collaborate with production to develop high-throughput data processing and analysis capability and to design and implement data queries, novel algorithms, and/or visualization techniques. Analyst/programmers also maintain large-scale DNA databases, prepare data for other scientists, monitor new data from integrating sequence-based/ functional knowledge about genes to help scientists analyze and interpret gene-expression data. They also analyze DNA information and identify opportunities for innovative solutions to analyze and manage biological data. In addition,

they often assist in developing software and custom scripts to automate data retrieval, manipulation, and analysis; application of statistics; and visualization tools. (Source: Vault Career Guide to Biotech; The Jobs in Lab Research)

Training/Qualifications

Within the bioinformatics field employers tend to look for the following skills/strengths: fundamental training/knowledge in molecular biology, biochemistry and biotechnology, particularly, genomics, relational database administration, and programming skills/e.g. using SQL, PERL, C, C++, etc. on a UNIX operating system, strong analytical abilities using relevant mathematical/statistical tools, a strong interest in utilizing computational skills to leverage the data outcomes of those working in the laboratory, meticulous, independent, patient to do the same task repetitively and multitask.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Students in the bioinformatics and computational biology degree are required to complete one cooperative education experience.

Curriculum

Bioinformatics and Computational Biology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-121	General Education – Elective: Introductory Biology I	4
BIOL-122	General Education – Elective: Introductory Biology II	4
BIOL-130	Introduction to Bioinformatics	3
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	3
CHMG-142	General Education – Scientific Principles Perspective: General & Analytical Chemistry II	3
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry Lab I	1
CHMG-146	General Education – Scientific Principles Perspective: General & Analytical Chemistry Lab II	1
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
Second Year		
BIOL-135	Intro to Bioinformatics Programming	3
BIOL-202	Molecular Biology	4
BIOL-230	Bioinformatics Languages	3
BIOL-321	Genetics	3
CHMO-231	General Education – Elective: Organic Chemistry I	3
CHMO-235	General Education – Elective: Organic Chemistry Lab I	1
MATH-190	General Education – Elective: Discrete Mathematics for Computing	3
STAT-145	General Education – Elective: Introduction to Statistics I	3
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
Third Year		
BIOL-235	Fundamentals of Bioinformatics Programming	3
BIOL-296	General Education – Elective: Ethical Issues in Biology and Medicine	3
BIOL-327	Fundamental Bioinformatics Analysis	3
BIOL-499	Biology Co-op (summer)	0
BIOL-550	High Throughput Sequencing Analysis (WI-PR)	3
CHMB-402	Biochemistry I	3
ISTE-230	Introduction to Database and Data Modeling	3
	General Education – Social Perspective	3
	General Education – Immersion 1, 2	6
	Open Elective	3
Fourth Year		
BIOL-340	Genomics	4
BIOL-470	Statistical Analysis for Bioinformatics	3
BIOL-530	Bioinformatics Algorithms	3
BIOL-594	Molecular Modeling and Proteomics	3
	General Education – Immersion 3	3
	General Education – Elective	3
	Open Electives	9
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Bioinformatics and Computational Biology (molecular genetics option), BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-121	General Education – Elective: Introductory Biology I	4
BIOL-122	General Education – Elective: Introductory Biology II	4
BIOL-130	Introduction to Bioinformatics	3
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	3
CHMG-142	General Education – Scientific Principles Perspective: General & Analytical Chemistry II	3
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry Lab I	1
CHMG-146	General Education – Scientific Principles Perspective: General & Analytical Chemistry Lab II	1
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
Second Year		
BIOL-135	Introduction to Bioinformatics Programming	3
BIOL-202	Molecular Biology	4
BIOL-230	Bioinformatics Languages	3
BIOL-321	Genetics	3
CHMO-231	General Education – Elective: Organic Chemistry I	3
CHMO-232	General Education – Elective: Organic Chemistry II	3
CHMO-235	General Education – Elective: Organic Chemistry Lab I	1
CHMO-236	General Education – Elective: Organic Chemistry Lab II	1
STAT-145	General Education – Elective: Introduction to Statistics I	3
	General Education – Artistic Perspective	3
	General Education – Ethical Perspective	3
Third Year		
BIOL-235	Fundamentals of Bioinformatics Programming	3
BIOL-327	Fundamental Bioinformatics Analysis	3
BIOL-470	Statistical Analysis for Bioinformatics	3
BIOL-499	Biology Co-op (summer)	0
BIOL-550	Throughput Sequencing Analysis (WI-PR)	3
CHMB-402	General Education – Elective: Biochemistry I	3
ISTE-230	Introduction to Database and Data Modeling	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
	General Education – Immersion 1	3
Fourth Year		
BIOL-340	Genomics	4
	Molecular Bioscience and Biotechnology Electives	11
	General Education – Immersion 2, 3	6
	Open Electives	12
Total Semester Credit Hours		**120**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Molecular Bioscience and Biotechnology Electives

COURSE	
BIOL-204	Introduction to Microbiology
BIOL-302	Cell Biology
BIOL-305	Plants, Medicine & Technology
BIOL-306	Food Microbiology
BIOL-307	Microbiology of Wastewater
BIOL-310	Bioenergy: Microbial Production
BIOL-322	Developmental Biology
BIOL-335	Phage Biology
BIOL-345	Molecular Ecology (WI-PR)
BIOL-365	Introduction to Population Genetics
BIOL-370	Environmental Microbiology
BIOL-380	Bioremediation
BIOL-404	Microbiology of Fermentation
BIOL-412	Human Genetics (WI-PR)
BIOL-416	Plant Biotechnology
BIOL-418	Plant Molecular Biology
BIOL-420	Bacterial-Host Interactions: Microbiomes of the World
BIOL-427	Microbial and Viral Genetics
BIOL-441	Genetic Engineering and Synthetic Biology (WI-PR)
BIOL-495	Advanced Biology Research
BIOL-498	Advanced Independent Study
BIOL-599	Research Based Writing (WI-PR)
BIOL-601	Genetic Disease and Disorders
CHMA-222	Chemical Separations
CHMB-450	Infectious Diseases: Impact Society & Culture

Accelerated dual degree option

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

Bioinformatics and Computational Biology, BS/Bioinformatics, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-121	Introductory Biology I	4
BIOL-122	Introductory Biology II	4
BIOL-130	Introduction to Bioinformatics	3
CSCI-141	Computer Science I	4
CSCI-142	Computer Science II	4
MATH-181	LAS Perspective 7A: Project-based Calculus I	4
MATH-182	LAS Perspective 7B: Project-based Calculus II	4
YOPS-10	RIT 365: RIT Connections	0
	First Year Writing (WI)	3
	Wellness Education*	0
Second Year		
BIOL-202	Molecular Biology	4
BIOL-321	Genetics	3
CHMG-141	General & Analytical Chemistry I	3
CHMG-145	General & Analytical Chemistry I Lab	1
CHMG-142	General & Analytical Chemistry II	3
CHMG-146	General & Analytical Chemistry II Lab	1
CSCI-243	The Mechanics of Programming	3
MATH-190	Discrete Mathematics for Computing	3
STAT-145	Introduction to Statistics I	3
	LAS Perspective 1 (ethical)	3
	LAS Perspective 2 (artistic)	3
	Free Elective	4
Third Year		
BIOL-230	Bioinformatics Languages	3
BIOL-330	Bioinformatics	3
BIOL-499	Biology Co-op (summer)	0
BIOL-550	High Throughput Sequencing Analysis (WI)	3
CHMO-231	Organic Chemistry I	3
CHMO-235	Organic Chemistry I Lab	1
CSCI-251	Concepts of Parallel and Distributed Systems	3
ISTE-230	Introduction to Database and Data Modeling	3
	LAS Perspective 3 (global)	3
	LAS Perspective 4 (social)	3
	LAS Immersion 1	3
Fourth Year		
BIOL-296	Ethical Issues in Biology and Medicine	3
BIOL-340	Genomics	4
BIOL-470	Statistical Analysis for Bioinformatics	3
BIOL-630	Bioinformatics Algorithms	3
BIOL-694	Molecular Modeling and Proteomics	3
CHMB-402	Biochemistry I	3
	Free Elective	4
	LAS Immersion 2, 3	6
Fifth Year		
BIOL-625	Ethics in Bioinformatics	3
BIOL-635	Bioinformatics Seminar	3
BIOL-790	Research and Thesis	6
MATH-655	Biostatistics	3
	Graduate Electives‡	9
Total Semester Credit Hours		**145**

Please see General Education Curriculum-Liberal Arts and Sciences (LAS) in the Graduation Requirements section of this bulletin for more information.
(WI) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Graduate electives may be any graduate-level course related to the field of bioinformatics. Consult academic advisers for assistance in course selection.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended
- Biology and chemistry required

Transfer Admission

Transfer course recommendations without associate degree
Courses in liberal arts, sciences, math, and computing

Appropriate associate degree programs for transfer
AS degree in biotechnology or liberal arts with biology

Biology, BS

www.rit.edu/study/biology-bs
Andre Hudson, Professor
585-475-4259, aohsbi@rit.edu

Program overview

Biology encompasses all of the processes and patterns that characterize living cells, organisms, and ecosystems. Building on recent advances in the molecular, cellular, and ecological disciplines, modern biological science offers students a rich framework that can launch a career with a wide variety of skills for discoveries within cells, organ systems, species, and even ecosystems in which we live. Scientific knowledge is based on research, and students are encouraged to undertake significant research projects to enhance their educational experience and prepare them for graduate school or full-time employment.

Biologists may investigate the conservation of animals and plants, study interactions between living organisms with the changing environment, uncover evolutionary relationships between different organisms, learn how living systems work or even work with the public to increase awareness of important health and environmental issues.

In the College of Science, biology is something that students do, rather than something they merely learn. Courses present biology and the hands-on laboratory work and field experiences as it is done by career biologists, and hands-on laboratory and field experience is emphasized.

The major includes all of the course work and support services to prepare you to pursue advanced degrees in medicine, dentistry, veterinary medicine, optometry, podiatry, and chiropractic medicine, as well as a wide range of graduate programs in the life sciences.

Course of Study

You'll start with foundation courses in biology, math, chemistry, and liberal arts and then immerse yourself in the biological sciences, studying animals, micro-organisms, and plants at the level of molecules, cells, tissues, organisms, populations, and the environment. You will acquire a comprehensive set of practical skills, from the proper way to prepare cultures in the lab to the proper way to gather and analyze ecological data in the field.

Nature of Work

Biologists answer important questions about the world by making observations in the natural environment and in the laboratory, collecting and evaluating data and integrating evidence to help solve problems.

Experiential Learning

Undergraduate Research

Undergraduate research is strongly encouraged and strengthens your preparation for graduate study or employment. Students are encouraged to participate in undergraduate research experience under the guidance of faculty mentors. Students are also encouraged to apply for summer research internships both here at RIT and at other institutions. Explore research opportunities in the Thomas H. Gosnell School of Life Sciences, as well as research initiatives available throughout the College of Science.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. As a biology major,

you have the option to pursue co-op opportunities in research, lab support, or data analysis in private businesses, government agencies, and non-profit organizations. Biology students have worked for hospitals, wildlife centers, veterinary clinics, food companies, and pharmaceutical firms. RIT co-op is designed for your success.

Curriculum

Biology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-121	General Education – Elective: Introductory Biology I	4
BIOL-122	General Education – Elective: Introductory Biology II	4
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	3
CHMG-142	General Education – Scientific Principles Perspective: General & Analytical Chemistry II	3
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry Lab I	1
CHMG-146	General Education – Elective: General & Analytical Chemistry Lab II	1
MATH-161	General Education – Mathematical Perspective A: Applied Calculus	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Social Perspective	3
	General Education – First-Year Writing (WI)	3
Second Year		
BIOL-202	General Education – Elective: Molecular Biology	4
BIOL-302	Cell Biology	3
CHMO-231	General Education – Elective: Organic Chemistry I	3
CHMO-232	General Education – Elective: Organic Chemistry II	3
CHMO-235	General Education – Elective: Organic Chemistry Lab I	1
CHMO-236	General Education – Elective: Organic Chemistry Lab II	1
Choose one of the following:		3
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	
STAT-155	General Education – Mathematical Perspective B: Introduction to Biostatistics	
Choose one of the following:		4
BIOL-240	General Ecology (WI-PR)	
BIOL-265	Evolutionary Biology (WI-PR)	
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
Third Year		
PHYS-111	General Education – Elective: College Physics I	4
PHYS-112	General Education – Elective: College Physics II	4
Choose one of the following:		3
BIOL-321	Genetics	
BIOL-365	Introduction to Population Genetics	
Choose one of the following:		4
BIOL-322	Developmental Biology	
BIOL-313	Comparative Animal Physiology	
	Program Electives	12
	Open Elective	3
	General Education – Immersion 1	3
Fourth Year		
BIOL-500	Experiential Learning Requirement in Life Science	0
	Program Electives	17
	Open Electives	9
	General Education – Immersion 2, 3	6
Total Semester Credit Hours		**122**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Biology Electives

COURSE	
BIOL-204	Introduction to Microbiology
BIOL-205	Animal Behavior
BIOL-207	Galapagos: Ecology & Evolution
BIOL-211	Invertebrate Zoology
BIOL-212	Vertebrate Zoology
BIOL-218	Biology of Plants
BIOL-230	Bioinformatics Languages
BIOL-290	Vertebrate Evolution
BIOL-293	Evolution and Creationism
BIOL-296	Ethical Issues in Biology and Medicine
BIOL-303	Cell Physiology
BIOL-305	Plants, Medicine, and Technology
BIOL-306	Food Microbiology
BIOL-307	Microbiology of Wastewater
BIOL-308	Biology of Cancers (WI-PR)
BIOL-309	Comparative Vertebrate Anatomy
BIOL-310	Bioenergy: Microbial Production
BIOL-315	Tissue Culture Laboratory
BIOL-327	Fundamental Bioinformatics Analysis
BIOL-330	Bioinformatics
BIOL-335	Phage Biology
BIOL-340	Genomics
BIOL-343	Tropical Ecology
BIOL-345	Molecular Ecology
BIOL-370	Environmental Microbiology
BIOL-371	Freshwater Ecology
BIOL-375	Advanced Immunology
BIOL-377	Directed Research in Developmental Biology
BIOL-380	Bioremediation
BIOL-385	Seneca Park Zoo Internship
BIOL-401	Bioseparations: Principles & Practices
BIOL-403	Fundamentals of Plant Biochemistry and Pathology
BIOL-404	Microbiology of Fermentation
BIOL-412	Human Genetics (WI-PR)
BIOL-414	Animal Nutrition
BIOL-415	Virology
BIOL-416	Plant Biotechnology
BIOL-418	Plant Molecular Biology
BIOL-420	Bacterial-Host Interactions: Microbiomes of the World
BIOL-427	Microbial & Viral Genetics (WI-PR, WI-GE)
BIOL-428	Eukaryotic Gene Regulation & Disease
BIOL-440	Advanced Applied Genomics
BIOL-441	Genetic Engineering & Synthetic Biology (WI-PR)
BIOL-444	Ornithology
BIOL-455	Biogeography
BIOL-460	Infections Diseases: Impact on Society and Culture
BIOL-495	Advanced Biology Research
BIOL-498	Advanced Biology Independent Study
BIOL-530	Bioinformatics Algorithms
BIOL-550	High Throughput Sequencing Analysis (WI-PR)
BIOL-573	Marine Biology
BIOL-575	Conservation Biology
BIOL-594	Molecular Modeling and Proteomics
BIOL-599	Research Based Writing (WI-PR)
BIOL-601	Genetic Diseases and Disorders
BIOL-635	Bioinformatics Seminar
BIOL-694	Molecular Modeling and Proteomics
CHMA-222	Chemical Separations
CHMB-402	Biochemistry I
ENVS-250	Applications of Geographic Information Systems
ENVS-301	Environmental Science Field Skills
ENVS-311	Wetlands
ENVS-531	Climate Change: Science, Technology and Policy
MEDS-245	Medical Genetics
MEDS-250	Human Anatomy & Physiology I
MEDS-251	Human Anatomy & Physiology II
MEDS-310	Introduction to Pharmacology
MEDS-313	Introduction to Infectious Diseases
MEDS-421	Parasitology
MEDS-422	Endocrinology
MEDS-490	Human Gross Anatomy
MEDS-515	Medical Pathophysiology
MEDS-520	Histology & Histopathology
MEDS-530	Human Immunology

Accelerated dual degree options

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS

degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

Biology, BS degree/Environmental Science, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-121	General Education – Elective: Introductory Biology I	4
BIOL-122	General Education – Elective: Introductory Biology II	4
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	3
CHMG-142	General Education – Scientific Principles Perspective: General & Analytical Chemistry II	3
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab	1
CHMG-146	General Education – Scientific Principles Perspective: General & Analytical Chemistry II Lab	1
MATH-161	General Education – Mathematical Perspective A: Applied Calculus	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Social Perspective	3
	General Education – First-Year Writing (WI)	3
Second Year		
BIOL-202	General Education – Elective: Molecular Biology	4
BIOL-302	Cell Biology	3
CHMO-231	General Education – Elective: Organic Chemistry I	3
CHMO-232	General Education – Elective: Organic Chemistry II	3
CHMO-235	General Education – Elective: Organic Chemistry I Lab	1
CHMO-236	General Education – Elective: Organic Chemistry II Lab	1
Choose one of the following:		3
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	
STAT-155	General Education – Mathematical Perspective B: Introduction to Biostatistics	
Choose one of the following:		4
BIOL-240	General Ecology (WI-PR)	
BIOL-265	Evolutionary Biology (WI-PR)	
	General Education – Global Perspective	3
	General Education – Ethical Perspective	3
Third Year		
PHYS-111	General Education – Elective: College Physics I	4
PHYS-112	General Education – Elective: College Physics II	4
Choose one of the following:		3
BIOL-321	Genetics	
BIOL-365	Introduction to Population Genetics	
Choose one of the following:		4
BIOL-322	Developmental Biology	
BIOL-313	Comparative Animal Physiology	
	Program Electives	12
	Open Elective	3
	General Education – Immersion 1	3
Fourth Year		
BIOL-240	General Ecology (if taken, Program Elective may be substituted)	4
BIOL-500	Experiential Learning Requirement in Life Science	0
BIOL-675	Advanced Conservation Biology (Counts as Program Elective)	3
ENVS-250	Applications of Geographic Information Systems	4
ENVS-601	Environmental Science Graduate Studies I	2
ENVS-602	Environmental Science Graduate Studies II	1
ENVS-795	Environmental Science Graduate Research	3
	Program Elective/Graduate Professional Elective	3
	Program Elective	3
	Open Elective	3
	General Education – Immersion 2, 3	6
Fifth Year		
Choose one of the following:		6
ENVS-780	Environmental Science Project	
ENVS-790	Environmental Science Thesis	
	Graduate Professional Elective	6
	Graduate Public Policy/STSO Elective	3
	Graduate Statistics Elective	3
	Graduate GIS Elective	3
	Graduate Core Elective	3
Total Semester Credit Hours		**146**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended
- Biology and chemistry required

Transfer Admission

Transfer course recommendations without associate degree

Courses in liberal arts, sciences, and math

Appropriate associate degree programs for transfer

AS degree in biology or liberal arts with biology option

Biotechnology and Molecular Bioscience, BS

www.rit.edu/study/biotechnology-and-molecular-bioscience-bs

Andre Hudson, Professor
585-475-4259, aohsbi@rit.edu

Program overview

The biotechnology degree prepares you to immediately assume challenging positions in research, development, and management in the fields of plant biotechnology, human genetics, agriculture, food products, pharmaceuticals and vaccine development, environment and energy, forensic science, and genetic counseling. Meaningful research projects preparing you to gain valuable experience for full-time employment or to pursue graduate study.

The advanced nature of the third- and fourth-year courses, as well as the opportunity to participate in faculty-sponsored undergraduate research, provide a sound foundation to those students wishing to pursue a master's or doctoral degree. The major also can be designed to include the education necessary for the pursuit of a career in the medical field.

Specialized areas of emphasis include recombinant DNA, microbial and plant genetic engineering, mammalian and plant tissue culture, monoclonal antibody production and purification, large-scale fermentation techniques (bacterial and mammalian cell), and methods for characterization and separation of proteins and nucleic acids in yeast, bacterial, viral, and plant systems.

As a student enrolled in the biotechnology and molecular bioscience program at RIT you'll be exposed to dynamic professors who are leaders in their fields both in the classroom and in the laboratory.

Plan of Study

Building on a core of biology, chemistry, math, and liberal arts, the courses in this major are taught from a molecular bioscience perspective and are focused on the central genetic dogma of molecular biology. The curriculum explores the rapidly-expanding field of genetic engineering and almost unlimited potential that controlled genetic experiments hold for improving the quality of life. Specialized areas of interest include recombinant DNA, mammalian and plant tissue culture, and monoclonal antibody production.

Real World Experiences

Undergraduate research is strongly encouraged and strengthens your preparation for graduate study or employment. You're encouraged to participate in undergraduate research experience under the guidance of faculty mentors. You're also encouraged to apply for summer research internships both here at RIT and at other institutions.

You also have the option to pursue cooperative education experience in research, lab support, or data analysis in private businesses, government agencies, and non-profit organizations. Biotechnology and molecular biosciences students have worked at pharmaceutical companies, academic research laboratories, biotechnology companies, and national laboratories.

Nature of Work

Do you want to learn about the natural world on a molecular level? Do you want to learn how cells and living organisms can be harnessed to improve scientific knowledge and human health? Biotechnology is the area of science that uses living systems to create products and new technologies. Biotechnologists play important roles in biomedical research, agriculture, food safety, pharmaceutical and vaccine development and more.

Advantages

The biotechnology and molecular bioscience program prepares our graduates for post-secondary education, employment in biotech and research laboratories and medical school.

Experiential Learning

Students are strongly encouraged to explore experiential learning opportunities to further enhance their education. Research internships, offered both on and off-campus, take place during the summer. RIT offers numerous opportunities for students to participate in research, including three on-campus summer programs: Research Experiences for Undergraduates (REU), Summer Undergraduate Research Fellowships (SURF), and the Summer Undergraduate Research Programs (SURP). Many students participate in undergraduate research for course credit during the academic year. Additionally, students may participate in cooperative educationexperiences, where students work in industry or government during the summer or the academic year. Students earn a salary while gaining valuable on-the-job experience. If a student elects to pursue a co-op during the academic year, they may need to extend the date of graduation beyond the traditional four years.

Curriculum

Biotechnology and Molecular Bioscience, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-121	General Education – Elective: Introductory Biology I	4
BIOL-122	General Education – Elective: Introductory Biology II	4
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	3
CHMG-142	General Education – Scientific Principles Perspective: General & Analytical Chemistry II	3
CHMG-145	General Education – Natural Science Inquiry Perspective: General and Analytical Chemistry I Lab	1
CHMG-146	General Education – Scientific Principles Perspective:General & Analytical Chemistry II Lab	1
MATH-161	General Education – Mathematical Perspective A: Applied Calculus	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Social Perspective	3
	General Education – First-Year Writing (WI)	3
Second Year		
BIOL-202	General Education – Elective: Molecular Biology	4
BIOL-302	Cell Biology	3
BIOL-315	Tissue Culture Laboratory	1
CHMO-231	General Education – Elective: Organic Chemistry I	3
CHMO-232	General Education – Elective: Organic Chemistry II	3
CHMO-235	General Education – Elective: Organic Chemistry Lab I	1
CHMO-236	General Education – Elective: Organic Chemistry Lab II	1
Choose one of the following:		3
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	
STAT-155	General Education – Mathematical Perspective B: Introduction to Biostatistics	
	Program Elective	4
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
Third Year		
BIOL-204	Introduction to Microbiology	4
BIOL-321	Genetics	3
BIOL-327	Fundamental Bioinformatics Analysis	3
CHMB-402	General Education – Elective: Biochemistry I	3
	Program Electives	6
	Program Elective (WI-PR)	3
	Open Electives	6
	General Education – Immersion 1	3

COURSE		SEMESTER CREDIT HOURS
Fourth Year		
BIOL-500	Experiential Learning Requirement in Life Science	0
	Program Electives	17
	General Education – Immersion 2, 3	6
	Open Electives	6
	General Education – Elective	3
Total Semester Credit Hours		**121**

Please see General Education Curriculum (GE) for more information.
One Writing Intensive (WI) elective must be selected to satisfy degree requirements. Please see adviser for a list of eligible courses.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Program Electives

COURSE	
BIOL-265	Evolutionary Biology (WI-PR)
BIOL-303	Cell Physiology
BIOL-305	Plants, Medicine and Technology
BIOL-306	Food Microbiology
BIOL-307	Microbiology of Wastewater
BIOL-308	Biology of Cancers (WI-PR)
BIOL-310	Bioenergy: Microbial Product
BIOL-322	Developmental Biology
BIOL-330	Bioinformatics
BIOL-335	Phage Biology
BIOL-340	Genomics
BIOL-345	Molecular Ecology (WI-PR)
BIOL-365	Introduction to Population Genetics
BIOL-370	Environmental Microbiology
BIOL-375	Advanced Immunology
BIOL-377	Directed Research in Developmental Biology
BIOL-380	Bioremediation
BIOL-401	Bioseparations: Principles and Practices
BIOL-403	Fundamentals of Plant Biochemistry and Pathology
BIOL-404	Microbial Fermentation
BIOL-412	Human Genetics (WI-PR)
BIOL-415	Virology
BIOL-416	Plant Biotechnology
BIOL-418	Plant Molecular Biology
BIOL-420	Bacterial-Host Interactions: Microbiomes of the World
BIOL-427	Microbial and Viral Genetics (WI-PR)
BIOL-428	Eukaryotic Gene Regulation and Disease
BIOL-441	Genetic Engineering and Synthetic Biology (WI-PR)
BIOL-460	Infectious Disease: Impact on Society and Culture
BIOL-495	Advanced Biology Research
BIOL-498	Advanced Biology Independent Study
BIOL-530	Bioinformatics Algorithms
BIOL-550	High Throughput Sequencing Analysis (WI-PR)
BIOL-594	Molecular Modeling and Proteomics
BIOL-599	Research Based Writing (WI-PR)
BIOL-601	Genetic Disease and Disorders
CHMA-222	Chemical Separations
MEDS-313	Introduction to Infectious Diseases
MEDS-530	Human Immunology

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
- 3 years of math required; pre-calculus recommended
- Biology and chemistry required

Transfer Admission

Transfer course recommendations without associate degree
Courses in liberal arts, sciences, math, and computing

Appropriate associate degree programs for transfer
AS degree in biotechnology or liberal arts with biology

Chemistry, BS

www.rit.edu/study/chemistry-bs
Paul Craig, Professor
585-475-6145, Paul.Craig@rit.edu

Program overview

Chemistry is the science of the structure, properties, and reactions of matter. Chemists seek to understand matter at the molecular and atomic level. Knowledge of chemistry is fundamental to an understanding of biology, biochemistry, geology and medicine, and areas of astronomy, physics, and engineering. RIT's chemistry degree prepares you for work in all areas of chemistry. You will be prepared for a wide variety of professional positions in industrial manufacturing and research, government, pharmaceuticals, and health care. You will also be ready to continue with graduate studies in chemistry or professional education in medicine or other health-related fields.

The American Chemical Society (ACS)-approved chemistry major prepares you for positions in several fields of chemistry, including professional industrial work in processing and laboratory operations, research and experimental work, supervision of technical projects, and managerial positions. A substantial number of students continue their education and earn advanced degrees in chemistry or pursue careers in pharmacy, medicine, and dentistry.

The chemistry major allows for flexibility in the type and number of chemistry and university-wide elective courses you decide to take. The major also provides you with the option of planning an elective concentration in a complementary field such as imaging science, business, graphic arts, psychology, biology, criminal justice, computer science, engineering, environmental science, forensics, mathematics, packaging science, or physics.

Plan of study

Through courses in general, analytical, physical, organic, and inorganic chemistry, you'll develop a thorough understanding of substances and their chemical properties, how they can be manipulated, and how they can be transformed into new materials. The major offers the chance to choose a concentration or minor in complementary fields such as imaging science, business, technical communication, biology, criminal justice, engineering, environmental science, physics, or mathematics.

Real world experiences

RIT has a rich history of helping students to gain real-world experience throughout their education. Undergraduate research experiences are available with professors throughout the School of Chemistry and Material Sciences and are highly encouraged. These opportunities enable students to practice real-world lab application of the information they are currently studying.

Cooperative education is also highly recommended to gain experiences outside of RIT, though not required for graduation. Advisors and the Office of Career Services and Cooperative Education are available to assist in helping you identify and apply to co-op positions.

Nature of work

Everything in our environment, whether naturally occurring or of human design, is composed of chemicals. Chemists search for and use new knowledge about chemicals. Chemical research has led to the discovery and development of new and improved synthetic fibers, paints, adhesives, drugs, cosmetics, electronic components, lubricants, and thousands of other products. Chemists also develop processes that save energy and reduce pollution, such as improved oil refining and petrochemical process-

ing methods. Research on the chemistry of living things spurs advances in medicine, agriculture, food processing, and other fields. (Source: U.S. Bureau of Labor Statistics Occupational Outlook Handbook)

Training qualifications

A bachelor's degree in chemistry or a related discipline usually is the minimum educational requirement for entry-level chemist jobs. However, many research jobs require a master's degree. Students planning careers as chemists and materials scientists should take courses in science and mathematics should like working with their hands building scientific apparatus and performing laboratory experiments and should like computer modeling. Perseverance, curiosity, and the ability to concentrate on detail and to work independently are essential. Because research and development (R&D) chemists are increasingly expected to work on interdisciplinary teams, some understanding of other disciplines, including business and marketing or economics, is desirable, along with leadership ability and good oral and written communication skills. Graduate students typically specialize in a subfield of chemistry, such as analytical chemistry or polymer chemistry, depending on their interests and the kind of work they wish to do.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Cooperative education is optional but strongly encouraged for students in the chemistry degree.

Curriculum

Chemistry, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHEM-130	Chemistry Connections	1
CHEM-151	General Education – Elective: General Chemistry	3
CHEM-155	General Education – Elective: Chemistry Workshop	2
CHMO-331	Comprehensive Organic Chemistry I	3
CHMO-335	Comprehensive Organic Chemistry Lab I	1
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Elective	3
	General Education – First-Year Writing (WI)	3
Second Year		
CHMA-161	Quantitative Analysis	3
CHMA-165	Analytical Methods Lab	1
CHMB-402	Biochemistry I	3
CHMI-351	Descriptive Inorganic Chemistry	3
CHMO-332	Comprehensive Organic Chemistry II	3
CHMO-336	Comprehensive Organic Chemistry Lab II	2
MATH-219	General Education – Elective: Multivariable Calculus	3
MATH-233	General Education – Elective: Linear Systems and Differential Equations	4
PHYS-211	General Education – Natural Science Inquiry Perspective: University Physics I	4
	General Education – Global Perspective	3
	General Education – Immersion 1	3
Third Year		
CHMA-261	Instrumental Analysis	3
CHMA-265	Instrumental Analysis Lab	1
CHMP-441	Physical Chemistry I	3
CHMP-442	Physical Chemistry II	3
CHMP-445	Experimental Physical Chemistry (WI-PR)	3
PHYS-212	General Education – Scientific Principles Perspective: University Physics II	4
	General Education – Social Perspective	3
	General Education – Elective	6
	Open Electives	6
Fourth Year		
CHMI-564	Structural Inorganic Chemistry	3
	Advanced Chemistry Electives§	6
	Advanced Chemistry Lab§	2
	General Education – Immersion 2, 3	6
	General Education – Electives	6
	Open Electives	6
Total Semester Credit Hours		**123**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
§ Students must complete 6 credits from List A and 2-3 credits from List B.

Advanced Chemistry Electives List A

COURSE	
CHEM-489	Advanced Special Topics
CHEM-498	Advanced Chemistry Independent Study
CHMA-711	Advanced Instrumental Analysis
CHMB-460	Infectious Disease: Impact on Society and Culture
CHMB-610	Advanced Protein Biochemistry
CHMB-702	Protein Conformation and Dynamics
CHMB-704	Biochemistry of Nucleic Acids
CHMO-636	Spectrometric Identification of Organic Compounds
CHMO-637	Advanced Organic Chemistry
CHMO-640	Mechanisms of Drug Interactions
CHMO-710	Literature Explorations in Organic Synthesis
CHMO-739	Physical Organic Chemistry
CHMP-751	Colloid and Interface Science
CHMP-752	Molecular Photophysics and Photochemistry
CHMP-753	Computational Chemistry
CHPO-706	Polymer Chemistry I
CHPO-707	Polymer Chemistry II

Advanced Chemistry Electives List B

COURSE	
CHEM-495	Advanced Chemistry Research
CHMA-621	Advanced Instrumental Analysis Lab
CHMA-650	Separations and Mass Spectroscopy in Biological Chemistry
CHMA-740	Practical NMR
CHMB-405	Biochemistry Experimental Techniques
CHMB-495	Advanced Biochemistry Research
CHMI-565	Preparative Inorganic Chemistry Lab
CHMO-535	Advanced Techniques in Organic Synthesis
CHPO-708	Polymer Synthesis & Characterization Lab

Accelerated dual degree options

Accelerated dual degree options are available to students who wish to earn both a BS and an MS in five years.

Chemistry, BS/MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHEM-130	Chemistry Connections	1
CHEM-151	General Education – Elective: General Chemistry	3
CHEM-155	General Education – Elective: Chemistry Workshop	2
CHMO-331	Comprehensive Organic Chemistry I	3
CHMO-335	Comprehensive Organic Chemistry Lab I	1
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Elective	3
	General Education – First-Year Writing (WI)	3
Second Year		
CHMA-161	Quantitative Analysis	3
CHMA-165	Analytical Methods Lab	1
CHMB-402	Biochemistry I	3
CHMI-351	Descriptive Inorganic Chemistry	3
CHMO-332	Comprehensive Organic Chemistry II	3
CHMO-336	Comprehensive Organic Chemistry Lab II	2
MATH-219	General Education – Elective: Multivariable Calculus	3
MATH-233	General Education – Elective: Linear Systems and Differential Equations	4
PHYS-211	General Education – Natural Science Inquiry Perspective: University Physics I	4
	General Education – Global Perspective	3
	General Education – Immersion 1	3

COURSE		SEMESTER CREDIT HOURS
Third Year		
CHMA-261	Instrumental Analysis	3
CHMA-265	Instrumental Analysis Lab	1
CHMP-441	Physical Chemistry I	3
CHMP-442	Physical Chemistry II	3
CHMP-445	Experimental Physical Chemistry (WI-PR)	3
PHYS-212	General Education – Scientific Principles Perspective: University Physics II	4
	General Education – Social Perspective	3
	General Education – Electives	6
	Open Electives	6
Fourth Year		
Choose one of the following:		6
	Graduate Chemistry Focus Course (Project track)	
CHEM-790	Research & Thesis (Thesis track)	
CHEM-670	Graduate Chemistry Writing	1
CHEM-771	Graduate Chemistry Seminar I	1
CHEM-772	Graduate Chemistry Seminar II	1
CHMI-664	Modern Inorganic Chemistry	3
	General Education – Immersion 2, 3	6
	Advanced Chemistry Lab Course	2
	General Education – Electives	6
	Open Electives	6
Fifth Year		
CHEM-773	Graduate Chemistry Seminar III	1
CHEM-774	Graduate Chemistry Seminar IV	1
	Approved Chemistry Graduate Courses	12
Choose one of the following:		4
CHEM-780	Chemistry Project	
CHEM-790	Research & Thesis	
Total Semester Credit Hours		**144**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Chemistry, BS degree/Materials Science and Engineering, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHEM-130	Chemical Connections	1
CHEM-151	General Education – Elective: General Chemistry	3
CHEM-155	General Education – Elective: Chemistry Workshop	2
CHMO-331	Comprehensive Organic Chemistry I	3
CHMO-335	Comprehensive Organic Chemistry Lab I	1
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – Ethical Perspective	3
	General Education – Artistic Perspective	3
	General Education – Elective	3
	General Education – First-Year Writing (WI)	3
Second Year		
CHMA-161	Quantitative Analysis	3
CHMA-165	Analytical Methods Lab	1
CHMB-402	Biochemistry I	3
CHMI-351	Descriptive Inorganic Chemistry	3
CHMO-332	Comprehensive Organic Chemistry II	3
CHMO-336	Comprehensive Organic Chemistry Lab II	2
MATH-219	General Education – Elective: Multivariable Calculus	3
MATH-233	General Education – Elective: Linear Systems and Differential Equations	4
PHYS-211	General Education – Natural Science Inquiry Perspective: University Physics I	4
	General Education – Global Perspective	3
	General Education – Immersion 1	3
Third Year		
CHMA-261	Instrumental Analysis	3
CHMA-265	Instrumental Analysis Lab	1
CHMP-441	Physical Chemistry I	3
CHMP-442	Physical Chemistry II	3
CHMP-445	Experimental Physical Chemistry (WI-PR)	3
PHYS-212	General Education – Scientific Principles Perspective: University Physics II	4
	General Education – Social Perspective	3
	General Education – Electives	6
	Open Electives	6

COURSE		SEMESTER CREDIT HOURS
Fourth Year		
CHMI-664	Modern Inorganic Chemistry	3
	Advanced Chemistry Elective/MTSE Graduate Elective§	6
	General Education – Immersion 2, 3	6
	Advanced Chemistry Lab/MTSE Graduate Elective§	2
	General Education – Electives	6
	Open Electives	6
Fifth Year		
MTSE-601	Materials Science	3
MTSE-704	Theoretical Methods in Materials Science and Engineering	3
MTSE-705	Experimental Techniques	3
Choose one of the following:		9
MTSE-777	Graduate Project plus two MTSE Graduate Electives	
MTSE-790	Research & Thesis	
	MTSE Graduate Elective§	3
Total Semester Credit Hours		**144**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
§ Please see advisor for complete list of elective choices.

Accreditation

The BS degree in chemistry is certified by the Committee on Professional Training of the American Chemical Society. Students can request a more flexible BS curriculum which is not ACS certified.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended
- Chemistry required

Transfer Admission

Transfer course recommendations without associate degree

Courses in liberal arts, chemistry, math, and physics

Appropriate associate degree programs for transfer

AS degree in liberal arts with chemistry option; chemical technology, laboratory technology

Computational Mathematics, BS

www.rit.edu/study/computational-mathematics-bs

Mary Lynn Reed, Professor
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Program overview

The computational mathematics major combines the beauty and logic of mathematics with the application of today's fastest and most powerful computers. The major uses computers as problem-solving tools to come up with mathematical solutions to real-world problems in engineering, operations research, economics, business and other areas of science. The skills you learn can be applied to everyday life, from computing security and telecommunication networking to routes for school buses and delivery companies. The computational mathematics major gives you a solid foundation in both mathematics and computational methods that you need to be successful in the field or in graduate school.

Computational mathematics prepares you for a mathematical career that incorporates extensive computer science skills. In this major, much emphasis is given to the use of the computer as a tool to solve mathematically modeled physical problems. Students often pursue positions as mathematical analysts, scientific programmers, software engineers, or systems analysts. Job opportunities in private industry and government abound in this field.

Course of study

The curriculum provides a foundation in mathematics through courses in calculus, differential equations, graph theory, abstract and linear algebra, mathematical modeling, numerical analysis, and several other areas. Students are required to complete an experiential learning component of the program, as approved by the School of Mathematical Sciences. Students are encouraged to participate in research opportunities or cooperative education experiences. You will gain extensive computing skills through a number of high-level programming, system design, and other computer science courses.

Nature of work

Mathematicians use mathematical theory, computational techniques, algorithms, and the latest computer technology to solve economic, scientific, engineering, physics, and business problems.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Although cooperative education is optional for computational mathematics students, it may be used to fulfill the experiential learning component of the program. Students have worked in a variety of settings on problem-solving teams with engineers, biologists, computer scientists, physicists, and marketing specialists.

Curriculum

Computational Mathematics, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSCI-141	General Education – Elective: Computer Science I	4
CSCI-142	General Education – Elective: Computer Science II	4
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-199	Mathematics and Statistics Seminar	1
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Natural Science Inquiry Perspective‡	4
	General Education – Elective	3
	General Education – First-Year Writing (WI)	3
Second Year		
CSCI-243	The Mechanics of Programming	3
CSCI-262	Introduction to Computer Science Theory	3
MATH-200	Discrete Mathematics and Introduction to Proofs	3
MATH-231	Differential Equations	3
MATH-251	Probability and Statistics I	3
MATH-399	Mathematical Sciences Job Search Seminar	0
Choose one of the following:		4
MATH-221	General Education – Elective: Multivariable and Vector Calculus	
MATH-221H	General Education – Elective: Honors Multivariable and Vector Calculus	
Choose one of the following:		3
MATH-241	Linear Algebra	
MATH-241H	Honors Linear Algebra	
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
	General Education – Scientific Principles Perspective‡	4
Third Year		
MATH-411	Numerical Analysis	3
MATH-431	Real Variables I	3
	Program Electives†	12
	General Education – Social Perspective	3
	General Education – Immersion 1	3
	General Education – Elective	3
	Open Elective	3
Fourth Year		
MATH-421	Mathematical Modeling (WI-PR)	3
MATH-441	Abstract Algebra I	3
	Program Electives†	6
	General Education – Immersion 2, 3	6
	General Education – Elective Three	3
	Open Elective	9
Total Semester Credit Hours		**122**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Three of the program electives must be MATH or STAT courses with course numbers of at least 250, and either Graph Theory (MATH-351) or Numerical Linear Algebra (MATH-412) must be one of the three courses. Three of the program electives must be CSCI courses (SWEN-261 is also acceptable as one of these three courses). The remaining electives can be either a CSCI, MATH, or STAT course with a course number of at least 250.
‡ Students will satisfy this requirement by taking either University Physics I (PHYS-211) and University Physics II (PHYS-212) or General & Analytical Chemistry I and Lab (CHMG-141/145) and General & Analytical Chemistry II and Lab (CHMG-142/146) or General Biology I and Lab (BIOL-101/103) and General Biology II and Lab (BIOL-102/104).
§ Students are required to complete an experiential learning component of the program, as approved by the School of Mathematical Sciences. Students are urged to fulfill this requirement by participating in research opportunities or co-op experiences; students can also fulfill this requirement by taking MATH-500 as a program elective.

Accelerated dual degree options

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic advisor for more information.

Computational Mathematics, BS degree/Applied and Computational Mathematics (thesis option), MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSCI-141	General Education – Elective: Computer Science I	4
CSCI-142	General Education – Elective: Computer Science II	4
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-199	Mathematics and Statistics Seminar	1
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Natural Science Inquiry Perspective‡	4
	General Education – Elective	3
	General Education – First-Year Writing (WI)	3
	Open Elective	3
Second Year		
CSCI-243	The Mechanics of Programming	3
CSCI-262	Introduction to Computer Science Theory	3
MATH-200	Discrete Mathematics and Introduction to Proofs	3
MATH-231	Differential Equations	3
MATH-251	Probability and Statistics I	3
MATH-399	Mathematical Sciences Job Search Seminar	0
Choose one of the following:		4
MATH-221	General Education – Elective: Multivariable and Vector Calculus	
MATH-221H	General Education – Elective: Honors Multivariable and Vector Calculus	
Choose one of the following:		3
MATH-241	Linear Algebra	
MATH-241H	Honors Linear Algebra	
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
	General Education – Scientific Principles Perspective‡	4
Third Year		
MATH-431	Real Variables I	3
MATH-441	Abstract Algebra I	3
	Program Electives	12
	General Education – Social Perspective	3
	General Education – Immersion 1, 2	6
	General Education – Elective	3
Fourth Year		
MATH-421	Mathematical Modeling (WI-PR)	3
MATH-602	Numerical Analysis I	3
MATH-606	Graduate Seminar I	1
MATH-607	Graduate Seminar II	1
	Math Graduate Core Courses	6
	Open Electives	9
	General Education – Immersion 3	3
	General Education – Elective	3
	Program Elective	3
Fifth Year		
MATH-790	Research & Thesis	7
	MATH Graduate Electives	12
Total Semester Credit Hours		**146**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either a 3- or 4-credit hour lab science course. If a science course consists of separate lecture and laboratory sections, the student MUST take both the lecture and lab portions to satisfy the requirement. The lecture alone will not fulfill the requirement.

Computational Mathematics, BS degree/Applied and Computational Mathematics (project option), MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSCI-141	General Education – Elective: Computer Science I	4
CSCI-142	General Education – Elective: Computer Science II	4
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-199	Mathematics and Statistics Seminar	1
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Natural Science Inquiry Perspective‡	4
	General Education – Elective	3
	General Education – First-Year Writing (WI)	3
	Open Elective	3
Second Year		
CSCI-243	The Mechanics of Programming	3
CSCI-262	Introduction to Computer Science Theory	3
MATH-200	Discrete Mathematics and Introduction to Proofs	3
MATH-231	Differential Equations	3
MATH-251	Probability and Statistics I	3
MATH-399	Mathematical Sciences Job Search Seminar	0
Choose one of the following:		4
MATH-221	General Education – Elective: Multivariable and Vector Calculus	
MATH-221H	General Education – Elective: Honors Multivariable and Vector Calculus	
Choose one of the following:		3
MATH-241	Linear Algebra	
MATH-241H	Honors Linear Algebra	
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
	General Education – Scientific Principles Perspective‡	4
Third Year		
MATH-431	Real Variables I	3
MATH-441	Abstract Algebra I	3
	Program Electives	12
	General Education – Social Perspective	3
	General Education – Immersion 1, 2	6
	General Education – Elective	3
Fourth Year		
MATH-421	Mathematical Modeling (WI-PR)	3
MATH-602	Numerical Analysis I	3
MATH-606	Graduate Seminar I	1
MATH-607	Graduate Seminar II	1
	Math Graduate Core Courses	6
	Open Electives	9
	General Education – Immersion 3	3
	General Education – Elective	3
	Program Elective	3
Fifth Year		
MATH-790	Research & Thesis	4
	MATH Graduate Electives	15
Total Semester Credit Hours		**146**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students will satisfy this requirement by taking either a 3- or 4-credit hour lab science course. If a science course consists of separate lecture and laboratory sections, the student MUST take both the lecture and lab portions to satisfy the requirement. The lecture alone will not fulfill the requirement.

Computational Mathematics, BS degree/Computer Science, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSCI-141	General Education – Elective: Computer Science I	4
CSCI-142	General Education – Elective: Computer Science II	4
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
MATH-199	Mathematics and Statistics Seminar	1
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Natural Science Inquiry Perspective	4
	General Education – Elective	3
	General Education – First-Year Writing (WI)	3
Second Year		
CSCI-243	The Mechanics of Programming	3
CSCI-262	Introduction to Computer Science Theory	3
MATH-200	Discrete Mathematics and Introduction to Proofs	3
MATH-231	Differential Equations	3
MATH-251	Probability and Statistics I	3
MATH-399	Mathematical Sciences Job Search Seminar	0
Choose one of the following:		4
MATH-221	General Education – Elective: Multivariable and Vector Calculus	
MATH-221H	General Education – Elective: Honors Multivariable and Vector Calculus	
Choose one of the following:		3
MATH-241	Linear Algebra	
MATH-241H	Honors Linear Algebra	
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
	General Education – Scientific Principles Perspective	4
Third Year		
MATH-411	Numerical Analysis	3
MATH-431	Real Variables I	3
	Program Electives	12
	General Education – Social Perspective	3
	General Education – Immersion 1	3
	General Education – Elective	3
	Open Elective	3
Fourth Year		
CSCI-664	Computational Complexity	3
CSCI-665	Foundations of Algorithms	3
MATH-421	Mathematical Modeling (WI-PR)	3
MATH-441	Abstract Algebra I	3
	Open Electives	9
	General Education – Immersion 2, 3	6
	General Education – Elective	3
Fifth Year		
CSCI-610	Fundamentals of Computer Graphics	3
CSCI-630	Foundations of Artificial Intelligence	3
CSCI-631	Foundations of Computer Vision	3
CSCI-635	Introduction to Machine Learning	3
CSCI-790	Computer Science MS Thesis	6
CSCI-799	Computer Science Graduate Independent Study	6
Total Semester Credit Hours		**146**

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended

Transfer Admission

Transfer course recommendations without associate degree

Courses in liberal arts, physics, math, and chemistry

Appropriate associate degree programs for transfer

AS degree in liberal arts with math/science option

Environmental Science, BS

www.rit.edu/study/environmental-science-bs

Andre Hudson, Professor
585-475-4259, aohsbi@rit.edu

Program overview

Earning an environmental science degree from RIT gives you the problem-solving skills needed to be successful in the field. This major combines a love for nature with cutting edge research to create a sustainable future for our planet. Meaningful fieldwork gives you experience in solving real-world problems.

Environmental scientists solve problems relating to power generation, waste reduction and recycling, pollution control, land use, and land cover change, preserving biodiversity and ecological services, transportation, forestry, agriculture, economics, and a wide range of other areas. They study our relationship to nature and to each other, developing solutions that prevent or reverse environmental deterioration and work toward sustainability. Meeting these challenges requires problem-solving abilities based in science, mathematics, the social sciences, and other disciplines. This is an interdisciplinary degree with a strong foundation in biology, mathematics, chemistry, physics, and geographic information systems. The BS program provides you with the education and experiences you'll need to be successful.

Real World Experience

Undergraduate research is strongly encouraged and strengthens your preparation for graduate study or employment. Students are encouraged to participate in undergraduate research experience under the guidance of faculty mentors. Students are also encouraged to apply for summer research internships both here at RIT and at other institutions. In addition to undergraduate research, optional cooperative education opportunities offer students a great way to get a head start on their career with paid, professional work experience with local, state, or federal government agencies, nonprofit environmental organizations, and a host of environmental consulting firms.

Nature of Work

Environmental scientists and geoscientists use their knowledge of the physical makeup and history of the Earth to protect the environment; locate water, mineral, and energy resources; predict future geologic hazards; and offer environmental site assessments and advice on indoor air quality, hazardous waste site remediation and construction and land-use projects. Most of their time is devoted to office or field work and often includes data analysis and report/proposal writing.

Careers in Environmental Science

There is a great need for individuals who have both a strong background in environmental science and the ability to participate in an interdisciplinary problem-solving team. Upon graduation, students will be valued for their broad understanding of environmental science, their depth of knowledge in a particular aspect of environmental science, and their ability to attack and solve tough environmental problems.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Co-op is optional for students in the environmental science degree.

Curriculum

Environmental Science, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-121	Introductory Biology I	4
BIOL-122	Introductory Biology II	4
ENVS-101	General Education – Elective: Concepts of Environmental Science	3
ENVS-102	Environmental Concepts Lab	1
ENVS-111	General Education – Elective: Soil Science	4
MATH-161	General Education – Mathematical Perspective A: Applied Calculus	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
	General Education – First-Year Writing (WI)	3
Second Year		
BIOL-240	General Ecology (WI-PR)	4
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	3
CHMG-142	General Education – Scientific Principles Perspective: General & Analytical Chemistry II	3
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab	1
CHMG-146	General Education – Scientific Principles Perspective: General & Analytical Chemistry Lab II	1
ENVS-250	Applications of Geographic Information Systems	4
ENVS-301	Environmental Science Field Skills	4
STS0-220	General Education – Elective: Environment and Society	3
Choose one of the following:		3
STSO-421	General Education – Elective: Environmental Policy	
STSO-422	General Education – Elective: Great Lakes	
PUBL-210	General Education – Elective: Introduction to Qualitative Policy Analysis	
	General Education – Ethical Perspective	3
	Open Elective	3
Third Year		
BIOL-575	Conservation Biology	3
CHMO-231	General Education – Elective: Organic Chemistry I	3
CHMO-235	General Education – Elective: Organic Chemistry Lab I	1
ENVS-550	Hydrologic Applications of Geographic Information Systems	4
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	3
STAT-146	General Education – Elective: Introduction to Statistics II	4
	Concentration Courses	6
	General Education – Social Perspective	3
	General Education – Immersion 1	3
	Open Elective	3
Fourth Year		
ENVS-551	Environmental Science Capstone Seminar I	3
ENVS-552	Environmental Science Capstone Seminar II (WI-PR)	3
IMGS-431	Environmental Applications of Remote Sensing	3
	Concentration Courses	8
	Open Electives	6
	General Education – Immersion 2, 3	6
Total Semester Credit Hours		**123**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Concentrations

Cellular and Molecular Biology

COURSE	
BIOL-202	Molecular Biology
BIOL-204	Introduction to Microbiology
BIOL-265	Evolutionary Biology
BIOL-302	Cell Biology
BIOL-303	Cell Physiology
BIOL-305	Plants, Medicine and Technology
BIOL-307	Microbiology of Wastewater
BIOL-310	Bio-energy: Microbial Production
BIOL-321	Genetics
BIOL-322	Developmental Biology
BIOL-345	Molecular Ecology
BIOL-365	Introduction to Population Genetics
BIOL-370	Environmental Microbiology
BIOL-380	Bioremediation
BIOL-403	Fundamentals of Plant Biochemistry and Pathology
BIOL-460	Infectious Disease: Impact on Society and Culture

Chemistry

COURSE	
CHEM-201	Clean Energy: Hydrogen Fuel Cells
CHEM-203	Clean Energy: Hydrogen Fuel Cells Laboratory
CHEM-531	Climate Change: Science Technology & Policy
CHMA-261	Instrumental Analysis
CHMA-265	Instrumental Analysis Lab
CHMA-621	Advanced Instrument Analysis Lab
CHMB-460	Infectious Diseases: Impact Society & Culture
CHMI-351	Descriptive Inorganic Chemistry
CHMO-232	Organic Chemistry II
CHMO-236	Organic Chemistry Lab II
CHMP-441	Physical Chemistry I
ENVS-670	Advanced Concepts of Environmental Chemistry

Ecology and Field Biology

COURSE	
BIOL-205	Animal Behavior
BIOL-207	Galapagos: Ecology and Evolution
BIOL-211	Invertebrate Zoology
BIOL-212	Vertebrate Zoology
BIOL-218	Biology of Plants
BIOL-265	Evolutionary Biology
BIOL-290	Vertebrate Evolution
BIOL-293	Evolution and Creationism
BIOL-309	Comparative Vertebrate Anatomy
BIOL-313	Comparative Animal Physiology
BIOL-343	Tropical Ecology
BIOL-371	Freshwater Ecology
BIOL-385	Seneca Park Zoo Internship
BIOL-414	Animal Nutrition
BIOL-444	Ornithology
BIOL-455	Biogeography
BIOL-573	Marine Biology
ENVS-305	Urban Ecology
ENVS-311	Wetlands
ENVS-531	Climate Change: Science Technology & Policy

Economics

COURSE	
ECON-201	Principles of Macroeconomics
ECON-401	Intermediate Microeconomic Theory
ECON-403	Econometrics I
ECON-404	Mathematical Methods: Economics
ECON-406	Global Economic Issues
ECON-421	Natural Resource Economics
ECON-422	Benefit-Cost Analysis
ECON-440	Urban Economics
ECON-444	Public Finance
ECON-448	Development Economics
ECON-503	Econometrics II
ECON-520	Environmental Economics

Mathematics

COURSE	
MATH-221	Multivariable and Vector Calculus
MATH-231	Differential Equations
MATH-241	Linear Algebra
MATH-326	Boundary Value Problems
MATH-341	Advanced Linear Algebra
MATH-351	Graph Theory
MATH-381	Complex Variables

Organismal Biology and Evolution

COURSE	
BIOL-204	Introduction to Microbiology
BIOL-207	Galapagos: Ecology and Evolution
BIOL-211	Invertebrate Zoology
BIOL-212	Vertebrate Zoology
BIOL-218	Biology of Plants
BIOL-265	Evolutionary Biology
BIOL-290	Vertebrate Evolution
BIOL-293	Evolution and Creationism
BIOL-303	Cell Physiology
BIOL-309	Comparative Vertebrate Anatomy
BIOL-313	Comparative Animal Physiology
BIOL-322	Developmental Biology
BIOL-414	Animal Nutrition
BIOL-444	Ornithology
BIOL-573	Marine Biology
BIOL-673	Marine Biology
ENVS-311	Wetlands

Public Policy

COURSE	
PUBL-301	Public Policy Analysis
PUBL-302	Decision Analysis
PUBL-530	Energy Policy
PUBL-531	Climate Change: Science, Technology and Policy
STSO-201	Science and Technology Policy
STSO-326	History of Ecology and Environmentalism
STSO-330	Energy and the Environment
STSO-421	Environmental Policy
STSO-521	Biodiversity and Society

Remote Sensing and Digital Image Processing

COURSE	
IMGS-251	Radiometry
IMGS-261	Linear and Fourier Methods for Imaging
IMGS-361	Image Processing and Computer Vision I
IMGS-362	Image Processing & Computer Vision II
IMGS-371	Imaging Systems Analysis
IMGS-462	Multivariate Statistical Image Processing
IMGS-532	Advanced Environmental Applications of Remote Sensing

Statistics

COURSE	
BIOL-470	Statistical Analysis for Bioinformatics
STAT-305	Regression Analysis
STAT-325	Design of Experiments
STAT-335	Introduction to Time Series
STAT-345	Nonparametric Statistics
STAT-415	Statistical Sampling
STAT-425	Multivariate Analysis
STAT-521	Statistical Quality Control

Accelerated dual degree options

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic adviser for more information.

Environmental Science, BS/MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-121	Introductory Biology I	4
BIOL-122	Introductory Biology II	4
ENVS-101	General Education – Elective: Concepts of Environmental Science	3
ENVS-102	Concepts of Environmental Science Lab	1
ENVS-111	General Education – Elective: Soil Science	4
MATH-161	General Education – Mathematical Perspective A: Applied Calculus	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – Global Perspective	3
	General Education – Artistic Perspective	3
	General Education – First-Year Writing (WI)	3
Second Year		
BIOL-240	General Ecology (WI-PR)	4
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	3
CHMG-142	General Education – Scientific Principles Perspective: General & Analytical Chemistry II	3
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab	1
CHMG-146	General Education – Scientific Principles Perspective: General & Analytical Chemistry II Lab	1
ENVS-250	Applications of Geographic Information Systems	4
ENVS-301	Environmental Science Field Skills	4
STSO-220	General Education – Elective: Environment and Society	3
Choose one of the following:		3
STSO-421	General Education – Elective: Environmental Policy	
STSO-422	General Education – Elective: Great Lakes	
PUBL-210	General Education – Elective: Introduction to Qualitative Policy Analysis	
	General Education – Ethical Perspective	3
	Open Elective	3
Third Year		
BIOL-675	Advanced Conservation Biology	3
CHMO-231	General Education – Elective: Organic Chemistry I	3
CHMO-235	General Education – Elective: Organic Chemistry I Lab	1
ENVS-650	Hydrologic Applications of Geographic Information Systems	4
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	3
STAT-146	General Education – Elective: Introduction to Statistics II	4
	General Education – Social Perspective	3
	Environmental Science Concentration Courses§	6
	General Education – Immersion 1	3
	Open Elective	3
Fourth Year		
ENVS-551	Environmental Science Capstone Seminar I	3
ENVS-552	Environmental Science Capstone Seminar II (WI-PR)	3
ENVS-601	Environmental Science Graduate Studies I	2
ENVS-602	Environmental Science Graduate Studies II	1
ENVS-795	Environmental Science Graduate Research	3
IMGS-431	Environmental Applications of Remote Sensing	3
	Environmental Science Concentration Courses§	6
	Open Electives	6
	General Education – Immersion 2, 3	6
Fifth Year		
	Graduate Professional Electives	6
	Graduate Public Policy/STSO Elective	3
	Graduate Statistics Elective	3
Choose one of the following:		6
ENVS-790	Environmental Science Thesis	
ENVS-780	Environmental Science Project	
Total Semester Credit Hours		**145**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
§ Please see advisor for course choices.

Environmental Science, BS degree/Science, Technology and Public Policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-121	Introductory Biology I	4
BIOL-122	Introductory Biology II	4
ENVS-101	Concepts of Environmental Science	3
ENVS-102	Concepts of Environmental Science Lab	1
ENVS-111	Soil Science	4
MATH-161	General Education – Mathematical Perspective A: Applied Calculus	4
YOPS-010	RIT 365: RIT Connections	0
	General Education – First Year Writing (WI)	3
	General Education – Artistic Perspective	3
	General Education – Global Perspective	3
Second Year		
BIOL-240	General Ecology (WI)	4
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	3
CHMG-142	General Education – Scientific Principles Perspective: General & Analytical Chemistry II	3
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab	1
CHMG-146	General Education – Scientific Principles Perspective: General & Analytical Chemistry II Lab	1
ENVS-250	Applications of Geographic Information Systems	4
ENVS-301	Environmental Science Field Skills	4
STSO-220	Environment and Society	3
Choose one of the following:		3
STSO-421	Environmental Policy	
PUBL-210	Introduction to Qualitative Policy Analysis	
STSO-422	Great Lakes	
	General Education – Ethical Perspective	3
	Open Elective	3
Third Year		
BIOL-575	Conservation Biology	3
CHMO-231	Organic Chemistry I	3
CHMO-235	Organic Chemistry Lab I	1
ENVS-550	Hydrologic Applications of Geographic Information Systems	4
PUBL-702	Graduate Decision Analysis	3
STAT-145	General Education – Mathematical Perspective B: Introduction to Statistics I	3
STAT-146	Introduction to Statistics II	4
	Environmental Science Concentration Course	4
	General Education – Social Perspective	3
	General Education - Immersion 1	3
	Open Elective	3
Fourth Year		
ENVS-551	Environmental Science Capstone Seminar I	3
ENVS-552	Environmental Science Capstone Seminar II (WI)	3
IMGS-431	Environmental Applications of Remote Sensing	3
PUBL-701	Graduate Policy Analysis	3
STSO-710	Graduate Science and Technology Policy Seminar	3
	Environmental Science Concentration Course	4
	General Education – Immersion 2, 3	6
	Public Policy Elective	3
Fifth Year		
PUBL-700	Readings in Public Policy	3
PUBL-703	Evaluation and Research Design	3
	Public Policy Electives	6
	Open Elective	3
Choose one of the following:		6
PUBL-790	Public Policy Thesis	
	Graduate Electives, PUBL-798 Comprehensive Exam	
Total Semester Credit Hours		**144**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended
- Biology and chemistry required

Transfer Admission

Transfer course recommendations without associate degree

Courses in liberal arts, sciences, and math

Appropriate associate degree programs for transfer

AS degree in biology, chemistry, environmental science, liberal arts with science option

Imaging Science, BS

www.rit.edu/study/imaging-science-bs
James Ferwerda, Associate Professor
585-475-4923, jafpci@cis.rit.edu

Program overview

Study the science and engineering theories behind image creating technologies, the integration of those technologies into imaging systems, and the application of those systems to solve scientific problems. Your knowledge can be applied to understanding and developing cutting-edge imaging systems, such as portable eye trackers, virtual reality devices, satellite systems, digital cameras, or anything that involves recording, processing, displaying, or analyzing image data. As the only university in the country with an undergraduate program in imaging science, RIT prepares you for a professional career by immersing you in hands-on experience on day one and building on that experience throughout your academic career

The imaging science curriculum includes the study of:

- the physical observables associated with the subject of an image, such as reflected or emitted electromagnetic radiation;
- how those observables are captured by devices using optics and detectors such as satellites, digital cameras, medical imaging devices, and astronomical observatories;
- how the captured observables are processed using computers and specialized software;
- how processed signals are converted into images displayed on paper or electronic devices and perceived by humans; and
- how image quality is assessed and scientific information is extracted.

The imaging science degree begins with a yearlong project-based class, Innovative Freshman Experience, in a free-form learning environment and culminates with an independent research project under the guidance of center faculty. You'll learn about imaging science while designing and implementing a novel imaging system. In subsequent years concepts presented in the classroom are reinforced through laboratory experiments and a capstone research experience, which can examine a problem in any of several imaging applications such as remote sensing, astronomy, computer vision, manuscript imaging and enhancement, optics, color science, image quality, or visual perception. Both theoretical studies and practical application of technologies are integral parts of the curriculum.

Graduates are in demand by both industry and governmental agencies to work on the design, development, testing, or production of specialized imaging systems or technologies, or to use imaging systems to perform scientific research. Faculty members are deeply committed professionals who divide their time between teaching and the pursuit of scientific advances.

Faculty, staff, and students conduct research sponsored by both industry and the government. The research support ensures that students are exposed to the latest developments in a rapidly expanding field.

Real world experiences

Undergraduate research experiences are available with professors throughout the Chester F. Carlson Center for Imaging Science and are highly encouraged. These opportunities enable students to practice real-world lab application of the information they are currently studying. Cooperative education is optional but highly recommended for students to gain experience outside of RIT.

Nature of work

Concepts presented in the classroom are reinforced through laboratory experiments and a capstone research experience, which can examine a problem in any of several imaging applications such as remote sensing, astronomy, computer vision, manuscript imaging and enhancement, optics, color science, image quality, or visual perception. Both theoretical studies and practical application of technologies are integral parts of the curriculum.

Advantages

Faculty, staff, and students conduct research sponsored by both industry and the government. The research support ensures that students are exposed to the latest developments in a rapidly expanding field. Graduates are in demand by both industry and governmental agencies to work on the design, development, testing, or production of specialized imaging systems or technologies, or to use imaging systems to perform scientific research. Faculty members are deeply committed professionals who divide their time between teaching and the pursuit of scientific advances.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Co-op is optional, but strongly encouraged for students in the imaging science degree.

Curriculum

Imaging Science, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
IMGS-181	Innovative Freshman Experience I	3
IMGS-182	Innovative Freshman Experience II	3
IMGS-221	General Education – Elective: Vision & Psychophysics	3
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-211	General Education – Natural Science Inquiry Perspective: University Physics I	4
SOFA-103	General Education – Elective: Introduction to Imaging and Video Systems	3
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Artistic Perspective	3
	General Education – Elective	3
Second Year		
IMGS-180	Introduction to Computing and Control	3
IMGS-211	Probability and Statistics for Imaging	3
IMGS-261	General Education – Elective: Linear and Fourier Methods for Imaging	4
IMGS-351	General Education – Elective: Fundamentals of Color Science	3
MATH-221	General Education – Elective: Multivariable and Vector Calculus	4
PHYS-212	General Education – Scientific Principles Perspective: University Physics II	4
PHYS-213	General Education – Elective: Modern Physics I	3
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
Third Year		
IMGS-251	Radiometry	3
IMGS-321	Geometric Optics	3
IMGS-322	Physical Optics	3
IMGS-341	Interactions Between Light and Matter	3
IMGS-361	Image Processing and Computer Vision I	3
IMGS-362	Image Processing & Computer Vision II	3
	General Education – Social Perspective	3
	General Education – Immersion 1	3
	Open Electives	6
Fourth Year		
IMGS-442	Imaging Systems Analysis and Modeling	4
IMGS-451	Imaging Detectors	3
IMGS-502	Imaging Science Senior Project I (WI-PR)	3
IMGS-503	Imaging Science Senior Project II	3
	Program Elective	3
	General Education – Immersion 2, 3	6
	Open Electives	6
Total Semester Credit Hours		**121**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Admission requirements

Freshman Admission
For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations
- 3 years of math required; pre-calculus recommended

Transfer Admission
Transfer course recommendations without associate degree
Courses in math, computer science, liberal arts, and physics

Appropriate associate degree programs for transfer
AS degree in liberal arts with math/science option, computer science, engineering science, science

Physics, BS

www.rit.edu/study/physics-bs
Michael Kotlarchyk, Professor
585-475-6115, mnksps@rit.edu

Program overview

RIT's physics degree gives you a solid foundation in experimental, computational, and theoretical physics, as it fosters your analytical and problem-solving skills. The curriculum emphasizes laboratory training as you explore the basic principles governing the structure and behavior of matter, the generation and transfer of energy, and the interactions between energy and matter. The hands-on experience you gain prepares you for graduate school or for direct entry into a professional career.

Graduates with a BS degree in physics are sought after and highly employable in both the private and public sectors. They typically find positions in industry, government agencies and labs, and teaching. Many graduates choose to continue their education in doctoral or master's programs in physics or physics-related areas such as astrophysics, applied physics, biophysics, geophysics, atmospheric science, imaging science, and engineering. Students also are well-prepared for entry into medical, law, or business school.

The physics degree is a four-year program with optional topics ranging from condensed matter to cosmology. Students are required to complete a capstone research project undertaken in their final year. Students also participate in advanced laboratory work and have opportunities to participate in faculty-led research projects.

Course of Study

The curriculum begins with mathematics, science, and liberal arts courses covering the breadth of the discipline from condensed matter to cosmology. In the third or fourth years, advanced topics are introduced such as statistical physics and quantum mechanics. You'll also participate in advanced laboratory work and a capstone project.

Real World Experiences
Undergraduate research experiences are available with professors throughout the College of Science and are highly encouraged. These opportunities enable students to practice real-world lab application of the information they are studying. Cooperative Education is also highly recommended to gain experiences outside of RIT though not required for graduation.

Nature of Work
Some physicists use these principles in theoretical areas, such as the nature of time and the origin of the universe; others apply their physics knowledge to practical areas such as the development of advanced materials, electronic and optical devices, and medical equipment. They often design and perform science-based experiments, using sophisticated equipment, and then attempt to draw useful conclusions from their observations/analysis. (Source: U.S. Bureau of Labor Statistics Occupational Outlook Handbook)

Training/Qualifications
For jobs in basic research and development, a doctoral degree is usually required for physicists and astronomers. Those with bachelor's degrees can work as technicians or research assistants in industrial environments including scientific labs, engineering, software development, and non-technical fields. Many of those with doctorates in physics and astronomy ultimately teach in higher education. (Sources: U.S. Bureau of Labor Statistics O.O.H and American Institute of Physics Statistical Research Center)

Advantages

Graduates find employment opportunities with industrial, academic, and governmental agencies or continue their education in masters or doctoral programs in physics or physics-related areas such as astrophysics, biophysics, geophysics, atmospheric science, imaging science, and engineering. Students also may prepare for entry into medical, law, or business school.

Cooperative Education

Cooperative education, or co-op for short, is full-time, paid work experience in your field of study. And it sets RIT graduates apart from their competitors. It's exposure–early and often–to a variety of professional work environments, career paths, and industries. RIT co-op is designed for your success.

Co-op is optional but strongly encouraged for students in the physics degree.

Curriculum

Physics, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
Choose one of the following:		4
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab	
or		
BIOL-101	General Education – Natural Science Inquiry Perspective: General Biology I	
BIOL-103	General Education – Natural Science Inquiry Perspective: General Biology I Lab	
Choose one of the following:		4
CHMG-142	General Education – Scientific Principles Perspective: General & Analytical Chemistry II	
CHMG-146	General Education – Scientific Principles Perspective: General & Analytical Chemistry II Lab	
or		
BIOL-102	General Education – Scientific Principles Perspective: General Biology II	
BIOL-104	General Education – Scientific Principles Perspective: General Biology II Lab	
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-150	Introduction to Special Relativity	3
PHYS-216	General Education – Elective: University Physics I: Physics Majors	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Elective	3
	General Education – Artistic Perspective	3
Second Year		
MATH-219	General Education – Elective: Multivariable Calculus	3
MATH-231	General Education – Elective: Differential Equations	3
PHYS-213	General Education – Elective: Modern Physics I	3
PHYS-217	General Education – Elective: University Physics II: Physics Majors	4
PHYS-222	Electronic Measurements	3
PHYS-225	Introduction to Computational Physics and Programming	3
PHYS-275	Sophomore Physics Seminar	1
PHYS-283	Vibrations and Waves	3
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Third Year		
PHYS-214	Modern Physics II	3
PHYS-315	Experiments in Modern Physics	3
PHYS-316	Advanced Laboratory in Physics	3
PHYS-320	Mathematical Methods in Physics	3
PHYS-330	Classical Mechanics	4
PHYS-411	Electricity and Magnetism	4
PHYS-450	Capstone Preparation	1
	Program Elective†	3
	General Education – Immersion 1, 2	6
Fourth Year		
PHYS-414	Quantum Mechanics	3
PHYS-440	Thermal and Statistical Physics	3
PHYS-451	Capstone Project I	3
PHYS-452	Capstone Project II (WI-PR)	3
	Program Electives†	6
	Open Electives	9
	General Education – Immersion 3	3
Total Semester Credit Hours		**124**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
† Students must complete one course from List A, one course from List B, and one course from List C.

Physics Electives

COURSE	
List A	
PHYS-360	Introduction to Chaotic Dynamics
PHYS-365	Physical Optics
PHYS-373	Observational Astronomy
PHYS-377	Advanced Computational Physics
PHYS-667	Quantum Optics
IMGS-513	Multi-Wavelength Astronomical Imaging
IMGS-528	Design and Fabrication of Solid State Cameras
List B	
MCSE-731	Integrated Optical Devices & Systems
PHYS-321	Advanced Mathematical Methods in Physics
PHYS-370	Stellar Astrophysics
PHYS-371	Galactic Astrophysics
PHYS-372	Extragalactic Astrophysics and Cosmology
PHYS-408	Laser Physics
PHYS-412	Advanced Electricity and Magnetism
PHYS-415	Advanced Quantum Mechanics
PHYS-424	Nuclear Physics
PHYS-441	Advanced Thermal and Statistical Physics
PHYS-532	Solid State Physics
List C	
IMGS-513	Multi-Wavelength Astronomical Imaging
IMGS-528	Design and Fabrication of Solid State Cameras
MCSE-731	Integrated Optical Devices & Systems
PHYS-321	Advanced Mathematical Methods in Physics
PHYS-360	Introduction to Chaotic Dynamics
PHYS-365	Physical Optics
PHYS-370	Stellar Astrophysics
PHYS-371	Galactic Astrophysics
PHYS-372	Extragalactic Astrophysics and Cosmology
PHYS-373	Observational Astronomy
PHYS-377	Advanced Computational Physics
PHYS-408	Laser Physics
PHYS-412	Advanced Electricity and Magnetism
PHYS-415	Advanced Quantum Mechanics
PHYS-424	Nuclear Physics
PHYS-441	Advanced Thermal and Statistical Physics
PHYS-532	Solid State Physics
PHYS-667	Quantum Optics

Accelerated dual degree options

Accelerated dual degree options are for undergraduate students with outstanding academic records. Upon acceptance, well-qualified undergraduate students can begin graduate study before completing their BS degree, shortening the time it takes to earn both degrees. Students should consult an academic advisor for more information.

Physics, BS/MS degree (research option), typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
Choose one of the following:		4
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab	
or		
BIOL-101	General Education – Natural Science Inquiry Perspective: General Biology I	
BIOL-103	General Education – Natural Science Inquiry Perspective: General Biology I Lab	
Choose one of the following:		4
CHMG-142	General Education – Scientific Principles Perspective: General & Analytical Chemistry II	
CHMG-146	General Education – Scientific Principles Perspective: General & Analytical Chemistry II Lab	
or		
BIOL-102	General Education – Scientific Principles Perspective: General Biology II	
BIOL-104	General Education – Scientific Principles Perspective: General Biology II Lab	
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-150	Introduction to Special Relativity	3
PHYS-216	General Education – Elective: University Physics I: Physics Majors	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Elective	3
	General Education – Artistic Perspective	3
Second Year		
MATH-219	General Education – Elective: Multivariable Calculus	3
PHYS-213	General Education – Elective: Modern Physics I	3
PHYS-217	General Education – Elective: University Physics II: Physics Majors	4
PHYS-222	Electronic Measurements	3
PHYS-225	Introduction to Computational Physics and Programming	3
MATH-231	General Education – Elective: Differential Equations	3
PHYS-275	Sophomore Physics Seminar	1
PHYS-283	Vibrations and Waves	3
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Third Year		
PHYS-214	Modern Physics II	3
PHYS-315	Experiments in Modern Physics	3
PHYS-316	Advanced Laboratory in Physics	3
PHYS-320	Mathematical Methods in Physics	3
PHYS-330	Classical Mechanics	4
PHYS-411	Electricity and Magnetism	4
	Program Elective	3
	PHYS Lab/Computation Physics Elective	3
	General Education – Immersion 1, 2	6
Fourth Year		
PHYS-414	Quantum Mechanics	3
PHYS-440	Thermal and Statistical Physics	3
PHYS-601	Graduate Physics Seminar I	1
PHYS-602	Graduate Physics Seminar II	1
Choose one of the following‡:		3
PHYS-610	Mathematical Methods for Physics	
PHYS-611	Classical Electrodynamics I	
PHYS-614	Quantum Theory	
Choose one of the following:		3
PHYS-630	Classical Mechanics	
PHYS-640	Statistical Physics	
Choose one of the following:		3
PHYS-790	Graduate Research & Thesis	
	Approved MS Physics Elective	
	Open Electives	9
	General Education – Immersion 3	3
Fifth Year		
Choose two of the following‡:		6
PHYS-610	Mathematical Methods for Physics	
PHYS-611	Classical Electrodynamics I	
PHYS-614	Quantum Theory	
PHYS-790	Graduate Research & Thesis	7
	MS Physics Electives	6
Total Semester Credit Hours		**144**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ These are core courses for the MS degree. All three must be completed.

Physics, BS/MS degree (professional option), typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
Choose one of the following:		4
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab	
or		
BIOL-101	General Education – Natural Science Inquiry Perspective: General Biology I	
BIOL-103	General Education – Natural Science Inquiry Perspective: General Biology I Lab	
Choose one of the following:		4
CHMG-142	General Education – Scientific Principles Perspective: General & Analytical Chemistry II	
CHMG-146	General Education – Scientific Principles Perspective: General & Analytical Chemistry II Lab	
or		
BIOL-102	General Education – Scientific Principles Perspective: General Biology II	
BIOL-104	General Education – Scientific Principles Perspective: General Biology II Lab	
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-150	Introduction to Special Relativity	3
PHYS-216	General Education – Elective: University Physics I: Physics Majors	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Elective	3
	General Education – Artistic Perspective	3
Second Year		
MATH-219	General Education – Elective: Multivariable Calculus	3
PHYS-213	General Education – Elective: Modern Physics I	3
PHYS-217	General Education – Elective: University Physics II: Physics Majors	4
PHYS-222	Electronic Measurements	3
PHYS-225	Introduction to Computational Physics and Programming	3
MATH-231	General Education – Elective: Differential Equations	3
PHYS-275	Sophomore Physics Seminar	1
PHYS-283	Vibrations and Waves	3
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Third Year		
PHYS-214	Modern Physics II	3
PHYS-315	Experiments in Modern Physics	3
PHYS-316	Advanced Laboratory in Physics	3
PHYS-320	Mathematical Methods in Physics	3
PHYS-330	Classical Mechanics	4
PHYS-411	Electricity and Magnetism	4
PHYS-450	Capstone Preparation	1
	General Education – Immersion 1, 2, 3	9
	Open Elective	3
Fourth Year		
PHYS-414	Quantum Mechanics	3
PHYS-440	Thermal and Statistical Physics	3
PHYS-451	Capstone Project I	3
PHYS-452	Capstone Project II (WI-PR)	3
PHYS-601	Graduate Physics Seminar I	1
PHYS-602	Graduate Physics Seminar II	1
Choose one of the following:		3
PHYS-610	Mathematical Methods for Physics	
PHYS-611	Classical Electrodynamics I	
PHYS-614	Quantum Theory	
Choose one of the following:		3
PHYS-630	Classical Mechanics	
PHYS-640	Statistical Physics	
	MS Physics Elective	3
	Open Electives	6
Fifth Year		
Choose one of the following:		3
PHYS-610	Mathematical Methods for Physics	
PHYS-611	Classical Electrodynamics I	
PHYS-614	Quantum Theory	
PHYS-780	Graduate Physics Project	4
	MS Physics Electives	12
Total Semester Credit Hours		**145**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.

Physics, BS degree/Materials Science and Engineering, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
Choose one of the following course sequences:		8
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I§	
CHMG-142	General Education – Scientific Principles Perspective: General & Analytical Chemistry II§	
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab§	
CHMG-146	General Education – Scientific Principles Perspective: General & Analytical Chemistry II Lab§	
or		
BIOL-101	General Education – Natural Science Inquiry Perspective: General Biology I	
BIOL-102	General Education – Scientific Principles Perspective: General Biology II	
BIOL-103	General Education – Natural Science Inquiry Perspective: General Biology I Lab§	
BIOL-104	General Education – Scientific Principles Perspective: General Biology II Lab§	
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-150	Introduction to Special Relativity	3
PHYS-216	General Education – Elective: University Physics I: Physics Majors	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Elective	3
	General Education – Artistic Perspective	3
Second Year		
MATH-219	General Education – Elective: Multivariable Calculus	3
MATH-231	General Education – Elective: Differential Equations	3
PHYS-213	General Education – Elective: Modern Physics I	3
PHYS-217	General Education – Elective: University Physics II: Physics Majors	4
PHYS-222	Electronic Measurements	3
PHYS-225	Introduction to Computational Physics and Programming	3
PHYS-275	Sophomore Physics Seminar	1
PHYS-283	Vibrations and Waves	3
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Third Year		
MTSE-702	Polymer Science	3
PHYS-214	Modern Physics II	3
PHYS-315	Experiments in Modern Physics	3
PHYS-316	Advanced Laboratory in Physics	3
PHYS-320	Mathematical Methods in Physics	3
PHYS-330	Classical Mechanics	4
PHYS-411	Electricity and Magnetism	4
	Physics Elective‡	3
	General Education – Immersion 1, 2	6
Fourth Year		
MTSE-601	Materials Science	3
MTSE-617	Material Degradation	3
MTSE-632	Solid State Science	3
MTSE-790	Research & Thesis	3
PHYS-414	Quantum Mechanics	3
PHYS-440	Thermal and Statistical Physics	3
	Physics Elective‡	3
	PHYS Lab/Computational Physics Elective	3
	Open Elective	3
	General Education – Immersion 3	3
Fifth Year		
MTSE-704	Theoretical Methods in Materials Science and Engineering	3
MTSE-790	Research & Thesis	9
	Materials Science Graduate Program Electives	6
	Open Electives	6
Total Semester Credit Hours		**150**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Please see academic adviser for a list of physics electives.
§ Students will satisfy this requirement by taking a 4-credit hour lab science course. Students must take both the lecture and lab portions to satisfy the requirement. The lecture section alone will not fulfill the requirement.

Physics, BS degree/Science, Technology, and Public Policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
Choose one of the following:		8
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I§	
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab§	
CHMG-142	General Education – Scientific Principles Perspective: General & Analytical Chemistry II	
CHMG-146	General Education – Scientific Principles Perspective: General & Analytical Chemistry II Labs§	
or		
BIOL-101	General Education – Natural Science Inquiry Perspective: General Biology I	
BIOL-102	General Education – Natural Science Inquiry Perspective: General Biology I Lab§	
BIOL-103	General Education – Scientific Principles Perspective: General Biology II§	
BIOL-104	General Education – Scientific Principles Perspective:General Biology II Lab§	
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-150	Introduction to Special Relativity	3
PHYS-216	General Education – Elective: University Physics I: Physics Majors	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – Artistic Perspective	3
	General Education – Elective	3
	General Education – First-Year Writing (WI)	3
Second Year		
MATH-219	General Education – Elective: Multivariable Calculus	3
MATH-231	General Education – Elective: Differential Equations	3
PHYS-213	General Education – Elective: Modern Physics I	3
PHYS-217	General Education – Elective: University Physics II: Physics Majors	4
PHYS-222	Electronic Measurements	3
PHYS-225	Introduction to Computational Physics and Programming	3
PHYS-275	Sophomore Physics Seminar	1
PHYS-283	Vibrations and Waves	3
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
	General Education – Social Perspective	3
Third Year		
PHYS-214	Modern Physics II	3
PHYS-315	Experiments in Modern Physics	3
PHYS-316	Advanced Laboratory in Physics	3
PHYS-320	Mathematical Methods in Physics	3
PHYS-330	Classical Mechanics	4
PHYS-411	Electricity and Magnetism	4
PHYS-450	Capstone Preparation	1
	Physics Elective‡	3
	General Education – Immersion 1, 2	6
Fourth Year		
Choose one of the following:		
PHYS-414	Quantum Mechanics	3
PHYS-440	Thermal and Statistical Physics	3
PHYS-451	Capstone Project I	3
PHYS-452	Capstone Project II (WI-PR)	3
PUBL-701	Graduate Policy Analysis	3
PUBL-702	Graduate Decision Analysis	3
STSO-710	Graduate Science and Technology Policy Seminar	3
	Public Policy Graduate Elective	3
	Physics Elective‡	3
	Open Electives	6
Fifth Year		
PUBL-700	Readings in Public Policy	3
PUBL-703	Evaluation and Research Design	3
PUBL-790	Public Policy Thesis	6
	Physics Elective‡	3
	General Education – Elective	3
	General Education – Immersion 3	3
	Graduate Electives	6
Total Semester Credit Hours		**151**

Please see General Education Curriculum (GE) for more information.
(WI-PR) Refers to a writing intensive course within the major.
* Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Please see academic adviser for a list of physics electives.
§ Students will satisfy this requirement by taking a 4-credit hour lab science course. Students must take both the lecture and lab portions to satisfy the requirement. The lecture section alone will not fulfill the requirement.

Physics, BS degree/Astrophysical Sciences and Technology, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
Choose one of the following:		8
CHMG-141	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I	
CHMG-142	General Education – Scientific Principles Perspective: General & Analytical Chemistry II	
CHMG-145	General Education – Natural Science Inquiry Perspective: General & Analytical Chemistry I Lab	
CHMG-146	General Education – Elective: General & Analytical Chemistry II Lab	
or		
BIOL-101	General Education – Natural Science Inquiry Perspective: General Biology I	
BIOL-102	General Education – Scientific Principles Perspective: General Biology II	
BIOL-103	General Education – Natural Science Inquiry Perspective: General Biology I Lab	
BIOL-104	General Education – Elective: General Biology II Lab	
MATH-181	General Education – Mathematical Perspective A: Project-Based Calculus I	4
MATH-182	General Education – Mathematical Perspective B: Project-Based Calculus II	4
PHYS-150	Introduction to Special Relativity	3
PHYS-216	General Education – Elective: University Physics I: Physics Majors	4
YOPS-10	RIT 365: RIT Connections	0
	General Education – First-Year Writing (WI)	3
	General Education – Elective	3
	General Education – Artistic Perspective	3
Second Year		
MATH-219	General Education – Elective: Multivariable Calculus	3
MATH-231	General Education – Elective: Differential Equations	3
PHYS-213	General Education – Elective: Modern Physics I	3
PHYS-217	General Education – Elective: University Physics II: Physics Majors	4
PHYS-220	University Astronomy	3
PHYS-222	Electronic Measurements	3
PHYS-225	Introduction to Computational Physics and Programming	3
PHYS-275	Sophomore Physics Seminar	1
PHYS-283	Vibrations and Waves	3
	General Education – Ethical Perspective	3
	General Education – Global Perspective	3
Third Year		
PHYS-214	Modern Physics II	3
PHYS-315	Experiments in Modern Physics	3
PHYS-316	Advanced Laboratory in Physics	3
PHYS-320	Mathematical Methods in Physics	3
PHYS-330	Classical Mechanics	4
PHYS-374	Introduction to Astrophysics	1
PHYS-411	Electricity and Magnetism	4
	PHYS Lab/Computational Physics Elective‡	3
	General Education – Social Perspective	3
	General Education – Immersion 1, 2	6
Fourth Year		
PHYS-414	Quantum Mechanics	3
PHYS-440	Thermal and Statistical Physics	3
Choose one of the following:		3
ASTP-613	Astronomical Observational Techniques and Instrumentation	
	Graduate Program Elective	
ASTP-601	Graduate Seminar I	1
ASTP-602	Graduate Seminar II	1
ASTP-608	Fundamental Astrophysics I	3
ASTP-609	Fundamental Astrophysics II	3
Choose one of the following:		3
ASTP-610	Mathematical Methods for the Astrophysical Sciences	
	Graduate Program Elective	
	General Education – Immersion 3	3
	Open Electives	9
Fifth Year		
Choose one of the following:		3
ASTP-613	Astronomical Observational Techniques and Instrumentation	
	Graduate Program Elective	
Choose one of the following:		3
ASTP-610	Mathematical Methods for the Astrophysical Sciences	
	Graduate Program Elective	
ASTP-790	Research & Thesis	10
Total Semester Credit Hours		**145**

Please see General Education Curriculum (GE) for more information.
(WI) Refers to a writing intensive course within the major.
Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Please see academic advisor for a list of PHYS Lab/Computational Physics Electives.

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended
- Chemistry or physics required

Transfer Admission

Transfer course recommendations without associate degree

Courses in calculus or higher mathematics, college chemistry, calculus-based physics, and liberal arts

Appropriate associate degree programs for transfer

No common program available

Science Exploration, Undeclared

www.rit.edu/study/science-exploration

Jeffrey Mills, Senior Lecturer
585-475-4182, jeffrey.mills@mail.rit.edu

Program overview

Do you know that you love science or math, and you know that you want a career in a related discipline but are not sure which area is your favorite, or how to choose a major that will get you to your career goals? You're not alone. Many prospective students love science and math, but may not have enough information to decide about a major before starting college. For example, do you know the differences between degrees in biotechnology and biochemistry or applied math and computational math? The science exploration option allows students to investigate the various majors in the College of Science and options for multidisciplinary science/math and careers before deciding on a program of study. Students who choose their major within the first year will not lose time toward the completion of their degree.

You will work as a member of a team on a laboratory-based project that requires you to apply many disciplines in the College of Science – and you will gain experience in all of those areas, helping you to find a career path that is right for you. Over two semesters, you will not only learn about the different majors available to you in the college, but you will also learn to work together to solve multidisciplinary problems as part of a team, how to manage a project from start to finish, and develop leadership skills. Together with your team, you will present your year's work at the annual Imagine RIT event in April.

Plan of study

The science exploration option is a yearlong sequence of courses built around a single project aimed at designing, building, and conducting multidisciplinary research to answer a question that is too complex for a single discipline to conquer. The question will be presented to you on the first day of class. This approach to multidisciplinary technical education emphasizes real-world, hands-on problem solving by student-led teams. It offers participating students a degree of autonomy and responsibility rarely found in first-year curricula.

As a result of this course sequence, students in the science exploration option develop an appreciation for specific fields that interest them, while simultaneously learning about other College of Science majors.

Curriculum

Science exploration option, typical course sequence

COURSE		SEMESTER CREDIT HOURS
GSCI-101	Science Exploration I	3
GSCI-102	Science Exploration II	3
ACSC-010	Year One	0
	Mathematics or Calculus Sequence	3-9
	Laboratory Sequence‡	8
	Liberal Arts*	3-9
	Computer Science	3-6
	Wellness Education†	0
Total Semester Credit Hours		**23-38**

* Please see General Education Curriculum–Liberal Arts and Sciences (LAS) for more information.
† Please see Wellness Education Requirement for more information. Students completing bachelor's degrees are required to complete two different Wellness courses.
‡ Students must choose one of the following laboratory sequences: General Biology I (BIOL-101), General Biology I Lab (BIOL-103), General Biology II (BIOL-102), and General Biology II Lab (BIOL-104); General and Analytical Chemistry I (CHMG-141), General and Analytical Chemistry I Lab (CHMG-145), General and Analytical Chemistry II (CHMG-142), and General and Analytical Chemistry II Lab (CHMG-146); or University Physics I (PHYS-121) and University Physics II (PHYS-122).

Admission requirements

Freshman Admission

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science, and 3 years of social studies and/or history.

Specific math and science requirements and other recommendations

- 3 years of math required; pre-calculus recommended
- Chemistry or physics required

Faculty

Sophia A. Maggelakis, BS, MS, Ph.D., Old Dominion University—Dean; Professor

Larry Buckley, BA, University of Missouri at St. Louis; MS, Southern Illinois University at Edwardsville; Ph. ., Southern Illinois University at Carbondale—Associate Dean for Academic Affairs; Associate Professor

Casey Miller, BA, Wittenberg University; Ph.D., University of Texas at Austin—Associate Dean for Research and Faculty Affairs; Professor

Catherine Mahrt-Washington, BS, Niagara University; MS, Rochester Institute of Technology; Ph.D., Andrews University—Assistant Dean; Director of Student Advising; College of Science Honors Advocate

Integrated Sciences Academy

Mark D. Fairchild, BS, MS, Rochester Institute of Technology; MA, Ph.D., University of Rochester—Head, Integrated Sciences Academy; Professor and Graduate Program Director, Color Science/Munsell Color Science Laboratory

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School of Mathematical Sciences

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Nathaniel Barlow, BS, Ph.D., Clarkson University—Associate Professor

David S. Barth-Hart, BS, Syracuse University; MA, University of Rochester—Associate Professor

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Maurino P. Bautista, BS, Ateneo de Manila University (Philippines); MS, Ph.D., Purdue University—Professor

Bernard Brooks, BS, University of Toronto (Canada); MBA, Rochester Institute of Technology; MS, Ph.D., University of Guelph (Canada)—Professor

Nathan D. Cahill, BS, MS, Rochester Institute of Technology; D.Phil., University of Oxford (United Kingdom)—Graduate Program Director, Mathematical Modeling; Associate Professor

Manuela Campanelli, Laureate in Mathematics, University of Perugia (Italy); Ph.D., University of Bern (Switzerland)—Director, Center for Computational Relativity and Gravitation; Professor

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School of Physics and Astronomy

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Grover Swartzlander, BS, Drexel University; MS, Purdue University; Ph.D., Johns Hopkins University—Professor

Jan van Aardt, BSc, University of Stellenbosch (South Africa); MS, Ph.D., Virginia Polytechnic Institute and State University—Professor

Anthony Vodacek, BS, University of Wisconsin; MS, Ph.D., Cornell University—Professor

Distinguished Professorships

Richard S. Hunter Professorship in Color Science, Appearance, and Technology

Established: 1983

Donors: Mr. and Mrs. Richard S. Hunter

Purpose: To enable RIT to increase its research and educational efforts in the areas of color science, technology, and appearance science in order to benefit the industry and science of color.

Held by: Open

Frederick and Anna B. Wiedman Professorship

Established: 1985

Donor: Frederick Wiedman Jr.

Purpose: To support a truly outstanding scholar and/or teacher in imaging science

Held by: Charles Bachmann

Frederick Wiedman Jr. Professorship

Established: 1997

Donor: Frederick Wiedman, Jr.

Purpose: To support a second truly outstanding scholar and/or teacher in imaging science.

Held by: Jeff Pelz

Xerox Professorship in Imaging Science

Established: 1996

Donor: Xerox Corporation

Purpose: Established to expand and enhance the research and teaching activities within the Chester F. Carlson Center for Imaging Science.

Held by: David Messinger

Minors

www.rit.edu/study/minors-and-immersions

Students pursuing a bachelor's degree have the option of completing a minor, which can complement a student's major, help them develop another area of professional expertise, or enable them to pursue an area of personal interest. Completion of a minor is formally designated on the baccalaureate transcript, which serves to highlight this accomplishment to employers and graduate schools. For the most recent list of minors, please visit rit.edu/minors.

Please note: A minor is a related set of academic courses consisting of no fewer than 15 credit hours. The following parameters must be met in order to earn a minor:

- At least nine credit hours of the minor must consist of courses not required by the student's home major.
- Students may pursue multiple minors. A minimum of nine credit hours must be designated toward each minor; these courses may not be counted toward other minors.
- The residency requirement for a minor is a minimum of nine credit hours consisting of RIT courses (excluding "X" graded courses).

Not all minors are approved to fulfill general education requirements. Please check with an adviser in regard to minors approved to fulfill these requirements.

2D Studio Arts

Paul Muenzer, Minor Advisor
585-475-6994, pjmiao@rit.edu

Program overview

The 2D studio arts minor allows students to develop and refine the practices inherent in the production of two-dimensional fine art forms, including drawing, painting, printmaking, and photography. Students develop conceptual, analytical, and technical skills in these media while learning to connect inspiration and ideation to creative visual expression in two dimensions. Once the two required introductory courses are completed, students may use elective courses to explore diverse two-dimensional media, such as painting, printmaking, and photography, or they may choose to work more intensively within one medium.

Notes about this minor:

- This minor is closed to students majoring in studio arts who have chosen options in non-toxic printing making and painting.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
Choose one of the following:	
FDTN-111	Drawing I*
ITDI-211	Drawing for Non-Majors
Choose one of the following:	
FDTN-112	Drawing II
FDTN-212	Drawing II Workshop: Topics
Electives†	
PAIT-201	Introduction to Painting
PAIT-233	Painting for Non-Majors
PAIT-460	Watercolor
PAIT-501	Painting
PAIT-571	Painting the Figure
PHAR-150	Introduction to Film Photography
PHAR-160	Intro to Digital Photography
PRNT-201	Introduction to Printmaking
PRNT-501	Printmaking
STAR-305	Figure Drawing
STAR-405	Fine Art Drawing
STAR-563	Contemporary Drawing

* Students who are NOT enrolled in BFA programs are required to complete Drawing for Non-Majors (ITDI-211) instead of Drawing I (FDTN-111).
† At least two courses must be taken at the 300-level or higher.

3D Digital Design

Paul Muenzer, Minor Advisor
585-475-6994, pjmiao@rit.edu

Program overview

The 3D digital design minor provides a foundation in designing visual elements using three-dimensional digital software for a range of applications. Courses cover topics such as modeling, motion, lighting, materials, and rendering. Advanced electives explore real time design including topics related specifically to topology, textures, level of detail, and other techniques important to real time applications. Please note: Enrollment is based on available space and a portfolio review is required before acceptance into the minor.

Notes about this minor:

- This minor is closed to students majoring in 3D digital design.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
DDDD-101	Introduction to Modeling and Motion
DDDD-102	Introduction to Visual Design
DDDD-201	Modeling and Motion Strategies
Electives	
Choose two of the following:	
DDDD-517	Experimental Workshop
DDDD-523	Hard Surface Design
DDDD-526	Physical Interface Design
DDDD-527	Real Time Design
DDDD-528	Simulating Natural Phenomena

3D Studio Arts

Paul Muenzer, Minor Advisor
585-475-6994, pjmiao@rit.edu

Program overview

In the 3D studio arts minor students develop and refine the practices required for the production of three-dimensional art in various media. Students develop conceptual, spatial, analytical, and technical skills while working through the process of art making from ideation to the production of creative visual expression in three dimensions.

Notes about this minor:

- This minor is closed to students majoring in studio arts who have chosen options in ceramics, glass, furniture design, and metals and jewelry design.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Course	
FDTN-131	3D Design I
Choose one of the following:	
FDTN-132	3D Design II*
FDTN-232	3D Design II Workshop: Topic*
SCUL-269	Sculpture for Non-Majors
Electives	
SCUL-201	Introduction to Sculpture
CCER-530	Ceramics 3 Credit Elective
CGLS-530	Glass Processes
CMTJ-530	Form and Fabrication: Metals and Jewelry Design
CWFD-530	Furniture Design 3 Credit Elective
CWTD-530	Quilting Elective
SCUL-501	Sculpture
SCUL-511	Expanded Forms
SCUL-543	Foundry Practices
SCUL-573	Figure Sculpture
SCUL-583	Welding and Fabrication

* Students who are NOT enrolled in BFA programs are required to complete Sculpture for Non-Majors (SCUL-269) in place of 3D Design II (FDTN-132) or 3D Design II Workshop: Topic (FDTN-232).
† At least two courses must be taken at the 300-level or higher.

Accounting

Peter Rosenthal, Minor Advisor
585-475-7063, prosenthal@saunders.rit.edu

Program overview

Accounting is necessary in a wide variety of careers. Students completing an accounting minor will broaden their learning experiences and professional opportunities by gaining more depth in operational accounting topics.

Notes about this minor:

- This minor is closed to students majoring in business administration–accounting.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
ACCT-110	Financial Accounting
ACCT-210	Management Accounting
Electives†	
Choose three of the following:	
ACCT-360	Intermediate Financial Accounting I*
ACCT-365	Intermediate Financial Accounting II*
ACCT-420	Personal and Small Business Taxation*
ACCT-430	Cost Accounting
ACCT-445	Accounting Information Systems
ACCT-450	Accounting for Government and Not-for-profit Organizations
ACCT-560	Forensic Accounting and Fraud Examination
ACCT-489	Seminar in Accounting
ACCT-490	Auditing
BLEG-200	Business Law I
FINC-220	Financial Management

* These courses are recommended for students interested in pursuing CPA certification.
† At least two electives must be accounting (ACCT) courses.

Advertising and Public Relations

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The advertising and public relations minor prepares students to analyze audiences, write advertising copy, prepare press releases, select media, and manage broad-scaled persuasive campaigns. Students are grounded in the basic theories of persuasive communication enabling them to create persuasive messages with a strong emphasis on ethical decision-making.

Notes about this minor:

- This minor is closed to students majoring in advertising and public relations or communication.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
Choose one of the following:	
COMM-211	Principles of Advertising
COMM-212	Public Relations
Electives	
*Choose four of the following:**	
COMM-202	Mass Communications
COMM-211	Principles of Advertising
COMM-212	Public Relations
COMM-221	Public Relations Writing
COMM-223	Digital Design in Communication
COMM-303	Small Group Communication
COMM-305	Persuasion
COMM-321	Copywriting and Visualization
COMM-322	Campaign Management and Planning†
COMM-341	Visual Communication
COMM-346	Global Media
COMM-356	Critical Practice in Social Media

* At least one course must be taken at the 300 level or higher.
† This course has two pre-requisites: Principles of Advertising (COMM-211) and Public Relations (COMM-212).

American Arts

Program overview

This minor provides students with an opportunity to study the American arts in a variety of disciplines, including painting, architecture, film, photography, music, theatre, and the mass media. Courses present American art within the context of the broader current of American life, including its history, philosophy, social, and cultural traditions.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Electives	
*Choose five courses from the following:**	
Visual Culture	
FNRT-206	Queer Looks
FNRT-370	American Painting
FNRT-371	African-American Art
FNRT-372	American Film of the Studio Era
FNRT-373	American Film Since the Sixties
FNRT-374	Art in the Age of the New Deal
FNRT-377	Imag(in)ing Rochester
FNRT-378	Memory, Memorials, Monuments
FNRT-383	Traumatic Images
FNRT-384	Art of Dying
Performing Arts	
FNRT-201	Music in the U.S.
FNRT-203	American Popular & Rock Music
FNRT-322	Survey of Jazz
FNRT-323	Survey of African-American Music
FNRT-324	Sounds of Protest
FNRT-325	American Popular Song
PRFL-327	American Musical Theater
Literature	
ENGL-411	Themes in American Literature
ENGL-413	African-American Literature

* Students must take at least one course in each of the three disciplines (Visual Culture, Performing Arts, and Literature).

American Politics

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

Study the basic principles and institutions of the American political order and their implications for current political practice. The strengths and limitations of American constitutionalism are emphasized throughout and contemporary political and policy questions facing the country are examined.

Notes about this minor:

- This minor is closed to students majoring in political science.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
POLS-110	American Politics
Electives	
*Choose four of the following:**	
POLS-115	Ethical Debates Amer Politics
POLS-200	Law & Society
POLS-250	State & Local Politics
POLS-290	Politics and the Life Sciences
POLS-295	Cyberpolitics
POLS-300	Rhetoric & Political Deliberation
POLS-305	Political Parties and Voting
POLS-310	The Congress
POLS-315	The Presidency
POLS-320	American Foreign Policy
POLS-340	Medicine, Morality, and Law
POLS-345	Politics and Public Policy
POLS-355	Political Leadership
POLS-365	Anarchy, Technology, & Utopia
POLS-415	Evolution and the Law
POLS-420	Primate Politics
POLS-425	Constitutional Law
POLS-430	Constitutional Rights and Liberties
POLS-435	American Political Thought
POLS-460	Classical Constitutionalism, Virtue & Law
POLS-465	Modern Constitutionalism, Liberty & Equality
POLS-481	Women in Politics
POLS-485	Politics Through Fiction
POLS-490	Politics Through Film
POLS-525	Special Topics in Political Science

* At least two courses must be taken at the 300-level or higher.

American Sign Language and Deaf Cultural Studies

Sandra Bradley, Minor Advisor
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Program overview

The American Sign Language and deaf cultural studies minor prepares students in the multidisciplinary study of American Sign Language and deaf culture. The minor is open to hearing and deaf students enrolled in all bachelor's degree programs. Courses in the minor address topics in the field of ASL and DCS including the study of ASL and its structure, ASL literature, literature in English pertaining to the D/deaf experience, the history of D/deaf people in America and around the world, Deaf art and cinema, the experience of D/deaf people from racial, ethnic, and other minority groups, oppression in the lives D/deaf people, and various political, legal, and educational issues affecting members of the D/deaf community. The minor complements majors in fields such as business, imaging arts and sciences, health sciences, policy studies, professional and technical communication, psychology, and numerous scientific and technical fields.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining pre-requisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
Option 1: For students who are not proficient in ASL:	
MLAS-201	Beginning American Sign Language I
MLAS-202	Beginning American Sign Language II
Option 2: For students who are proficient in ASL, choose five Electives	
Electives*	
Option 1: Choose three or four of the following courses†:	
Option 2: Choose five of the following courses†:	
Language courses:	
MLAS-301	Intermediate Sign Language I
MLAS-302	Intermediate Sign Language II
MLAS-351	Linguistics of American Sign Language
MLAS-352	American Sign Language Literature
MLAS-401	Advanced American Sign Language I
MLAS-402	Advanced American Sign Language II
Deaf cultural studies courses:	
ENGL-417	Deaf Literature
FNRT-440	Deaf Art & Cinema
HIST-230	American Deaf History
HIST-231	Deaf People in Global Perspective
HIST-330	Deafness and Technology
HIST-333	Diversity in the Deaf Community
HIST-334	Oppression in the Lives of Deaf People
HIST-335	Women and the Deaf Community
NHSS-251	Deaf Culture and Contemporary Civilization
NHSS-275	Visual Expressions of Deaf Culture
SOCI-240	Deaf Culture in America

* At least one course must be at the 300 level or higher.

† Students who wish to focus their studies on ASL should choose two language courses. Students who wish to focus on Deaf Cultural Studies should choose three or four DCS courses depending on their proficiency in ASL. Students who prefer a balance of ASL and DCS courses may freely distribute their electives across ASL and DCS in a manner consistent with their ASL proficiency and course prerequisites.

Anthropology and Sociology

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The minor in anthropology and sociology offers disciplinary insights on understanding human social life, both from local and global perspectives. Through anthropology we discover and appreciate the diversity of other cultural systems on a global scale. Through sociology we discover how our own lives are influenced by social relationships around us. Careful selection of courses provides insights into a wide range of topics such as human history and prehistory through archaeology, gender and sexuality, race, ethnicity, social class, inequality, health, urban life and cities, cultural images and mass media, war and violence, social movements, social and cultural change, and globalization.

Notes about this minor:

- This minor is closed to students majoring in sociology and anthropology.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining pre-requisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Course	
Choose one of the following:	
ANTH-102	Cultural Anthropology
ANTH-102H	Honors Cultural Anthropology
ANTH-103	Archaeology and the Human Past
ANTH-104	Language and Linguistics
INGS-101	Global Studies
SOCI-102	Foundations of Sociology
SOCI-102H	Honors Sociology
Electives	
Choose four of the following:	
ANTH-201	Ethnographic Imagination: Writing about Society and Culture
ANTH-210	Culture and Globalization
ANTH-215	Field Methods in Archaeology
ANTH-220	Language and Culture: Introduction to Linguistic Anthropology
ANTH-225	Globalizing Africa
ANTH-230	Archaeology & Cultural Imagination: History, Interpretation, and Popular Culture
ANTH-235	Immigration to the U.S.
ANTH-245	Ritual and Performance
ANTH-246	Gender and Health
ANTH-250	Themes in Archaeological Research
ANTH-255	Regional Archaeology
ANTH-260	Native North Americans
ANTH-265	Native Americans in Film
ANTH-270	Cuisine, Culture, and Power
ANTH-285	American Indian Languages
ANTH-295	Global Public Health
ANTH-301	Social and Cultural Theory
ANTH-302	Qualitative Research
ANTH-303	Statistics in the Social Sciences
ANTH-310	African Film and Popular Culture
ANTH-312	People Before Cities
ANTH-315	The Archaeology of Cities
ANTH-320	Practicing Anthropology
ANTH-325	Bodies and Culture
ANTH-328	Heritage and Tourism
ANTH-330	Cultural Images of War and Terror
ANTH-335	Culture and Politics in Latin America
ANTH-341	Global Addictions
ANTH-345	Genocide and Post-Conflict Justice
ANTH-360	Humans and Their Environment
ANTH-361	Digitizing People
ANTH-370	Media and Globalization
ANTH-375	Native American Cultural Resources and Rights

COURSE	
ANTH-380	Nationalism and Identity
ANTH-385	Anthropology and History
ANTH-410	Global Cities
ANTH-415	Archaeological Science
ANTH-420	Exploring Ancient Technology
ANTH-425	Global Sexualities
ANTH-430	Visual Anthropology
ANTH-435	The Archaeology of Death
ANTH-455	Economics of Native America
ANTH-489	Topics in Anthropology
INGS-210	Culture and Politics in Urban Africa
SOCI-201	Ethnographic Imagination: Writing about Society and Culture
SOCI-210	African-American Culture
SOCI-215	The Changing Family
SOCI-220	Minority Group Relations
SOCI-225	Social Inequality
SOCI-230	Sociology of Work
SOCI-235	Women, Work, and Culture
SOCI-240	Deaf Culture in America
SOCI-246	Gender and Health
SOCI-295	Global Public Health
SOCI-300	Sociology of American Life
SOCI-301	Social and Cultural Theory
SOCI-302	Qualitative Research
SOCI-303	Statistics in the Social Sciences
SOCI-305	Crime and Human Rights: Sociology of Atrocities
SOCI-315	Global Exiles of War and Terror
SOCI-322	Health and Society
SOCI-330	Urban (In)Justice
SOCI-345	Urban Poverty
SOCI-350	Social Change
SOCI-355	Cyber Activism: Diversity, Sex and the Internet
SOCI-361	Digitizing People
SOCI-395	Borders: Humans, Boundaries, and Empires
SOCI-451	Economics of Women and the Family
SOCI-489	Topics in Sociology

Applied Cognitive Neuroscience

Elena Fedorovskaya, Minor Advisor
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Program overview

Explore the biological underpinnings of cognition, delving into the science of the brain to understand the mental processes behind cognition and perception, particularly visual perception.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
CGNS-222	Introduction to Cognitive Neuroscience
CGNS-451	Cognitive Neuroscience Seminar A
CGNS-452	Cognitive Neuroscience Seminar B
PSYC-222	Biopsychology
Electives–Students must choose a total of three elective courses with at least one coming from each category. At least two courses must be taken at the 300-level or higher.	
Psychology	
PSYC-223	Cognitive Psychology
PSYC-224	Perception
PSYC-410	Psychophysiology
PSYC-430	Memory and Attention
PSYC-431	Language and Thought
PSYC-432	Decision Making, Judgement, and Problem Solving
Science	
BIOL-205	Animal Behavior
BIOL-303	Cell Physiology
BIOL-309	Comparative Vertebrate Anatomy
BIOL-313	Comparative Animal Physiology
BIOL-314	Tissue Culture
BIOL-428	Eukaryotic Gene Regulation and Disease
CGNS-322	Animal Vision
CLRS-600	Fundamentals of Color Science
IMGS-221	Vision & Psychophysics
MEDS-250	Human Anatomy and Physiology I
MEDS-425	Introduction to Neuroscience

* At least two courses must be taken at the 300-level or higher.

Applied Statistics

Bernard Brooks, Minor Advisor
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Program overview

Deepen your technical background and gain further appreciation for modern mathematical sciences and the use of statistics as an analytical tool.

Notes about this minor:

- The minor is closed to students majoring in applied statistics and actuarial science.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Prerequisites	
Choose one of the following course sequences:	
MATH-181	Project-based Calculus I
MATH-182	Project-based Calculus II
or	
MATH-181A	Calculus I
MATH-182A	Calculus II
or	
MATH-171	Calculus A
MATH-172	Calculus B
MATH-173	Calculus C
Electives	
Choose five of the following:	
MATH-251	Probability and Statistics I
MATH-252	Probability and Statistics II
MATH-505	Stochastic Processes
STAT-205	Applied Statistics
STAT-305	Regression Analysis
STAT-325	Design of Experiments
STAT-335	Introduction to Time Series
STAT-345	Nonparametric Statistics
STAT-405	Mathematical Statistics I
STAT-406	Mathematical Statistics II
STAT-425	Multivariate Analysis
STAT-521	Statistical Quality Control
STAT-511	Statistical Software
STAT-547	Data Mining
STAT-572	Survey Design and Analysis
STAT-584	Categorical Data Analysis

Archaeological Science

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

Archaeology is the study of the human past, principally by means of the physical residue of past human behavior. Archaeological science is the application of techniques from the physical sciences to research problems in archaeology and related disciplines. Over the past six decades archaeological science has provided powerful tools for understanding the past, ranging from absolute dating to bone chemistry. It has become an established sub-field within the discipline of archaeology, which itself has grown during the same period from a discipline largely focused on cultural history (the use of artifacts to reconstruct regional cultural sequences) and the validation of documentary history to the explanation of the processes of cultural change in the past.

Notes about this minor:

- This minor is closed to students majoring in sociology and anthropology who have chosen tracks in archaeology or cultural anthropology.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Course	
ANTH-415	Archaeological Science
Electives	
Choose two courses from each of the following groups:	
Disciplinary	
ANTH-103	Archaeology and the Human Past
ANTH-230	Archaeology & Cultural Imagination: History, Interpretation, and Popular Culture
ANTH-250	Themes in Archaeological Research
ANTH-255	Regional Archaeology
ANTH-312	People Before Cities
ANTH-315	The Archaeology of Cities
Applied/Laboratory	
ANTH-215	Field Methods in Archaeology
ANTH-360	Humans and Their Environment
ANTH-375	Native American Cultural Resources and Rights
ANTH-420	Exploring Ancient Technology
ANTH-435	The Archaeology of Death

Art History

Paul Muenzer, Minor Advisor
585-475-6994, pjmiao@rit.edu

Program overview

Explore the history of art, architecture, craft, design, photography, and aesthetic theory across multiple cultures, eras, and intellectual perspectives. Art historians examine a society's artistic production, analyzing form, content, and process to better understand how art expresses meaning within specific cultural contexts. Students completing this minor will be able to use art historical and related methodologies to evaluate works of art, formulate a history of artistic styles, analyze art in relation to its historical setting, and engage with the world of contemporary art. The minor's emphasis on writing and critical thinking complements any academic program while the inclusion of visual analysis, historical context, and theoretical approaches to artistic production make this a useful addition for students seeking careers in areas such as the fine arts, education, design, communication, game design, museum and gallery work, or digital humanities.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
Choose one of the following:	
ARTH-124	Themes in the History of Art: Theme
ARTH-135	History of Western Art: Ancient to Medieval
ARTH-136	History of Western Art: Renaissance to Modern
Electives	
*Choose five of the following:**	
ARTH-311	Art and Architecture of Italy: 1250-1400
ARTH-312	Art and Architecture of Italy: 1600-1750
ARTH-317	Art and Architecture in Florence and Rome: 15th Century
ARTH-318	Art and Architecture in Florence and Rome: 16th Century
ARTH-364	Art in Paris
ARTH-366	18th,19th Century Art
ARTH-368	20th Century Art: 1900-1950
ARTH-369	20th Century Art: Since 1950
ARTH-373	Art of the Last Decade
ARTH-378	Baroque Painting in Flanders
ARTH-379	Renaissance Painting in Flanders
ARTH-392	Theory and Criticism of 20th Century Art
ARTH-457	Art and Activism
ARTH-521	The Image
ARTH-541	Art and Architecture of Ancient Rome
ARTH-544	Illuminated Manuscripts
ARTH-549	Topics in Global Art and Architecture:
ARTH-550	Topics in Art History
ARTH-555	Topics in Medieval Art and Architecture
ARTH-556	Art Comics
ARTH-558	The Gothic Revival
ARTH-561	Latin American Art
ARTH-563	Modern Architecture
ARTH-568	Art and Technology: from the Machine Aesthetic to the Cyborg Age
ARTH-571	Extreme Abstraction
ARTH-572	Art of the Americas
ARTH-573	Conceptual Art
ARTH-574	Dada and Surrealism
ARTH-576	Modernism and Its Other: Realism in the Shadow of Expressionism
ARTH-577	Displaying Gender
ARTH-578	Edvard Munch
ARTH-581	Realism and the Avant-Garde in Russian Art
ARTH-583	Installation Art
ARTH-584	Scandinavian Modernism
ARTH-586	History of Things: Studies in Material Culture
ARTH-588	Symbols and Symbol Making: Psychoanalytic Perspective on Art
DDDD-302	History of Digital Graphics
GRDE-205	History of Graphic Design
GRDE-322	Women Pioneers in Design
GRDE-326	20th Century Editorial Design History
IDDE-221	History of Industrial Design
IDDE-223	History of Modern Furniture
PHAR-211	Histories and Aesthetics of Photography I
PHAR-212	Histories and Aesthetics of Photography II
PHIL-303	Philosophy of Art/Aesthetics
PHIL-313	Philosophy of Film
PHIL-314	Philosophy of Vision and Imaging

* At least two courses must be taken at the 300-level or higher.

Art of Science/Science of Art

Susan Farnand, Minor Advisor
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Program overview

Explore the impact of art on science and science on art along with the synergistic overlaps between the two. Specifically, students learn how art and design can be applied in good scientific practice and how the sciences impact the materials, processes, and ultimate perceptual enjoyment of the visual arts.

Curriculum

COURSE	
Required Course	
Integrative Seminar	
CLRS-101	Art of Science of Art
Core Courses–Students must complete a total of three core courses with one course coming from each of the following groups	
Sciences	
CLRS-201	Color Science for the Visual Arts
IMGS-111	Imaging Science Fundamentals
SOFA-103	Introduction to Imaging and Video Systems
Arts	
ITDI-211	Drawing for Non-Majors
ITDI-221	2D Design for Non-Majors I
ITDI-242	Painting
PHAR-150	Introduction to Film Photography
Humanities	
ARTH-136	History of Western Art: Renaissance to Modern
MUSE-224	History & Theory of Exhibitions
PSYC-224	Perception
Electives–Students must complete a total of three elective courses with at least one course taken from each group. At least two courses must be taken at the 300-level or higher.	
Sciences	
IMGS-221	Vision & Psychophysics
IMGS-351	Fundamentals of Color Science
PSYC-222	Biopsychology
PSYC-223	Cognitive Psychology
Humanities	
ARTH-521	The Image
ARTH-544	Illuminated Manuscripts
MUSE-225	Museums & The Digital Age
MUSE-340	Introduction to Archival Studies
MUSE-359	Cultural Informatics

Astronomy

Andrew Robinson, Minor Advisor
585-475-2726, axrsps@rit.edu

Program overview

This minor provides students with an opportunity for additional study in astronomy in order to build a secondary area of expertise in support of their major or other areas of interest. It will provide students with a broad foundational background in astronomy in preparation for graduate studies in astronomy or astrophysics. The minor is interdisciplinary and offered jointly by the School of Physics and Astronomy and the Chester F. Carlson Center for Imaging Science.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Prerequisites	
MATH-181	Project-Based Calculus I
MATH-182	Project-Based Calculus II
PHYS-211	University Physics I
PHYS-212	University Physics II
PHYS-213	Modern Physics I
Required Course	
PHYS-220	University Astronomy
Astrophysics	
Choose one of the following:	
PHYS-370	Stellar Astrophysics
PHYS-371	Galactic Astrophysics
PHYS-372	Extragalactic Astrophysics and Cosmology
Experimental	
Choose one of the following:	
IMGS-513	Multi-wavelength Astronomical Imaging
IMGS-528	Design and Fabrication of Solid State Cameras
PHYS-373	Observational Astronomy
Electives	
Choose two of the following:	
IMGS-361	Image Processing and Computer Vision I
IMGS-362	Image Processing & Computer Vision II
IMGS-451	Imaging Detectors
IMGS-513	Multi-wavelength Astronomical Imaging
IMGS-528	Design and Fabrication of Solid State Cameras
PHYS-370	Stellar Astrophysics
PHYS-371	Galactic Astrophysics
PHYS-372	Extragalactic Astrophysics and Cosmology
PHYS-373	Observational Astronomy
PHYS-493	Astrophysics Research

* At least two courses must be taken at the 300-level or higher.

Bioinformatics Analysis

Feng Cui, Minor Advisor
585-475-4115, fxcsbi@rit.edu

Program overview

The bioinformatics analysis minor immerses students in the core challenges and strengths of the field of bioinformatics, as well as the ethical issues involved. Students gain hands-on experience implementing some of the core algorithms utilized by professionals in the field.

Notes about this minor:

- This minor is closed to students majoring in bioinformatics and computational biology.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Prerequisites	
Students must complete the following courses or their equivalent	
BIOL-101	General Biology I
BIOL-102	General Biology II
or	
BIOL-122	Introductory Biology II
and	
BIOL-202	Molecular Biology
Required Courses	
BIOL-130	Introduction to Bioinformatics
BIOL-135	Introduction to Bioinformatics Programming
BIOL-327	Fundamental Bioinformatics Analysis
Electives	
Choose two of the following	
BIOL-230	Bioinformatics Languages
BIOL-235	Fundamentals of Bioinformatics Programming
BIOL-296	Ethical Issues in Biology and Medicine
BIOL-470	Statistical Analysis for Bioinformatics
BIOL-530	Bioinformatics Algorithms
BIOL-550	High Throughput Sequencing Analysis
BIOL-594	Molecular Modeling and Proteomics
BIOL-635	Bioinformatics Seminar

Biology: Cellular and Molecular

Rosanne Klingler, Minor Advisor
585-475-4765, rkssbi@rit.edu

Program overview

The biology: cellular and molecular minor provides students with opportunities to experience and explore topics related to both the cellular and molecular aspects of modern biology to broaden and enhance their educational experience.

Notes about this minor:

- This minor is closed to students majoring in biology, biochemistry, bioinformatics and computational biology, biomedical sciences, and biotechnology and molecular bioscience.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Prerequisites	
Choose one of the following sequences:	
BIOL-101	General Biology I
BIOL-103	General Biology I Lab
BIOL-102	General Biology II
BIOL-104	General Biology II Lab
or	
BIOL-121	Introduction to Biology I
BIOL-122	Introduction to Biology II
Required Course	
BIOL-202	Molecular Biology
Electives*	
Elective choices should total a minimum of 11 credit hours	
BIOL-204	Introduction to Microbiology
BIOL-218	Biology of Plants
BIOL-265	Evolutionary Biology
BIOL-302	Cell Biology
BIOL-305	Plants, Medicine and Technology
BIOL-306	Food Microbiology
BIOL-307	Microbiology of Wastewater
BIOL-308	Biology of Cancers
BIOL-310	Bioenergy: Microbial Production
BIOL-321	Genetics
BIOL-322	Developmental Biology
BIOL-327	Fundamental Bioinformatics Analysis
BIOL-340	Genomics
BIOL-375	Advanced Immunology
BIOL-380	Bioremediation
BIOL-401	Biological Separations: Principles and Practices
BIOL-403	Fundamentals of Plant Biochemistry and Pathology
BIOL-404	Microbiology of Fermentation
BIOL-412	Human Genetics
BIOL-415	Virology
BIOL-416	Plant Biotechnology
BIOL-418	Plant Molecular Biology
BIOL-420	Bacterial-Host Interactions: Microbiomes of the World
BIOL-427	Microbial and Viral Genetics
BIOL-441	Genetic Engineering and Synthetic Biology

* At least two courses must be taken at the 300-level or above.

Biology: Ecology and Evolution

Rosanne Klingler, Minor Advisor
585-475-4765, rkssbi@rit.edu

Program overview

The biology: ecology and evolution minor provides students with the opportunity to experience both the ecological and evolutionary underpinnings of modern biology. The minor explores these areas of biology through laboratory and field experiences.

Notes about this minor:

- The minor is closed to students majoring in biology or enrolled in the biology concentration of the environmental science major.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Prerequisites	
Choose one of the following sequences:	
BIOL-101	General Biology I
BIOL-103	General Biology I Lab
BIOL-102	General Biology II
BIOL-104	General Biology II Lab
or	
BIOL-121	Introductory Biology I
BIOL-122	Introductory Biology II
Required Course	
Choose at least one of the following:	
BIOL-240	General Ecology
BIOL-265	Evolutionary Biology
Electives*	
Elective choices should total a minimum of 11 credit hours	
BIOL-205	Animal Behavior
BIOL-207	Galapagos: Ecology and Evolution
BIOL-211	Invertebrate Zoology
BIOL-212	Vertebrate Zoology
BIOL-218	Biology of Plants
BIOL-265	Evolutionary Biology
BIOL-290	Vertebrate Evolution
BIOL-293	Evolution and Creationism
BIOL-309	Comparative Vertebrate Anatomy
BIOL-313	Comparative Animal Physiology
BIOL-343	Tropical Ecology
BIOL-365	Introduction to Population Genetics
BIOL-371	Freshwater Ecology
BIOL-385	Seneca Park Zoo Internship
BIOL-455	Biogeography
BIOL-573	Marine Biology
BIOL-575	Conservation Biology

* At least two courses must be taken at the 300-level or higher.

Black Studies

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

Examine the social construction of racial differences and their relation to the perpetuation of racism and racial domination. A key component of this minor is an investigation of the meanings and dimensions of blackness that reverberate from slavery and colonialism to the persistent political, social, and cultural implications in the 21st century. The minor emphasizes how blackness intersects with other ethnic identities and how it is shaped by gender, sexuality, and economic inequities. The aim is to refine and advance students' knowledge of black life-worlds and experiences across the globe.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Course	
SOCI-210	African-American Culture
Electives*†	
Choose four of the following:	
ANTH-225	Globalizing Africa
ANTH-310	African Film and Popular Culture
ANTH-345	Genocide and Post-Conflict Justice
COMM-306	Rhetoric Of Race Relations
CRIM-285	Minority Groups and the Criminal Justice System
ENGL-316	Global Literature‡
FNRT-322	Survey of Jazz
FNRT-324	Sounds of Protest
HIST-245	American Slavery and Freedom
HIST-210/INGS-210	Culture and Politics in Urban Africa
MLSP-352	Caribbean Cinema
PRFL-324	African American Playwrights
SOCI-220	Minority Group Relations
SOCI-330	Urban (In)Justice
SOCI-345	Urban Poverty

* At least two courses must be at the 300-level or above.
† Students must complete elective courses from at least two different disciplines.
‡ This course may be used when the topic is Caribbean Literature.

Business Administration

Peter Rosenthal, Minor Advisor
585-475-7063, prosenthal@saunders.rit.edu

Program overview

This minor is appropriate for undergraduate students interested in broad exposure to the world of business. Undergraduate students interested in pursuing an MBA degree may use this minor to fulfill certain MBA bridge courses.

Notes about this minor:

- This minor is closed to students majoring in any program in Saunders College of Business.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining pre-requisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
Choose three of the following	
ACCT-110	Financial Accounting
BLEG-200	Business Law I
DECS-310	Operations Management
INTB-225	Global Business Environment
MGMT-215	Organizational Behavior
MKTG-230	Principles of Marketing
FINC-120*	Personal Financial Management*
FINC-220*	Financial Management*
Electives†	
Choose two electives from courses within Saunders College of Business.	

* Student may choose only one of the finance courses.

† Students may choose up to one of the following courses as an Electives choice: MGMT-101, MGMT-102, MGMT-103, MGMT-150.

Business Analytics

Peter Rosenthal, Minor Advisor
585-475-7063, prosenthal@saunders.rit.edu

Program overview

The business analytics minor is designed for students who are interested in data analysis that supports business decision making and enhances organizational outcomes. The minor offers a strong complement for students in any major who would like to develop their skills in the management, analysis, visualization, and application of contemporary business data.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining pre-requisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Course	
BANA-255	Business Analytics Fundamentals
Choose four of the following:	
ACCT-445	Accounting Information Systems
DECS-310	Operations Management
DECS-435	Supply Chain Management Fundamentals
FINC-425	Stock Market Algorithmic Trading
FINC-580	Financial Analytics
MGIS-320	Database Management Systems
MGIS-350	Developing Business Applications
MGIS-355	Business Intelligence
MGIS-450	Enterprise Systems
MKTG-365	Marketing Analytics
MKTG-410	Search Engine Marketing and Analytics

SAMPLE TRACKS*	
Accounting Focus:	
ACCT-110	Financial Accounting
ACCT-445	Accounting Information Systems
Finance Focus:	
FINC-220	Financial Management
FINC-580	Financial Analytics
Hospitality and Tourism Management Focus:	
HSPT-225	Hospitality and Tourism Management Fundamentals
HSPT-315	Lodging Operations Analytics and Management
Marketing Focus:	
MKTG-230	Principles of Marketing
MKTG-365	Marketing Analytics
MKTG-410	Search Engine Marketing and Analytics
MIS Focus:	
MGIS-320	Database Management Systems
MGIS-350	Developing Business Applications
MGIS-355	Business Intelligence
Supply Chain Management Focus:	
DECS-310	Operations Management
DECS-435	Supply Chain Management Fundamentals

* Within each track, students would be required to complete BANA-255 and two to three other minor electives as delineated. If students wish to do one of the focused tracks, students are able to use the pre-req classes to be used toward the elective course requirement. However, students cannot use only pre-req classes to satisfy the elective course requirement.

Chemical Engineering Systems Analysis

Steven Weinstein, Minor Advisor
585-475-4299, steven.weinstein@rit.edu

Program overview

The minor in chemical engineering systems analysis provides students with a sophisticated understanding of the application of scientific knowledge to the solution of a vast array of practical problems in which chemistry plays a critical role. Students are taught the systems methodologies that chemical engineers employ to analyze and solve real world problems involving distinct chemical components, chemical reaction, multiple phases, and mass transfer.

Notes about this minor:

- This minor is closed to students majoring in chemical engineering.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
CHME-182	Chemical Engineering Insights II
CHME-230	Chemical Process Analysis
CHME-310	Applied Thermodynamics
CHME-330	Mass Transfer Operations
CHME-340	Reaction Engineering
Electives	
Choose one courses from the following groups:	
Alternate Energy Systems	
CHEM-201	Clean Energy: Hydrogen Fuel Cells
MECE-529	Renewable Energy Systems
Advanced Materials	
CHMA-222	Chemical Separations
CHMG-201	Introduction to Organic Polymer Technology
MECE-557	Applied Biomaterials
Biomedical	
BIME-200	Introductory Musculoskeletal Biomechanics
BIME-370	Introduction to Biomaterials Science
MECE-358	Contemporary Issues in Bioengineering
MECE-407	Biomedical Device Engineering
Chemical	
CHME-320	Continuum Mechanics I
CHME-350	Multiple Scale Material Science
CHME-421	Interfacial Phenomena
CHME-599	Independent Study
Environmental	
ISEE-787	Design for the Environment
MECE-357	Contemporary Issues in Energy And Environment
Semiconductor Processing	
MCEE-201	IC Technology
MCEE-503	Thin Films
MCEE-505	Lithography Materials and Processes

Chemistry

Christina Goudreau Collison, Minor Advisor
585-475-2634, cgcsch@rit.edu

Program overview

Chemistry is intrinsically a part of our society from the fuels we use, the air we breathe, and the water we drink to the complex chemical behaviors of our own bodies. Chemistry is involved in the development of myriad materials such as computer chips, packaging materials, and alternative fuels. Increasing numbers of policy and ethical choices facing the global community involve issues where chemistry plays a pivotal role. This minor provides students with the opportunity to study chemistry in order to build a secondary area of expertise in support of their major or as an additional area of interest.

Notes about this minor:

- This minor is closed to students majoring in biochemistry and chemistry.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining pre-requisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Prerequisites	
CHMG-141	General & Analytical Chemistry I
CHMG-145	General & Analytical Chemistry I Lab
CHMG-142	General & Analytical Chemistry II
CHMG-146	General & Analytical Chemistry II Lab
or	
CHMG-131	General Chemistry for Engineers
CHMG-145	General & Analytical Chemistry I Lab
or	
CHEM-151	General Chemistry
CHEM-155	Chemistry Workshop
Required Courses	
CHMO-231	Organic Chemistry I
CHMO-232	Organic Chemistry II
CHMO-235	Organic Chemistry Lab I
CHMO-236	Organic Chemistry Lab II
Electives	
*Choose from the following:**	
CHEM-301	Undergraduate Teaching Experience†
CHEM-493	Chemistry Research†
CHEM-495	Advanced Chemistry Research†
CHMA-161	Quantitative Analysis
CHMA-261	Instrumental Analysis
CHMA-711	Advanced Instrumental Analysis
CHMB-402	Biochemistry I
CHMB-403	Biochemistry II
CHMB-460	Infectious Diseases: Impact Society & Culture
CHMB-493	Biochemistry Research†
CHMB-495	Advanced Biochemistry Research†
CHMB-610	Advanced Protein Biochemistry: Structure and Function
CHMI-351	Descriptive Inorganic Chemistry
CHMI-564	Structural Inorganic Chemistry
CHMI-664	Modern Inorganic Chemistry
CHMO-636	Spectrometric Identification of Organic Compounds
CHMO-637	Advanced Organic Chemistry
CHMO-710	Literature Exploration of Organic Synthesis
CHMO-739	Advanced Physical Organic Chemistry
CHMO-750	Survey of Organic Named Reactions
CHMP-441	Physical Chemistry I
CHMP-442	Physical Chemistry II
CHMP-752	Molecular Photophysics and Photochemistry
CHMP-753	Computational Chemistry
CHPO-706	Comprehensive Polymer Chemistry
CHPO-707	Polymer Chemistry II

* A total of nine semester credit hours of electives is required, with at least three credits at the 400-level or above

† Students may use Undergraduate Teaching Experience (CHEM-301), Chemistry Research (CHEM-493), Advanced Chemistry Research (CHEM-495), Biochemistry Research (CHMB-493), and Advanced Undergraduate Research Experience (CHMB-495) to satisfy up to 3 of the 9 credit hours required for the elective courses. The remaining 6 credit hours must come from other courses on the electives list.

Comics Studies

Melissa Piciulo, Minor Advisor
585-475-4233, mapcms@rit.edu

Program overview

Study the history of cartooning, comics, sequential art, and visual storytelling, and the practice making comics and cartoon art.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Course	
SOIS-242	Comics: Image & Text in Popular Culture
Choose one of the following courses:	
ENGL-314	Ethics in Graphic Memoir
ENGL-421	The Graphic Novel
SOIS-342	Global Comics
SOIS-344	Popular Genre Studies in Comics and Related Media
SOIS-542	Arts Comics
ARTH-556	Arts Comics
Electives*	
Choose three of the following courses:	
ARTH-392	Theory And Criticism of 20th Century Art
ARTH-521	The Image
COMM-341	Visual Communication
ENGL-211	Introduction to Creative Writing
ENGL-275	Storytelling
ENGL-318	Popular Literature
ENGL-373	Media Adaptation
ENGL-375	Storytelling Across Media
ENGL-377	Transmedia Storyworlds
ENGL-386	World Building Workshop
ENGL-390	Creative Writing Workshop
FNRT-224	History & Theory of Exhibitions
FNRT-354	Exhibition Design
FNRT-376	Visual Culture Theory
FNRT-388	Gender and Contemporary Art
GRDE-106	Graphic Design Studio I
GRDE-107	Motion Design
GRDE-201	Typography I
GRDE-202	Graphic Design Studio II
GRDE-206	Typography II
IDEA-216	Calligraphy
IDEA-221	Design for Non-Majors I
IDEA-222	Design for Non-Majors II
IDEA-251	Visual Storytelling for the Graphic Novel
IGME-119	2D Animation and Asset Production
ILLS-213	Illustration I
ILLS-219	Digital Illustration I
ILLS-313	Illustration II
ILLS-319	Digital Illustration II
ILLS-461	Illustration History
ILLS-465	Book Illustration
ILLS-468	Fantastic Illustration
ILLS-472	Sketchbook Illustration
ILLS-477	Caricature Illustration
ILLS-482	Political Cartooning
ITDI-211	Drawing for Non-Majors
ITDI-226	Creating Artist Books
ITDI-231	Introduction to Cartooning
ITDI-233	Typeface Design
ITDI-236	Figure Drawing
ITDI-248	Sketchbook Artists Designers
ITDI-311	Advanced Drawing
ITDI-366	Letterpress Design
MLFR-151	Film, Comics, and French Culture
PRFL-330/ WGST-330	Performing Identity in Popular Media
SOFA-108	Drawing for Animation
SOFA-218	Concept and Character Design
SOFA-228	Animation Scriptwriting and Storyboard
SOFA-541	History and Aesthetics of Animation
SOIS-105	Making Comics
SOIS-444	Comics in the Archive
STAR-468	Letterpress Printmaking

* At least one course must be taken at the 300-level or above.

Communication

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

Students gain a foundation in human communication theories, research, and skills. Students select courses in mass media analysis, communication in professional and organizational contexts, communication skills, and critical reflection of and on communication in society.

Notes about this minor:

- This minor is closed to students majoring in communication.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Course	
COMM-101	Human Communication
Electives	
Choose four of the following:	
COMM-142	Introduction to Technical Communication
COMM-201	Public Speaking
COMM-202	Mass Communications
COMM-223	Digital Design In Communication
COMM-253	Communication
COMM-272	Reporting and Writing I
COMM-302	Interpersonal Communication
COMM-303	Small Group Communication
COMM-304	Intercultural Communication
COMM-305	Persuasion
COMM-306	Rhetoric Of Race Relations
COMM-341	Visual Communication
COMM-342	Communication Law and Ethics
COMM-343	Technology-Mediated Communication
COMM-344	Health Communication
COMM-345	Ethics in Technical Communication
COMM-346	Global Media
COMM-356	Critical Practice in Social Media
COMM-357	Communication, Gender, and Media
COMM-503	Advanced Public Speaking

Computer Engineering

Roy Melton, Minor Advisor
585-475-7698, Roy.Melton@mail.rit.edu

Program overview

Students gain a foundation in digital systems design, an understanding of computer organization, and an introduction to embedded systems programming. They also build on this core through elective courses in the areas of hardware design, architectures, networks and systems.

Notes about this minor:

- The minor is closed to students majoring in computer engineering, computer engineering technology, or electrical engineering technology.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Prerequisites	
CSCI-141	Computer Science I (or equivalent)
Plus one of the following:	
MATH-172	Calculus B
MATH-181	Project-based Calculus I
MATH-190	Discrete Mathematics for Computing
Required Courses	
CMPE-160	Digital System Design I
CMPE-250	Assembly and Embedded Programming
CMPE-350	Computer Organization
Electives	
Choose two of the following:	
CMPE-260	Digital System Design II
CMPE-380	Applied Programming in C
CMPE-460	Interface and Digital Electronics
CMPE-480	Digital Signal Processing
CMPE-530	Digital Integrated Circuit Design
CMPE-550	Computer Architecture
CMPE-570	Data and Communication Networks
CMPE-655	Multiple Processor Systems
CMPE-660	Reconfigurable Computing
CMPE-661	Hardware and Software Design for Cryptographic Applications
CMPE-663	Real-time & Embedded Systems
CMPE-664	Modeling of Real-Time Systems
CMPE-665	Performance Engineering of Real-Time and Embedded Systems
CMPE-677	Machine Intelligence
CMPE-679	Deep Learning
CMPE-685	Computer Vision
CMPE-731	Design and Test of Multi-Core Chips
CMPE-755	High Performance Architectures
CMPE-770	Wireless Networks

Computer Science

Don Denz, Minor Advisor
585-475-7307, dpdiao@rit.edu

Program overview

Explore an in-depth study of programming or sample selected theoretical or applied areas within the computer science field. At least two of the four electives must have course numbers of 300 or higher and students with the proper prerequisites may use graduate-level computer science courses toward the minor.

Notes about this minor:

- This minor is closed to students majoring in computer science.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Prerequisites	
Students must complete a two-course programming sequence*:	
CSCI-141	Computer Science I
CSCI-142	Computer Science II
or	
ISTE-120	Computational Problem Solving in the Information Domain I
ISTE-121	Computational Problem Solving in the Information Domain II
or	
IGME-105	Game Development and Algorithmic Problem Solving I
IGME-106	Game Development and Algorithmic Problem Solving II
or	
CPET-121	Computational Problem Solving I
CPET-321	Computational Problem Solving II
Students must complete a two-course calculus sequence†:	
MATH-181	Project-Based Calculus I
MATH-182	Project-Based Calculus II
Student must complete a discrete mathematics course‡:	
MATH-131	Discrete Mathematics
MATH-190	Discrete Mathematics for Computing
MATH-200	Discrete Mathematics and Introduction to Proofs
Required Course	
CSCI-243	The Mechanics of Programming
Electives	
Choose four of the following:	
CSCI-250	Concepts of Computer Systems
CSCI-251	Concepts of Parallel and Distributed Systems
CSCI-261	Analysis of Algorithms
CSCI-262	Introduction to Computer Science Theory
CSCI-263	Honors Introduction to Computer Science Theory
CSCI-264	Honors Analysis of Algorithms
CSCI-320	Principles of Data Management
CSCI-331	Introduction to Artificial Intelligence
CSCI-344	Programming Language Concepts
CSCI-351	Data Communications and Networks
CSCI-352	Operating Systems
CSCI-420	Principles of Data Mining
CSCI-421	Principles of Database System Implementation
CSCI-431	Introduction to Computer Vision
CSCI-452	System Programming
CSCI-453	Computer Architecture
CSCI-455	Principles of Cybersecurity
CSCI-462	Introduction to Cryptography
CSCI-464	Xtreme Theory
CSCI-510	Introduction to Computer Graphics
CSCI-518	Collaborative Seminar in Computer Graphics
CSCI-519	Seminar in Computer Graphics
CSCI-521	Principles of Data Cleaning and Preparation
CSCI-529	Seminar in Data Management
CSCI-531	Introduction to Security Measurement
CSCI-532	Introduction to Intelligent Security Systems
CSCI-539	Seminar in Artificial Intelligence
CSCI-541	Programming Skills
CSCI-549	Seminar in Languages and Tools
CSCI-559	Seminar in Systems
CSCI-569	Seminar in Theory
CSCI-599	Computer Science Undergraduate Independent Study
CSCI-610	Foundations of Computer Graphics
CSCI-620	Introduction to Big Data
CSCI-621	Foundations of Database System Implementation
CSCI-622	Data Security and Privacy
CSCI-630	Foundations of Artificial Intelligence
CSCI-631	Foundations of Computer Vision
CSCI-632	Mobile Robot Programming
CSCI-633	Biologically Inspired Intelligent Systems
CSCI-635	Introduction to Machine Learning
CSCI-641	Advanced Programming Skills
CSCI-642	Secure Coding
CSCI-651	Foundations of Computer Networks
CSCI-652	Distributed Systems
CSCI-654	Foundations of Parallel Computing
CSCI-655	Foundations of Cybersecurity
CSCI-661	Foundations of Computer Science Theory
CSCI-662	Foundations of Cryptography
CSCI-664	Computational Complexity
CSCI-665	Foundations of Algorithms
CSCI-711	Global Illumination
CSCI-712	Computer Animation: Algorithms and Techniques
CSCI-713	Applied Perception in Graphics and Visualization
CSCI-714	Scientific Visualization
CSCI-715	Applications in Virtual Reality
CSCI-716	Computational Geometry
CSCI-719	Topics in Computer Graphics
CSCI-720	Big Data Analytics
CSCI-721	Data Cleaning and Preparation
CSCI-722	Data Analytics Cognitive Comp
CSCI-723	Advanced Database Skills: Graph Databases
CSCI-724	Web Services and Service Oriented Computing
CSCI-729	Topics in Data Management
CSCI-731	Advanced Computer Vision
CSCI-732	Image Understanding
CSCI-734	Foundations of Security Measurement and Evaluation
CSCI-735	Foundations of Intelligent Security Systems
CSCI-736	Neural Networks and Machine Learning
CSCI-737	Pattern Recognition
CSCI-739	Topics in Intelligent Systems
CSCI-740	Programming Language Theory
CSCI-742	Compiler Construction
CSCI-746	Software Development Tools
CSCI-749	Topics in Languages and Tools
CSCI-759	Topics in Systems
CSCI-761	Topics in Advanced Algorithms
CSCI-762	Advanced Cryptography
CSCI-769	Topics in Theory

* An equivalent programming sequence may be determined by the minor advisor.
† An equivalent calculus sequence may be determined by the minor advisor.
‡ An equivalent discrete mathematics sequence may be determined by the minor advisor.

Computing Security

Rob Olson, Minor Advisor
585-475-4601, rboics@rit.edu

Program overview

With the prevalence of mobile computing, the advantages of cloud computing, the ubiquity of computing in general, and the issues of securing big data caused by the world-wide explosion of eBusiness and eCommerce today, secure computing environments and appropriate information management have become critical issues to all sizes and types of organizations. Therefore, there is a vital and growing need for all computing professionals to have a foundation in the issues critical to information security and how they apply to their specific disciplines. The minor consists of two required courses and three electives chosen by the student from the computing security advanced course clusters. There are many elective course choices to provide flexibility. Therefore, the minor provides any computing major outside of the computing security degree program with basic knowledge of the issues and technologies associated with computing security and allows students the opportunity to select a set of security electives that are complementary to their majors. Before beginning the minor in students must possess prerequisite knowledge that can be obtained from various programming sequences and courses in calculus and discrete math.

Notes about this minor:

- This minor is closed to students majoring in computing security or any BS/MS degree option that includes the BS in computing security.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining pre-requisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Prerequisites	
Students must complete one of the following two-course programming sequences:	
CPET-121	Computational Problem Solving I
CPET-321	Computational Problem Solving II
or	
CSCI-141	Computer Science I
CSCI-142	Computer Science II
or	
CSEC-123	Software Development and Problem Solving I
CSEC-124	Software Development and Problem Solving II
or	
IGME-105	Game Development and Algorithmic Problem Solving I
IGME-106	Game Development and Algorithmic Problem Solving II
or	
ISTE-120	Computational Problem Solving in the Information Domain I
ISTE-121	Computational Problem Solving in the Information Domain II
or	
ISTE-123	Software Development and Problem Solving I
ISTE-124	Software Development and Problem Solving II
or	
SWEN-123	Software Development and Problem Solving I
SWEN-124	Software Development and Problem Solving II
Students must complete a two-course calculus sequence†:	
MATH-181	Project-Based Calculus I
MATH-182	Project-Based Calculus II
Student must complete one of the following courses in discrete mathematics:‡	
MATH-131	Discrete Mathematics
MATH-190	Discrete Mathematics for Computing
MATH-200	Discrete Mathematics and Introduction to Proofs
Required Courses	
Choose one of the following:	
CSEC-101	Fundamentals of Computing Security
CSEC-102	Information Assurance and Security
CSEC-140	Introduction to Cybersecurity
Choose one of the following:	
CSEC-362	Cryptography and Authentication
CSCI-462	Introduction to Cryptography
Electives	
Choose three of the following:	
CSEC-380	Principles of Web Application Security
CSEC-461	Computer System Security
CSEC-462	Network Security and Forensics
CSEC-464	Computer System Forensics
CSEC-465	Network and System Security Audit
CSEC-467	Mobile Device Security and Forensics
CSEC-468	Risk Management for Information Security
CSEC-470	Covert Communications
CSEC-471	Penetration Testing Frameworks & Methodologies
CSEC-473	Cyber Defense Techniques
CSEC-476	Malware Reverse Engineering
CSEC-477	Disaster Recovery Planning and Business Continuity
CSCI-455	Principles of Cybersecurity
CSCI-464	Xtreme Theory
CSCI-531	Introduction to Security Measurement
CSCI-532	Introduction to Intelligent Security Systems
SWEN-331	Engineering Secure Software
SWEN-567	Hardware/Software Co-Design for Cryptographic Applications

† An equivalent calculus sequence may be determined by the minor advisor.
‡ An equivalent discrete mathematics sequence may be determined by the minor advisor.

Construction Management

Todd Dunn, Minor Advisor
585-475-2900, gtdite@rit.edu

Program overview

The construction management minor broadens the learning experiences and professional opportunities of students who have an interest in building construction, bid development, management of construction projects after a successful bid, and the business, management, and technical aspects related to construction.

Notes about this minor:

- This minor is closed to students majoring in civil engineering technology.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
CVET-170	Elements of Building Construction
CVET-461	Construction Cost Estimating I
CVET-462	Construction Project Management
Electives	
Choose two of the following:	
CVET-424	Building Information Modeling with Revit
CVET-464	Construction Planning, Scheduling and Control
CVET-465	Contracts and Specifications
CVET-505	Sustainable Building Design & Construction
ESHS-225	Construction Safety

Craft and Material Studies

Paul Muenzer, Minor Advisor
585-475-6994, pjmiao@rit.edu

Program overview

Students will develop knowledge of specific media, including wood, metal, ceramics, glass, and textiles. They also will study the material properties of these media and hone technical skills while expanding and applying critical thinking skills as they work through design process from ideation to fabrication. Students will also learn about expected working practices within collaborative studio spaces and within the discipline more broadly.

Notes about this minor:

- This minor is closed to students majoring in studio arts who have chosen options in ceramics, glass, furniture design, and metals and jewelry design.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining pre-requisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Electives*	
Choose five of the following for 15 credit hours	
CCER-201	Ceramics Sophomore I†
CCER-124	Clay Studio Survey
CCER-128	Josiah Wedgewood's Legacy
CCER-206	Ceramic Sculpture Processes
CCER-207	Mold Mechanisms
CCER-211	Thrown Vessel Forms
CCER-212	Thrown Sculptural Forms
CCER-530	Ceramics 3 Credit Elective
CGLS-124	Glass Studio Survey
CGLS-206	Molten Glass Practice I
CGLS-207	Molten Glass Practice II
CGLS-211	Mold & Kiln Glass Practice
CGLS-212	Kinetic Glass Practice
CGLS-530	Glass Processes
CMTJ-124	Metals and Jewelry Studio Survey
CMTJ-206	Methods and Practice
CMTJ-207	Design, Fabrication, and Forming
CMTJ-211	Design and Fabrication
CMTJ-212	Fabrication, Casting, and Mold Making
CMTJ-530	Form and Fabrication: Metals and Jewelry Design
CWFD-124	Woodworking / Furniture Design Studio Survey
CWFD-206	Furniture Design: The Table
CWFD-207	Intro to Woodworking and Furniture Design: Bench Seating
CWFD-211	Intro to Woodworking and Furniture Design: Carving and Shaping
CWFD-212	Intro to Woodworking and Furniture Design: Boxes and Containers
CWFD-530	Furniture Design 3 Credit Elective
CWTD-530	Quilting Elective
FDTN-132	3D Design II
FDTN-232	3D Design II Workshop: Topic

* At least two courses must be taken at the 200-level or above.

Creative Writing

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The creative writing courses offers students a practical, theoretical, and historical understanding of the art and craft of writing nonfiction and fiction prose and poetry, as well as experimenting in digital storytelling and interactive media. The minor encourages students to use those skills and insights for interdisciplinary projects and the enrichment of their careers and personal lives.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining pre-requisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Electives*	
Creative writing	
ENGL-211	Introduction to Creative Writing
ENGL-376	Experimental Writing
ENGL-386	World Building Workshop
ENGL-389	Digital Creative Writing Workshop
ENGL-390	Creative Writing Workshop
ENGL-490	Advanced Creative Writing Workshop
ENGL-511	Advanced Topics in Creative Writing
ENGL-543	Game-Based Fiction Workshop
Literature	
ENGL-216	Literature From Around the World
ENGL-275	Storytelling
ENGL-307	Mythology & Literature
ENGL-308	Shakespeare Drama
ENGL-309	Topics in Literary Forms
ENGL-315	Digital Literature
ENGL-316	Global Literature
ENGL-318	Popular Literature
ENGL-320	Genre Fiction
ENGL-373	Media Adaptation
ENGL-374	Games and Literature
ENGL-375	Storytelling Across Media
ENGL-391	Dangerous Texts
ENGL-400	Literary & Cultural Studies
ENGL-414	Topics in Women's and Gender Studies
ENGL-418	Great Authors
ENGL-419	Literature and Technology
ENGL-422	Maps, Spaces, and Places
ENGL-450	Free & Open Source Culture

* Students choose either five creative writing electives or four creative writing electives and one literature elective.

Criminal Justice

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The criminal justice minor provides a foundation in the formal process of social control through the criminal justice system, how behavior is defined as criminal, how crime is measured, and how society responds to crime.

Notes about this minor:

- This minor is closed to students majoring in criminal justice.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Course	
CRIM-110	Introduction to Criminal Justice
Electives	
Choose four of the following:	
CRIM-210	Technology in Criminal Justice
CRIM-220	Corrections
CRIM-230	Juvenile Justice
CRIM-240	Law Enforcement in Society
CRIM-260	Courts
CRIM-275	Crime and Violence
CRIM-285	Minority Groups and the Criminal Justice System
CRIM-299	Crime, Justice and Ethics
CRIM-350	Theories of Crime and Criminality
CRIM-489	Major Issues in Criminal Justice

Cybersecurity Risk Management

Rob Olson, Minor Advisor
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Program overview

With the prevalence of data breaches and cyber-attacks, securing intellectual properties and customer's personally identifiable information has become increasingly challenging in business, government, and academia. It is commonly recognized that a key factor for having a cyber-secured environment and operations is well-trained employees with good cyber hygiene. A small human error may lead to a disastrous cyber incident. The cybersecurity risk management minor is designed for students in non-computing majors who are interested in learning about cybersecurity and developing the knowledge and skills to support organizations in their efforts to protect their computing and informational resources. Students learn the basics of computing and cybersecurity and then gain knowledge and practice in cybersecurity policy and law, risk management, and business continuity plans in the event of a cybersecurity attack.

Notes about this minor:

- This minor is closed to students majoring in computing security.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Course	
PUBL-363	Cyber Security Policy and Law
Choose one of the following:	
ISCH-110	Principles of Computing
CSCI-101	Principles of Computing
Choose one of the following:	
CSEC-101	Fundamentals of Computing Security
CSEC-102	Information Assurance and Security
CSEC-140	Introduction to Cybersecurity
Electives	
Choose two of the following:	
CSEC-362	Cryptography and Authentication
CSEC-468	Risk Management for Information Security
CSEC-477	Disaster Recovery Planning and Business Continuity

Database Design and Development

Edward Holden, Minor Advisor
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Program overview

The minor is a cohesive set of courses that elevates students from a foundational level to advanced knowledge of database systems and the database development process. Students learn the basics of data modeling, the relational model, normalization, and Structured Query Language (SQL). Students also learn the skills needed to effectively capture requirements, compose data models that accurately reflect those requirements, develop programs that establish lines of communication with back-end databases, build and manage large databases, and learn methods for designing and developing data warehouses.

Notes about this minor:

- This minor is closed to students majoring in computing and information technologies, human-centered computing, and web and mobile computing.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
ISTE-330	Database Connectivity and Access
ISTE-430	Information Requirements Modeling
ISTE-436	Data Management and Access
Plus one of the following:	
CSCI-320	Principles of Data Management
ISTE-230	Introduction to Database and Data Modeling*
Plus one of the following:	
ISTE-432	Database Application Development
ISTE-434	Data Warehousing
ISTE-438	Contemporary Databases

* Introduction of Database and Data Modeling (ISTE-230) will be waived with completion of Principles of Data Management (CSCI-320).

Digital Business

Peter Rosenthal, Minor Advisor
585-475-7063, prosenthal@saunders.rit.edu

Program overview

Digital business represents the impact of new technologies on business practice, products, and services. Today, social computing and mobile devices are dramatically changing the behaviors and characteristics that lead individuals and organizations to success. Through this minor students enhance their major with a focus on these new technologies and their application in business.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Course	
MGIS-360	Building a Web Business
Electives	
Choose four of the following:	
FINC-559	Financing New Ventures
MGIS-320	Database Management Systems
MGMT-360	Digital Entrepreneurship
MKTG-230	Principles of Marketing
MKTG-320	Internet Marketing
MKTG-365	Marketing Analytics
MKTG-410	Search Engine Marketing and Analytics
MKTG-430	Social Media Marketing

Digital Literatures and Comparative Media

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The courses in the digital literatures and comparative media minor challenge students to think about how the digital in new comparative media affects the way we read, study, and understand literature: What happens to literature and the literary in an age of digital technology and new forms of media? Courses examine a varied collection of print genres and electronic literature in order to understand the current state of this new literary field and its relation to traditional concepts of literary study. The minor provides an entry point into investigating particular aspects of the general category of the digital and its comparative relation to the literary.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Course	
ENGL-215	Text & Code
Electives	
Choose four of the following	
ENGL-275	Storytelling
ENGL-315	Digital Literature
ENGL-373	Media Adaptation
ENGL-374	Games and Literature
ENGL-375	Storytelling Across Media
ENGL-376	Experimental Writing*
ENGL-386	World Building Workshop*
ENGL-389	Digital Creative Writing Workshop*
ENGL-414	Topics in Women's and Gender Studies
ENGL-419	Literature and Technology
ENGL-422	Maps, Spaces and Places
ENGL-450	Free & Open Source Culture

* At most only one of the creative writing workshops (ENGL-376, ENGL-386, ENGL-389) may be used toward the minor.

Economics

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

An economics minor provides a systematic analysis of economic issues through the study of the allocation of scarce resources into production and the distribution of production among the members of society.

Notes about this minor:

- This minor is closed to students majoring in economics.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Prerequisite	
Choose one of the following:	
ECON-101	Principles of Microeconomics
ECON-101H	Honors Microeconomics
Required Course	
ECON-201	Principles of Macroeconomics
Electives	
Theory and Policy	
Choose two or three of the following:	
ECON-401	Intermediate Microeconomic Theory
ECON-402	Intermediate Macroeconomic Theory
ECON-405	International Trade and Finance
ECON-406	Global Economic Issues
ECON-407	Industrial Organization
ECON-421	Natural Resource Economics
ECON-422	Benefit-Cost Analysis
ECON-430	Managerial Economics
ECON-431	Monetary Analysis and Policy
ECON-432	Open Economy Macroeconomics
ECON-440	Urban Economics
ECON-441	Labor Economics
ECON-444	Public Finance
ECON-445	History of Economic Thought
ECON-448	Development Economics
ECON-449	Comparative Economic Systems
ECON-450	Health Care Economics
ECON-451	Economics of Women and the Family
ECON-452	Economics of Native America
ECON-453	Behavioral & Experimental Economics
ECON-520	Environmental Economics
Quantitative	
Choose one or two of the following:	
ECON-401	Intermediate Microeconomic Theory
ECON-403	Econometrics I
ECON-404	Mathematical Methods: Economics
ECON-410	Game Theory with Economic Applications
ECON-411	Computational Economics
ECON-433	Financial Economics
ECON-503	Econometrics II

Electrical Engineering

Sohail Dianat, Minor Advisor
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Program overview

Electrical engineering encompasses disciplines such as electronics, communication, control, digital systems, and signal/image processing. An electrical engineering minor provides a foundation to explore specialized material in electrical engineering, and provides students from other engineering or non-engineering disciplines an introduction to the wide-ranging content of the electrical engineering major.

Notes about this minor:

- The minor is closed to students majoring in computer engineering technology, electrical engineering, or electrical engineering technology.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Prerequisites*	
MATH-182	Project-Based Calculus II
PHYS-212	University Physics II
Required Courses	
EEEE-281	Circuits I
EEEE-282	Circuits II
Electives	
Choose three of the following:	
EEEE-120	Digital Systems I
EEEE-220	Digital Systems II
EEEE-353	Linear Systems
EEEE-374	EM Fields and Transmission Lines
EEEE-380	Digital Electronics
EEEE-414	Classical Control
EEEE-420	Embedded Systems Design
EEEE-480	Analog Electronics
EEEE-483	Mechatronics
EEEE-484	Communication Systems

* Additional prerequisites may be required based on the choice of electrical engineering electives.

Engineering Management

Robin Borkholder, Minor Advisor
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Program overview

The minor in engineering management integrates technological and managerial expertise while focusing on the management of these areas. Engineering management is concerned with understanding the technology involved in an engineering project and the management process through which the technology is applied.

Notes about this minor:

- This minor is closed to students majoring in industrial engineering.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Prerequisites	
MATH-233	Linear Systems and Differential Equations
Plus one of the following:	
MATH-252	Probability and Statistics II
STAT-205	Applied Statistics
Required Courses	
ACCT-500	Cost Management in Technical Organizations
ISEE-345	Engineering Economy
ISEE-350	Engineering Management
Electives	
Choose two of the following:	
ISEE-301	Operations Research
ISEE-323	Systems and Facilities Planning
ISEE-420	Production Planning/Scheduling
ISEE-510	Systems Simulation
ISEE-560	Applied Statistical Quality Control
ISEE-582	Lean Six Sigma Fundamentals
ISEE-703	Supply Chain Management

English

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

Explore literature and other cultural works, as well as linguistics, and creative writing. The minor familiarizes students with works composed or translated into English and provides them with the opportunity to explore a variety of historical periods and geographical regions. Courses in the minor explore literary genres such as science fiction and fantasy; literary forms such as the novel, the short story, poetry, and graphic storytelling; and literary practices across media and multimedia arts. The minor builds an awareness of methods, theories and technologies for both the creation and analysis of literary texts, and provides an introduction to critical or creative writing.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
Choose one of the following courses	
ENGL-210	Literature, Culture, and Media
ENGL-216	Literature From Around the World
ENGL-275	Storytelling
Electives	
Choose four of the following	
ENGL-301	The Art of Poetry
ENGL-302	The Short Story
ENGL-307	Mythology & Literature
ENGL-308	Shakespeare Drama
ENGL-309	Topics in Literary Forms*
ENGL-315	Digital Literature
ENGL-316	Global Literature
ENGL-318	Popular Literature
ENGL-320	Genre Fiction†
ENGL-322	Literary Geographies
ENGL-345	History of Madness
ENGL-370	Evolving English Language
ENGL-373	Media Adaptation
ENGL-375	Storytelling Across Media
ENGL-377	Transmedia Storyworlds
ENGL-391	Dangerous Texts
ENGL-410	Film Studies
ENGL-411	Themes in American Literature
ENGL-413	African-American Literature
ENGL-414	Topics in Women's and Gender Studies
ENGL-418	Great Authors
ENGL-419	Literature and Technology

* Literary Forms (ENGL-309) may be taken up to two times, for six semester credit hours, as long the course topics are different.

† Genre Fiction (ENGL-320) may be taken up to two times, for six semester credit hours, as long the course topics are different.

Entrepreneurship

Peter Rosenthal, Minor Advisor
585-475-7063, prosenthal@saunders.rit.edu

Program overview

The entrepreneurship minor allows students to learn business skills that can be applied to any professional field. Students gain insight into the customer requirements and financial implications involved in taking a product or service from idea to implementation.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
MGMT-350	Entrepreneurship
Choose one of the following:	
MGMT-470	Applied Entrepreneurship And Commercialization
MGMT-550	Real World Business Solutions
Electives	
Choose three of the following:	
ACCT-110	Financial Accounting
ACCT-210	Management Accounting
ACCT-500	Cost Management in Technical Organizations
FINC-559	Financing New Ventures
MGMT-215	Organizational Behavior
MGMT-330	Design Thinking and Concept Development
MGMT-360	Digital Entrepreneurship
MKTG-230	Principles Of Marketing
MKTG-320	Digital Marketing

Environmental Science

Karl Korfmacher, Minor Advisor
585-475-5554, kfkscl@rit.edu

Program overview

The environmental science minor introduces students to the complexities of environmental issues and concepts, and provides them with opportunities to further investigate many of these issues through advanced course work. Central to this minor are the development of field, analytical, and problem solving skills and an understanding of the multiple perspectives often embedded in environmental issues. Students interested in becoming citizen scientists, or those pursuing employment or an advanced degree with an environmental focus, will find this minor beneficial.

After completing the required courses, students choose one of the following tracks: built environment/climate change, ecology, environmental microbiology, or GIS/remote sensing.

Notes about this minor:

- This minor is closed to students majoring in environmental science.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
ENVS-101	Concepts of Environmental Science
ENVS-111	Soil Science
Built Environment/Climate Change Track	
Choose three of the following	
BIOL-111	Science in the Garden
BIOL-240	General Ecology
ENVS-301	Environmental Science Field Skills
ENVS-305	Urban Ecology
ENVS-531	Climate Change: Science Technology & Policy
Ecology Track	
Required Course	
BIOL-240	General Ecology
Choose two of the following	
BIOL-371	Freshwater Ecology
BIOL-385	Seneca Park Zoo Internship
BIOL-573	Marine Biology
BIOL-575	Conservation Biology
ENVS-305	Urban Ecology
ENVS-311	Wetlands
ENVS-531	Climate Change: Science Technology & Policy
Environmental Microbiology Track	
Required Course	
BIOL-204	Introduction to Microbiology
Choose two of the following	
BIOL-306	Food Microbiology
BIOL-307	Microbiology of Wastewater
BIOL-310	Bioenergy: Microbial Production
BIOL-370	Environmental Microbiology
BIOL-380	Bioremediation
GIS/Remote Sensing Track	
Required Course	
ENVS-250	Applications of Geographic Information Systems
Choose two of the following	
ENVS-550	Hydrologic Applications of Geographic Information Systems
IMGS-431	Environmental Applications of Remote Sensing
IMGS-532	Advanced Environmental Applications of Remote Sensing

Environmental Studies

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

With an emphasis on sustainability and holistic thinking, the environmental studies minor provides students with opportunities for the in-depth analysis of global and regional environmental issues, their causes, and their potential solutions. In particular, a required 500-level seminar serves as a capstone experience, helping students to integrate knowledge from several disciplinary perspectives, including socio-cultural, historical, political, economic, ethical, scientific, and/or technological factors. Having completed the minor, students will possess a high level of environmental literacy, an important component of many professional fields within the sciences, engineering, law, journalism, and public affairs.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Course	
STSO-510	Interdisciplinary Capstone Seminar
Electives	
*Choose four of the following:**	
ECON-421	Natural Resource Economics
ECON-520	Environmental Economics
HIST-345	Environmental Disasters
PHIL-308	Environmental Philosophy
PUBL-530	Energy Policy
SOCI-320	Population and Society
STSO-120	Introduction to Environmental Studies
STSO-220	Environment and Society
STSO-321	Face of the Land
STSO-325	History of the Environmental Sciences
STSO-326	History of Ecology and Environmentalism
STSO-330	Energy and the Environment
STSO-335	Industry, Environment, and Community in Rochester
STSO-421	Environmental Policy
STSO-422	Great Lakes
STSO-425	Nature and Quantification
STSO-488	Topics in Environmental Studies
STSO-521	Biodiversity and Society
STSO-550	Sustainable Communities

* At least one elective must be taken at the 300-level or higher.

Ethics

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The ethics minor provides students with the ability to recognize ethical issues and to think critically to resolve them, both generally and within their chosen discipline. Students also learn how ethical problems can result from complex social structures and how changing structural features may avoid ethical problems. Three courses in philosophy are required plus two electives from the approved list, at least one of which must be outside philosophy. Only one 100-level course may be counted as part of the minor.

Notes about this minor:

- This minor is closed to students majoring in philosophy.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements.

Curriculum

COURSE	
Required Courses	
PHIL-202	Foundations of Moral Philosophy
PHIL-415	Ethical Theory
Electives*	
Choose three of the following:	
BIOL-255	Genetics and Society
CRIM-299	Crime, Justice, and Ethics
DHSS-103	Ethics in the Digital Era
ECON-102	Economics, Ethics, and Society
ENGL-314	Ethics in the Graphic Memoir
ISEE-684	Engineering and the Developing World
ISTE-110	FYW: Ethics in Computing
MEDS-360	Placebo, Suggestion, Research and Health
MGMT-340	Business Ethics and Corporate Social Responsibility
NSSA-221	Systems Administration I
PHIL-102	Introduction to Moral Issues
PHIL-304	Philosophy of Law
PHIL-305	Philosophy of Peace
PHIL-306	Professional Ethics
PHIL-308	Environmental Philosophy
PHIL-309	Feminist Theory
PHIL-311	East Asian Philosophy
PHIL-315	Responsible Knowing
PHIL-316	Bioethics and Society
PHIL-403	Social and Political Philosophy
PHIL-407	Philosophy of Action
PHIL-409	Existentialism
PHIL-449	Topics in Philosophy†
PUBL-201	Ethics, Values & Public Policy
SOCI-225	Social Inequality

* Only one 100-level course may be counted as part of the minor.
† PHIL-449 may be used when the topic includes ethical issues.

Exercise Science

William Brewer, Minor Advisor
585-475-2476, wsbscl@rit.edu

Program overview

The exercise science minor includes foundation sequences in anatomy and physiology upon which the basic principles of exercise physiology, fitness assessment, and the preparation of fitness programs are built. The minor prepares students to sit for professional certification examinations for work in the fitness industry, provides understanding of sports physiology for those interested in sports equipment design and technology, and complements and enhances personal fitness.

Notes about this minor:

- This minor is closed to students majoring in exercise science or those majoring in biomedical sciences who have declared a concentration in exercise science.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Electives	
Choose five of the following:	
EXSC-150	Introduction to Exercise Science
EXSC-205	Sports Physiology & Life Fitness
EXSC-206	Fitness Prescription
EXSC-207	Exercise for Special Populations
EXSC-210	Human Motor Behavior
EXSC-270	Group Exercise
EXSC-280	Strength Training for Performance
EXSC-320	Coaching Healthy Behavior
EXSC-360	Worksite Health Promotion
EXSC-370	Senior Adult Fitness
EXSC-380	Sports Psychology
EXSC-410	Kinesiology
EXSC-420	Biomechanics
EXSC-430	Theory of Athletic Injuries
EXSC-440	Cardiac Rehabilitation
EXSC-480	Training High Performance Athletes
EXSC-550	Exercise Physiology
MEDS-250	Human Anatomy and Physiology I
MEDS-251	Human Anatomy and Physiology II
NUTR-300	Sports Nutrition

Film Studies

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

Film studies explores the role of cinema in our contemporary global culture. Using methodologies and perspectives from a variety of disciplines, such as English, anthropology, philosophy, fine arts/visual culture, political science, history, and modern languages, the film studies minor investigates cinema's mass appeal as a form of entertainment, but also the power it wields as a disseminator of ideas, history, values, aesthetics, behavior, and cultural norms.

Notes about this minor:

- This minor is closed to students majoring in film and animation.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Electives	
Choose five of the following:	
ANTH-265	Native Americans in Film
ANTH-430	Visual Anthropology
ENGL-410	Film Studies
FNRT-200	Anime
FNRT-372	American Film of the Studio Era
FNRT-373	American Film Since the Sixties
FNRT-440	Deaf Art & Cinema
HIST-275	Screening the Trenches: The History of WWI Through Film
HIST-450	Modern Japan in History, Fiction, and Film
MLFR-151	Film, Comics, and French Culture
MLFR-351	French Films and Hollywood
MLFR-352	The French Heritage in Films
MLSP-352	Caribbean Cinema
PHIL-313	Philosophy of Film
POLS-490	Politics Through Film

Finance

Peter Rosenthal, Minor Advisor
585-475-7063, prosenthal@saunders.rit.edu

Program overview

The finance minor helps students create value in any type of business organization by broadening student's learning experiences and professional opportunities by focusing on corporate finance and investment topics in more depth.

Notes about this minor:

- This minor is closed to students majoring in finance.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
ACCT-110	Financial Accounting
FINC-220	Financial Management
Electives	
Choose three of the following:	
FINC-120	Personal Financial Management
FINC-352	Financial Management II
FINC-361	Financial Institutions and Markets
FINC-362	Intermediate Investments
FINC-420	Finance in a Global Environment
FINC-425	Stock Market Algorithmic Trading
FINC-430	Advanced Corporate Financial Planning
FINC-460	Financial Analysis and Modeling
FINC-470	Introduction to Options and Futures
FINC-489	Seminar in Finance
FINC-559	Financing New Ventures
FINC-580	Financial Analytics

Flexible Packaging

Stefanie Soroka, Minor Advisor
585-475-4974, swsmet@rit.edu

Program overview

The flexible packaging minor addresses flexible containment systems, one of the fastest growing segments of the packaging materials industry. The manufacturing and use of flexible containment systems requires specific expertise and knowledge of appropriate technology for implementation. Flexible pouches and containment systems are considered more sustainable for replacing glass bottles and jars, plastic bottles, and metal cans. They use materials more efficiently and reduce the weight and costs associated with physical distribution activities.

Students learn about the sustainability performance of flexible packaging by studying product lifecycle from a societal, environmental, and economic impact as they design and manufacture more environmentally friendly flexible container systems. The minor enhances employment opportunities in industries such as consumer goods, health care, and the various food industries. Students with interests in engineering, engineering technology, printing, manufacturing and safety, product marketing, industrial design, logistics, and other related fields can benefit from the minor.

Notes about this minor:

- This minor is closed to students majoring in packaging science.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
MAAT-206	Print Production
MAAT-558	Package Printing
PACK-560	Converting and Flexible Packaging
Electives	
Choose two of the following:	
MAAT-367	Image Processing Workflow
MAAT-368	Gravure and Flexography
MAAT-376	Lithographic Process
MAAT-541	Digital Print Processes
MAAT-544	Color Management Systems
PACK-211	Packaging Metals & Plastics
PACK-430	Packaging Regulations
PACK-530	Packaging Sustainability and the Environment
PACK-550	Packaging Machinery

Free and Open Source Software and Free Culture

Jeff Spain, Minor Advisor
585-475-2763, Jeff.Spain@rit.edu

Program overview

Free and open source software is released with licenses that allow it to be redistributed freely for others to use, copy, and/or modify within certain restrictions and conditions. Free culture refers to writing, art, music, and other creative materials released with rights for reuse and/or redistribution that are more flexible than those of the traditional marketplace. Both are often created and/or distributed by collaborative teams with members around the world. The minor in free and open source software and free culture is intended for students who want to develop a deep understanding of the processes, practices, technologies, financial, legal, and societal impacts of these movements. The minor includes a set of computing and liberal arts courses that explore these aspects through research, analysis, and participation in these communities via the creation of digital cultural artifacts and team-driven software projects. Students complete three required courses, one constrained elective course, and one elective course.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
ENGL-450	Free & Open Source Culture
IGME-582	Humanitarian Free & Open Source Software Development
IGME-583	Legal and Business Aspects of FOSS
Constrained Elective	
Choose one of the following:	
ENGL-361	Technical Writing
IGME-584	Software Development on Linux Systems
Elective Course	
Choose one of the following:	
CSEC-474	Unix-based System Forensics
ENGL-215	Text & Code
ENGL-351	Language Technology
ENGL-581	Intro to Natural Language Processing
IGME-585	Project in FOSS Development
ISTE-252	Foundations of Mobile Design

* Students may elect to take both of the constrained elective courses to complete the minor instead of selecting one constrained course and one elective course.

Game Design and Development

Jeff Spain, Minor Advisor
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Program overview

The game design and development minor is intended for students studying in a technical field who want to combine their knowledge and skill in software development with the media-centric approach to application design that is exemplified in the professional games and simulation industries. The minor defines a series of courses that build upon students' existing knowledge in computing, physics, and mathematics to explore the design principles of games and interactive worlds through the creation of prototypes and software projects.

Notes about this minor:

- This minor is closed to students majoring in game design and development.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
IGME-202	Interactive Media Development
IGME-209	Data Structures & Algorithms for Games & Simulations I
IGME-220	Game Design & Development I
IGME-309	Data Structures & Algorithms for Games & Simulations II
IGME-320	Game Design & Development II

Game Design

Jeff Spain, Minor Advisor
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Program overview

The game design minor is intended for students outside of technical computing majors who want to explore the process and principles of game design and the associated theories of interactive media. The minor provides an introductory experience to media-centric software development that enables students to prototype and test their own designs.

Notes about this minor:

- This minor is closed to students majoring in computer engineering, computer science, computing and information technologies, computing security, game design and development, human-centered computing, new media interactive development, software engineering, and web and mobile computing.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
IGME-101	New Media Interactive Design and Algorithmic Problem Solving I
IGME-102	New Media Interactive Design and Algorithmic Problem Solving II
IGME-119	2D Animation and Asset Production
IGME-220	Game Design & Development I
IGME-320	Game Design & Development II

Gender, Art, and Media

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

In the gender, art, and media minor students explore how gender issues and identities, in their intersections with culture, race, ethnicity, nationality, social class, age, and (dis)abilities, are represented and portrayed in various artistic, literary, and media forms. By engaging with cultural texts and productions from both historical and contemporary perspectives, the minor introduces students to critical analysis and knowledge-building methods drawn from fields such as women's and gender studies, feminist theories, critical race studies, queer studies, social justice work, and activism. The minor teaches students to analyze gendered images as they appear in arts and media, recognize power inequalities and stereotypes in gender representations, and acquire the conceptual skills to critique and improve current conditions of artistic, literary, and media production and consumption in view of increased gender equity and fairness. The minor complements any course of studies in a number of art and media-related fields such as art and literary criticism, art curation and exhibition, journalism and photojournalism, media studies, filmmaking, literature, photography, advertising and marketing, public relations, social services, and more.

Notes about this minor:

- This minor is closed to students who have already declared a minor in women and gender studies.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining pre-requisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Course*	
Gender Theory Courses	
Choose one of the following:	
WGST-200	Foundations Of Women And Gender Studies
WGST-205	Feminist Practices of Inquiry
WGST-210	Introduction to LBGTQ+ Studies
WGST-309	Feminist Theory
Art Courses	
Choose one of the following:	
ARTH-577	Displaying Gender
GRDE-322	Women Pioneers in Design
WGST-206	Queer Looks
WGST-375	Women/Gender/Art
WGST-383	Traumatic Images
WGST-384	Art of Dying
WGST-388	Gender and Contemporary Art
Media courses	
Choose one of the following:	
ARTH-577	Displaying Gender
SOCI-355	CyberActivism: Diversity, Sex, and the Internet
WGST-206	Queer Looks
WGST-330	Performing Identity in Popular Media
WGST-357	Communication, Gender, and Media
WGST-383	Traumatic Images
WGST-388	Gender and Contemporary Art
Electives	
Choose two of the following:	
ANTH-325	Bodies and Culture
ARTH-577	Displaying Gender
GRDE-322	Women Pioneers in Design
SOCI-355	CyberActivism: Diversity, Sex, & the Internet
WGST-200	Foundations Of Women And Gender Studies
WGST-205	Feminist Practices of Inquiry

COURSE	
WGST-206	Queer Looks
WGST-210	Introduction to LBGTQ+ Studies
WGST-309	Feminist Theory
WGST-318	Philosophies of Love, Sex, and Gender
WGST-330	Performing Identity in Popular Media
WGST-351	Gender and Sexuality in Hispanic Studies
WGST-357	Communication, Gender, and Media
WGST-375	Women/Gender/Art
WGST-383	Traumatic Images
WGST-384	Art of Dying
WGST-388	Gender and Contemporary Art
WGST-414	Topics in Women's and Gender Studies

* At most two non-WGST courses may be counted toward the GAAM Minor.

Geographic Information Systems

Brian Tomaszewski, Minor Advisor
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Program overview

The geographic information systems (GIS) minor provides students with experience in the concepts, technology, and applications related to computer-based mapping, spatial databases, and geographic analysis and problem solving. The minor features two tracks: a GIS development track for students interested in GIS software development, and a GIS analysis track for students interested in utilizing GIS as a strong methodological base within their major of study. Required courses provide core GIS foundations applicable to a variety of multidisciplinary elective courses students can choose from to match their research, post-graduate, or career interests.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
ISTE-382	Maps, Mapping and Geospatial Technologies
ISTE-384	Introduction to Geographic Information Systems
Electives	
Choose three of the following:	
CVET-160	Surveying
CVET-161	Surveying Lab
IMGS-431	Environmental Applications of Remote Sensing
IGME-386	Spatial Algorithms and Problem Solving
IGME-484	Geographic Visualization
ISTE-230	Introduction to Database and Data Modeling
ENGL-422	Maps, Spaces and Places

Globalization

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The impact of global change is dramatic and far-reaching, altering the dynamics of everyday life on a planetary scale. The minor in globalization provides students with the opportunity to think creatively about a range of globalizing processes, theories, and practices (in cultural, political, social, biomedical, economic, and artistic contexts). Courses investigate issues pertinent to the phenomenon of globalization, including cultural exchange; multicultural communities; global governance; information transfer; and social, environmental, health, and labor issues. Accelerated by communication technologies, globalization redefines how individuals and communities experience and view the world.

Notes about this minor:

- This minor is closed to students majoring in international and global studies and students majoring in sociology and anthropology who have chosen tracks in cultural anthropology or sociology.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Course	
INGS-101	Global Studies
Electives	
Choose four of the following: †*	
ANTH-210	Culture and Globalization
ANTH-220	Language and Culture: Introduction to Linguistic Anthropology
ANTH-225	Globalizing Africa
ANTH-235	Immigration to the U.S.
ANTH-245	Ritual and Performance
ANTH-246	Gender and Health
ANTH-270	Cuisine, Culture and Power
ANTH-295	Global Public Health
ANTH-325	Bodies and Culture
ANTH-328	Heritage and Tourism
ANTH-330	Cultural Images of War and Terror
ANTH-341	Global Addictions
ANTH-345	Genocide and Post-Conflict Justice
ANTH-360	Humans and their Environment
ANTH-370	Media and Globalization
ANTH-410	Global Cities
ANTH-425	Global Sexualities
ANTH-430	Visual Anthropology
ECON-406	Global Economic Issues
HIST-480	Global Information Age
POLS-220	Global Political Economy
POLS-330	Human Rights in Global Perspective
SOCI-246	Gender and Health
SOCI-295	Global Public Health
SOCI-305	Crime and Human Rights: Sociology of Atrocities
SOCI-315	Global Exiles of War and Terror
SOCI-355	Cyber Activism: Diversity, Sex, and the Internet
SOCI-395	Borders: Humans, Boundaries, and Empires

* At least two of the elective courses must be taken at the 300-level or higher.
† No more than two minor elective courses may be from any one discipline.

Health and Culture

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

All societies have some cultural ideas and belief systems about health and wellness. Culture shapes our understanding of bodily processes. Because of the significant influence of culture on perceptions and experiences of health and wellness, this minor thematizes the shifting cultural configurations of health in a globalizing world. Culturally grounded health and illness concepts, including notions about bodily integrity or emotional well-being, cultural models of illness causation and diagnostic practices, and the experiences, expressions, and treatments of human ailments unfold in concrete socio-cultural contexts. The courses in this minor provide an enhanced cultural understanding about health experiences in different parts of the world.

Notes about this minor:

- This minor is closed to students majoring in sociology and anthropology who have chosen tracks in cultural anthropology or sociology.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Course	
SOCI-322	Health and Society
Electives	
Choose four of the following:	
ANTH-246/SOCI-246	Gender and Health
ANTH-270	Cuisine, Culture, and Power
ANTH-295/SOCI-295	Global Public Health
ANTH-325	Bodies and Culture
ANTH-341	Global Addictions
ANTH-345	Genocide and Post-Conflict Justice
ANTH-425	Global Sexualities
ANTH-435	The Archaeology of Death
COMM-344	Health Communication
MLSP-353	Trauma and Survival in First-Person Narrative
PHIL-316	Bioethics and Society
PSYC-231	Death and Dying
SOCI-305	Crime and Human Rights: Sociology of Atrocities
SOCI-315	Global Exiles of War and Terror
SOCI-330	Urban (In)Justice
SOCI-345	Urban Poverty
SOCI-395	Borders: Humans, Boundaries, and Empires

Health Communication

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The health communication minor provides students with theoretical and applied knowledge about communication's role in health care delivery, doctor-patient communication, health campaigns and public health, and other areas related to the dissemination of health information. This collaborative minor is designed for students interested in health care fields or health and risk communication.

Notes about this minor:

- This minor is closed to students majoring in communication.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Course	
COMM-344	Health Communication
Choose one of the following:	
COMM-322	Campaign Management and Planning
COMM-361	Reporting in Specialized Fields
Electives	
Choose three of the following:	
ANTH-325	Bodies and Culture
COMM-212	Public Relations
COMM-221	Public Relations Writing
COMM-223	Digital Design in Communication
ECON-450	Health Care Economics
ENGL-345	History of Madness
MEDG-105	Health Awareness
MEDI-130	Computers in Medicine
MEDS-201	Language of Medicine
NUTR-215	Contemporary Nutrition
PSYC-231	Death and Dying
SOCI-246	Gender and Health

History

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The history minor provides students with a foundation in the academic study of history. It serves as a complement to any professional degree, as historical study at the college level hones the skills that are important to any well-trained professional: namely, effective writing, critical analysis, engaged reading, and logical thinking. Students are free to shape the history minor to their liking, by choosing the geographic areas of historical study of most interest to them, such as American, European, or Asian, or by choosing the historical topic of most interest to them, such as transnational history, comparative history, war, business, race, or gender.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Electives	
*Choose five of the following:**	
HIST-101	Making History
HIST-102	Themes in US History
HIST-103	The City in History
HIST-104	Themes in European History
HIST-105	Themes in History†
HIST-125	Public History and Public Debate
HIST-140	History of the Modern Middle East
HIST-150	World History since 1500
HIST-160	History of Modern East Asia
HIST-170	Twentieth Century Europe
HIST-180	Information Revolution
HIST-190	American Women's and Gender History
HIST-191	The History of Families and Children in the U.S.
HIST-199	Survey of American Military History
HIST-201	Histories of Globalization
HIST-210	Culture and Politics in Urban Africa
HIST-221	Introduction to Public History
HIST-230	American Deaf History
HIST-231	Deaf People in Global Perspective
HIST-238	History of Disability
HIST-240	Civil War America
HIST-245	American Slavery and Freedom
HIST-250	Origins of U.S. Foreign Relations
HIST-251	Modern U.S. Foreign Relations
HIST-252	The United States and Japan
HIST-255	HIstory of World War II
HIST-260	History of Premodern China
HIST-261	History of Modern China
HIST-265	History of Modern Japan
HIST-266	History of Premodern Japan
HIST-270	History of Modern France
HIST-275	Screening the Trenches: The History of WWI Through Film
HIST-280	History of Modern Germany
HIST-282	Women, Gender, and Computing
HIST-290	U.S. History Since 1945
HIST-301	Great Debates in US History
HIST-302	Topics in History
HIST-310	Global Slavery and Human Trafficking
HIST-322	Monuments and Memory
HIST-323	America's National Parks
HIST-324	Oral History
HIST-325	Museums and History
HIST-326	Digital History
HIST-330	Deafness and Technology
HIST-335	Women and the Deaf Community
HIST-340	Rochester Reformers: Changing the World
HIST-345	Environmental Disasters

COURSE	
HIST-350	Terrorism, Intelligence, and War
HIST-351	The Vietnam War
HIST-355	The Holocaust: Event, History, Memory
HIST-360	A Global History of Baseball
HIST-365	Conflict in Modern East Asia
HIST-369	Histories of Christianity
HIST-370	Global History of Religions
HIST-380	International Business History
HIST-381	Technology in the Modern World
HIST-390	Medicine & Public Health in American History
HIST-421	Hands-on History
HIST-430	Deaf Spaces
HIST-431	Theory and Methods of Deaf Geographies
HIST-439	Biography as History
HIST-450	Modern Japan in History, Fiction, and Film
HIST-462	East-West Encounters
HIST-465	Samurai in Word and Image
HIST-470	Science, Tech, & European Imperialism: 1800-1965
HIST-480	Global Information Age

* At least two courses must be taken at the 300-level or higher.
† HIST-105 is used to transfer in courses or AP exams. While the course is repeatable, it only counts once in the minor.

Hospitality Management

Peter Rosenthal, Minor Advisor
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Program overview

Hospitality industries and related entrepreneurial businesses include those in lodging, resorts, food, entertainment, events and conventions, and tourism. The hospitality management minor provides an opportunity to learn about service–oriented businesses that are a significant portion of the economies of many countries.

Notes about this minor:

- This minor is closed to students majoring in hospitality and tourism management.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
HSPT-215	Principles of Food Production and Service
HSPT-315	Lodging Operations Analytics and Management
HSPT-335	Food and Beverage Management
Electives	
Choose two of the following:	
HSPT-225	Hospitality and Tourism Management Fundamentals
HSPT-232	Hospitality Real Estate and Facilities Management
HSPT-281	Service Management in a Global Economy
HSPT-284	HTM Marketing, Sales, and PR
HSPT-336	Risk Assessment and HTM Law
HSPT-345	Food & Beverage Operations
HSPT-350	Event & Project Management
HSPT-375	Customer Experience Management
HSPT-384	HTM Strategic Financial Analysis
HSPT-450	Strategic Planning and Decision-Making
HSPT-481	Leadership Innovation in Service Industries
HSPT-485	Restaurant and Event Management
HSPT-495	Hospitality Project Planning and Development

Human Resource Management

Peter Rosenthal, Minor Advisor
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Program overview

The human resource management minor focuses the critical functions of a human resources department, such as hiring, training, compensation, benefits, and employment law.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining pre-requisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
MGMT-215	Organizational Behavior
HRDE-380	Human Resource Management
HRDE-383	Employee Benefits & Compensation
HRDE-387	Human Resource Employment Law and Regulations
Choose one of following:	
BANA-255	Business Analytics Fundamentals
INTB-300	Cross-Cultural Management
MGMT-310	Leading High-Performance Teams
MGMT-320	Organizational Effectiveness Skills
MGMT-340	Business Ethics and Corporate Social Responsibility
MGMT-450	Negotiations and Decision-Making

Imaging Science

James Ferwerda, Minor Advisor
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Program overview

Imaging science is a highly interdisciplinary field of study that incorporates elements from mathematics, engineering, computer science, and physics to understand, design, and utilize imagery and imaging systems to study scientific phenomena. The imaging science minor is designed to allow students from various departments across RIT to study how to use imaging to enhance their primary field of study or discover how to incorporate imaging science into their major discipline to solve complex, interdisciplinary problems in imaging, imagery exploitation, and the design and evaluation of imaging systems.

Notes about this minor:

- This minor is closed to students majoring in imaging science.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Course	
SOFA-103	Introduction to Imaging and Video Systems
Electives	
Choose five of the following:	
IMGS-221	Vision & Psychophysics
IMGS-251	Radiometry
IMGS-261	Linear and Fourier Methods for Imaging
IMGS-321	Geometric Optics
IMGS-322	Physical Optics
IMGS-341	Interactions Between Light and Matter
IMGS-351	Fundamentals of Color Science
IMGS-361	Image Processing and Computer Vision I
IMGS-362	Image Processing & Computer Vision II
IMGS-451	Imaging Detectors
IMGS-462	Multivariate Statistical Image Processing
IMGS-528	Design and Fabrication of Solid State Cameras
IMGS-539	Principles of Solid State Imaging Arrays
IMGS-542	Testing of Focal Plane Arrays
MATH-233	Linear Systems and Differential Equations
MATH-241	Linear Algebra
MATH-251	Probability and Statistics I
PHYS-213	Modern Physics I
PHYS-283	Vibrations and Waves
PHYS-320	Mathematical Methods in Physics
PHYS-365	Physical Optics

* At least one course must be completed at the 300-level or above.
† At least three courses (9 credits) must be taken in Imaging Science (IMGS, including SOFA-103)

Imaging Systems

Paul Muenzer, Minor Advisor
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Program overview

The imaging systems minor offers students an introduction to the business and technology of photographic imaging services. Courses cover digital imaging capture systems, professional practices, output technologies, color management, and imaging workflows. The minor provides the foundation students need to pursue opportunities in photo technology management, color workflows, technical support, digital imaging technology, and sales for photography and imaging manufacturers.

Notes about this minor:

- This minor is closed to students majoring in photographic sciences.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
IMSM-301	Imaging Systems
IMSM-302	Color Management Technology
Electives	
Choose three of the following:	
PHAP-361	Retouch and Restore
PHAP-366	Advanced Retouching and Compositing
PHFA-562	The Fine Print Workflow
PHFA-576	Preservation Care of Photographs
PHPS-207	Vision, Perception and Imaging
PHPS-217	Media Production & Technology
PHPS-277	Survey of Non-Conventional Imaging
PHPS-332	Digital Imaging Processing
PHPS-336	e-Sensitometry
PHPS-337	Color Measurement
PHPS-516	Scanning Electron Microscopy
PHPS-529	High Speed Photography
SOFA-568	Digital Color Management

Industrial Engineering

Robin Borkholder, Minor Advisor
585-475-2990, rrbeie@rit.edu

Program overview

A minor in industrial engineering focuses on the design, improvement, and installation of integrated systems of people, materials, equipment, and energy. Students utilize skills in statistics, ergonomics, operations research, and manufacturing.

Notes about this minor:

- This minor is closed to students majoring in industrial engineering.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Prerequisites	
MATH-233	Linear Systems and Differential Equations
Choose one of the following:	
MATH-252	Probability and Statistics II
STAT-205	Applied Statistics
Electives	
Choose five of the following:	
ISEE-301	Operations Research
ISEE-323	Systems and Facilities Planning
ISEE-330	Ergonomics and Human Factors
ISEE-345	Engineering Economy
ISEE-420	Production Planning/Scheduling
ISEE-510	Systems Simulation
ISEE-560	Applied Statistical Quality Control
ISEE-582	Lean Six Sigma Fundamentals
ISEE-626	Contemporary Production Systems

Innovation

Meg Walbaum, Minor Advisor
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Program overview

The innovation minor enables students from across all of RIT's colleges to develop the necessary skills, knowledge, and experiences to become innovators in areas of interest related to their individual academic and professional goals. The core of the minor helps students to define innovation; understand past and current trends in innovation, as well as the processes and practical considerations for innovating; and gain experience at innovating through project-based, interdisciplinary experiential learning and collaborative activities. Students customize the minor by taking innovation elective courses that explore an area of personal and/or professional interest within the boundaries of the larger minor. The minor is inter-disciplinary in its approach and fosters multi-college collaboration as it allows students to select discipline-specific courses, sourced from across the university, as their innovation elective courses.

Notes about this minor:

- This minor is closed to students majoring in applied arts and sciences who have chosen a concentration in innovation.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
SOIS-211	Exploring Innovation
SOIS-411	The Practice of Innovation and Invention
SOIS-511	Innovation Lab
Electives	
Choose two of the following:	
ENGL-419	Literature and Technology
ENGL-450	Free & Open Source Culture
IGME-581	Innovation & Invention
MGMT-330	Design Thinking and Concept Development
SOIS-333	Wicked Problems
SOIS-441	Creative Critical Thinking and Problem Solving

International Business

Peter Rosenthal, Minor Advisor
585-475-7063, prosenthal@saunders.rit.edu

Program overview

Students who select the international business minor benefit from learning the global view of worldwide markets and the role of business in these environments.

Notes about this minor:

- This minor is closed to students majoring in international business.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
INTB-225	Global Business Environment
INTB-315	Exporting and Global Sourcing
Electives	
Choose three of the following:	
FINC-420	Finance in a Global Environment
INTB-300	Cross-Cultural Management
INTB-310	Regional Business Studies
INTB-550	Global Entry and Competition Strategies
MKTG-230	Principles of Marketing
MKTG-330	Global Marketing

International Relations

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The international relations minor helps students to make sense of the world through exploring ideas that have shaped it. Students explore the thoughts of various thinkers and approaches to international relations and use these perspectives to understand key themes in world politics. Important topics include democratization, globalization, terrorism, war and peace, human rights, and international law. Students reflect upon the interplay between domestic and international politics and how changes in the world order affect the internal politics of various countries.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Course	
POLS-120	Introduction to International Relations
Electives	
*Choose four of the following:**	
POLS-205	Ethics in International Politics
POLS-210	Comparative Politics
POLS-215	Tech, Ethics & Global Politics
POLS-220	Global Political Economy
POLS-285	Environmental Ethics and Political Ecology
POLS-320	American Foreign Policy
POLS-325	International Law and Organizations
POLS-330	Human Rights in Global Perspective
POLS-335	Politics of Developing Countries
POLS-350	Politics of East Asia
POLS-351	Politics of China
POLS-360	International Political Thought
POLS-370	Cyberwar, Robots, & the Future of Conflict
POLS-375	Grand Strategy
POLS-390H	Greece and the Political Imagination
POLS-410	Evolutionary International Relations
POLS-440	War and the State
POLS-445	Terrorism and Political Violence
POLS-455	Comparative Public Policy
POLS-525	Special Topics in Political Science
POLS-541	Peacekeeping and Conflict Transformation
POLS-542	War, Diplomacy, and State-Building

* At least two courses must be taken at the 300-level or higher.

Journalism

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The journalism minor provides students with a foundation in the professional study and practice of journalism. Courses offer a broad perspective that includes historical, legal, and ethical issues of specific concern to journalism, as well as learning and practice writing in a journalistic style for delivery across multiple media platforms.

Notes about this minor:

- This minor is closed to students majoring in journalism.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
Choose one of the following:	
COMM-261	History of Journalism
COMM-271	Introduction to Journalism
Students must take the following course:	
COMM-272	Reporting and Writing I
Electives	
Choose three of the following:	
COMM-263	Data Journalism
COMM-273	Reporting and Writing II
COMM-274	News Editing
COMM-342	Communication Law and Ethics
COMM-361	Reporting in Specialized Fields
COMM-442	Professional Writing
COMM-461	Multiplatform Journalism

Language Science

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The language science minor prepares students for the study and analysis of human language. The minor is directly applicable to students interested in computing and media, human-computer interaction, brain and cognition, language acquisition, human health, interpreting, relevant branches of engineering, and policy studies. Students can complete the minor requirements irrespective of their skills in languages other than English. Electives allow students to customize the minor to their interests and needs, with the support of a faculty adviser. The minor is an excellent complement to majors such as computer science, game design, information technology, psychology, sign language interpreting, mechanical engineering, electrical engineering, bioengineering, science, or a foreign language.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses*	
ENGL-310	Introduction to Language Science
Plus one of the following:	
ANTH-220	Language and Culture: Introduction to Linguistic Anthropology
ENGL-351	Language Technology
ENGL-356	Meaning in Language
MLCU-301	Psycholinguistics
MLCU-302	Introduction to Syntax
Electives	
Choose three of the following:	
ANTH-220	Language and Culture: Introduction to Linguistic Anthropology
ANTH-285	American Indian Languages
ENGL-351	Language Technology
ENGL-356	Meaning in Language
ENGL-370	Evolving English Language
ENGL-482	Science & Analytics of Speech
ENGL-581	Intro to Natural Language Processing
ENGL-582	Seminar in Computational Linguistics
ENGL-584	Spoken Language Processing
MLAS-351	Linguistics of American Sign Language
MLCU-301	Psycholinguistics
MLCU-302	Introduction to Syntax
MLJP-351	Languages in Japanese Society
MLJP-451	Structure of the Japanese Language
MLST-449	Special Topic: Modern Language †
PHIL-414	Philosophy of Language
PSYC-431	Language and Thought
Beginning ASL or Modern Language 200 level course	

* At least two of the five courses must be taken at the 300-level or higher.
† MLST-449 may be used for linguistics topics such as Introduction to Syntax or Second Language Acquisition & Bilingualism.

Latino/Latina/Latin American Studies

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The Latino/Latina/Latin American studies minor provides at least two full years of instruction to prepare students for living and working within an intercultural society both at home and abroad. The minor's five courses foster cultural, or linguistic and cultural, proficiency. Part of the minor requirements may be taken abroad.

Notes about this minor:

- This minor is closed to students majoring in international and global studies who have chosen Spanish or Portuguese languages or Latin America as a regional focus.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Electives	
Culture Courses	
Choose four or five of the following:	
ANTH-235	Immigration to the U.S.
ANTH-255	Regional Archaeology†
ANTH-335	Culture and Politics in Latin America
ANTH-350	The Global Economy and the Grassroots
ARTH-561	Latin American Art
ARTH-572	Art of the Americas
MLSP-351	Gender and Sexuality in Hispanic Studies
MLSP-352	Caribbean Cinema
MLSP-353	Trauma and Survival in First-Person Narrative
MLSP-410	Spanish for Science and Technology
MLSP-415	Professional Spanish
Language Courses	
*Choose one of the following (if only four culture courses are chosen):**	
MLPO-201	Beginning Portuguese I
MLPO-202	Beginning Portuguese II
MLPO-301	Intermediate Portuguese I
MLPO-302	Intermediate Portuguese II
MLPO-401	Advanced Portuguese I
MLPO-402	Advanced Portuguese II
MLSP-201A	Beginning Spanish IA
MLSP-201B	Beginning Spanish IB
MLSP-202	Beginning Spanish II
MLSP-301	Intermediate Spanish I
MLSP-302	Intermediate Spanish II
MLSP-305	Spanish for Health Care
MLSP-310	Spanish Grammar Review
MLSP-315	Hispanic Culture & Civilization
MLSP-401	Advanced Spanish I
MLSP-402	Advanced Spanish II

* Students who have prior study in either language must take a placement exam through the Department of Modern Languages to determine the appropriate level language course to begin with
† Course may be used when topic focuses on Mesoamerica or Latin America.

Legal Studies

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

Recognizing the critical role that law plays in societies, the minor in legal studies provides students with courses that deepen and expand their understanding of law as practiced, especially its influence on social, political, and economic institutions.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining pre-requisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Course	
Choose one of the following:	
CRIM-215	Law and Society
POLS-200	Law & Society
Electives	
*Choose four of the following:**	
COMM-342	Communication Law and Ethics
COMM-362	Law and Ethics of the Press
CRIM-225	Criminal Law
CRIM-260	Courts
CRIM-315	Evidence
CRIM-489	Major Issues in Criminal Justice
PHIL-205	Symbolic Logic
PHIL-304	Philosophy of Law
PHIL-403	Social and Political Philosophy
POLS-325	International Law and Organizations
POLS-330	Human Rights in Global Perspective
POLS-425	Constitutional Law
POLS-430	Constitutional Rights and Liberties
POLS-460	Classical Constitutionalism, Virtue, & Law
POLS-465	Modern Constitutionalism, Liberty, & Equality

* Students majoring in criminal justice, philosophy, or political science may only count one course from their home department toward the requirements of the minor.

Management Information Systems (MIS)

Peter Rosenthal, Minor Advisor
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Program overview

The management information systems minor is designed for students who wish to learn about computer-based information systems and how they are used in today's businesses. The minor enhances the career options of students in any major and increases their capacity to analyze, design, and manage business processes related to their program of study.

Notes about this minor:

- This minor is closed to students majoring in management information systems.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Course	
MGIS-330	Systems Analysis and Design
Electives	
Choose four of the following:	
ACCT-445	Accounting Information Systems
MGIS-320	Database Management Systems
MGIS-350	Developing Business Applications
MGIS-355	Business Intelligence
MGIS-360	Building a Web Business
MGIS-425	Database Systems Development
MGIS-429	Cyber: Risk and Resilience
MGIS-445	Web Systems Development
MGIS-450	Enterprise Systems
MGIS-489	Seminar in MIS
MGIS-550	MIS Capstone
MGIS-589	Hacking for Defense (H4D)

Management

Peter Rosenthal, Minor Advisor
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Program overview

The management minor provides a solid introduction to the world of general business management.

Notes about this minor:

- This minor is closed to students majoring in business administration–management.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
MGMT-215	Organizational Behavior
MGMT-310	Leading High-Performance Teams
Electives	
Choose three of the following:	
HRDE-386	Human Resources Development
INTB-300	Cross-Cultural Management
INTB-550	Global Entry and Competition Strategies
MGMT-320	Organizational Effectiveness Skills
MGMT-330	Design Thinking and Concept Development
MGMT-340	Business Ethics and Corporate Social Responsibility
MGMT-350	Entrepreneurship
MGMT-360	Digital Entrepreneurship
MGMT-450	Negotiations and Decision-Making
MGMT-470	Applied Entrepreneurship and Commercialization
MGMT-489	Seminar in Management
MGMT-550	Real World Business Solutions
MGMT-560	Strategic Management

Manufacturing Systems

Mary Ann Donato, Minor Advisor
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Program overview

The manufacturing systems minor provides students with a foundation in the professional study and practice of manufacturing operations. Students develop a required foundation of manufacturing processes and statistics, then they select three advanced manufacturing courses to fulfill the following requirements: quality engineering principles, engineering economics, lean production and supply systems, integrated design for manufacturing and assembly, or electronics manufacturing.

Notes about this minor:

- This minor is closed to students majoring in robotics and manufacturing engineering technology.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
Choose one of the following	
MFET-120	Manufacturing Processes
NETS-120	Manufacturing Processes
Choose one of the following	
MATH-251	Probability and Statistics I
STAT-145	Introduction to Statistics I
STAT-205	Applied Statistics
STAT-251	Probability and Statistics for Engineers I
Electives	
Choose three of the following	
MFET-420	Quality Engineering Principles
MFET-436	Engineering Economics
MFET-450	Lean Production & Supply Chain Operations
MFET-460	Integrated Design for Manufacture & Assembly
MFET-545	Electronics Manufacturing

Marketing

Peter Rosenthal, Minor Advisor
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Program overview

Marketing, sales, and customer-oriented aspects of the marketing minor broaden students' learning experiences and professional opportunities by creating a secondary focus in marketing.

Notes about this minor:

- This minor is closed to students majoring in business administration–marketing.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Course	
MKTG-230	Principles of Marketing
Electives	
Choose four of the following:	
MGMT-360	Digital Entrepreneurship
MKTG-310	Marketing Research
MKTG-320	Digital Marketing
MKTG-330	Global Marketing
MKTG-350	Consumer Behavior
MKTG-360	Professional Selling
MKTG-365	Marketing Analytics
MKTG-370	Advertising and Promotion Management
MKTG-410	Search Engine Marketing and Analytics
MKTG-430	Social Media Marketing
MKTG-489	Seminar In Marketing
MKTG-550	Marketing Strategy

Mathematics

Bernard Brooks, Minor Advisor
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Program overview

The mathematics minor is designed for students who want to learn new skills and develop new ways of framing and solving problems. It offers students the opportunity to explore connections among mathematical ideas and to further develop mathematical ways of thinking.

Notes about this minor:

- This minor is closed to students majoring in applied mathematics or computational mathematics.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining pre-requisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Prerequisites	
Students must complete:	
MATH-181	Project-Based Calculus I
or	
MATH-181A	Calculus I
or both the following	
MATH-171	Calculus A
MATH-172	Calculus B
plus one of the following	
MATH-182	Project-Based Calculus II (or equivalent)
MATH-190	Discrete Mathematics for Computing
MATH-200	Discrete Mathematics and Introduction to Proofs
Electives	
Choose five of the following, with at least one course from Group II, at least two courses must be at the 300-level or higher, and at least three courses must not be required by the student's major:	
Group I	
MATH-219	Multivariable Calculus*
MATH-221	Multivariable and Vector Calculus*
MATH-221H	Honors Multivariable and Vector Calculus*
MATH-231	Differential Equations†
MATH-233	Linear Systems and Differential Equations†
MATH-241	Linear Algebra‡
MATH-241H	Honors Linear Algebra‡
MATH-251	Probability and Statistics I
MATH-311	Linear Optimization
MATH-312	Nonlinear Optimization
MATH-321	Game Theory
MATH-326	Boundary Value Problems
MATH-331	Dynamical Systems
MATH-361	Combinatorics
MATH-367	Codes and Ciphers
MATH-381	Complex Variables
Group II	
MATH-341	Advanced Linear Algebra
MATH-351	Graph Theory
MATH-371	Number Theory
MATH-411	Numerical Analysis
MATH-412	Numerical Linear Algebra
MATH-431	Real Variables I
MATH-432	Real Variables II
MATH-441	Abstract Algebra I
MATH-442	Abstract Algebra II
MATH-461	Topology
MATH-505	Stochastic Processes

* Students may choose only one of these courses, but no more.
† Students may choose only one of these courses, but not both.
‡ Students may choose only one of these courses, but not both.

Mechanical Engineering

Alan Nye, Minor Advisor
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Program overview

The minor in mechanical engineering exposes students to the core foundations of the discipline. Courses help non-majors explore high-technology careers and communicate more effectively with engineers on project teams. The minor consists of a five-course sequence that builds on prerequisite knowledge from calculus and engineering mechanics. Elective courses provide additional depth of knowledge in an area of individual student interest.

Notes about this minor:

- This minor is closed to students majoring in mechanical engineering.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining pre-requisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Prerequisites	
Choose one of the following:	
MECE-102	Engineering Mechanics Lab
PHYS-206	University Physics I: AP-C Mechanics
PHYS-211	University Physics I
PHYS-211A	University Physics IA
MATH-182	Project-based Calculus II
Required Courses	
MECE-103	Statics
MECE-104	Engineering Design Tools
MECE-110	Thermodynamics I
Electives	
*Choose two of the following:**	
MECE-203	Strength of Materials I
MECE-205	Dynamics
MECE-210	Fluid Mechanics I
MECE-305	Materials Science with Applications
MECE-310	Heat Transfer I
MECE-317	Numerical Methods
MECE-320	System Dynamics
MECE-355	Fluid Mechanics II
MECE-360	Advanced Computational Techniques
MECE-402	Turbomachinery
MECE-403	Propulsion
MECE-405	Wind Turbine Engineering
MECE-406	Advanced Computer-Aided Design
MECE-409	Aerodynamics
MECE-410	Flight Dynamics
MECE-411	Orbital Mechanics
MECE-412	Aerostructures
MECE-421	Internal Combustion Engines

* At least one course must be taken at the 300-level or higher.

Media Arts and Technology

Barbara Birkett, Minor Advisor
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Program overview

The media arts and technology minor provides students with a five-course sampling of the media arts and technology major. After completing the required course, students may customize their selection of elective courses from diverse offerings related to media production, media architecture, media strategy, and media management.

Notes about this minor:

- This minor is closed to students majoring in media arts and technology.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Course	
MAAT-101	Cross Media Foundations
Required Course	
Choose one of the following:	
MAAT-368	Gravure and Flexography
MAAT-376	Lithographic Process
MAAT-541	Digital Print Processes
Electives	
Choose three of the following:	
MAAT-106	Typography and Page Design
MAAT-107	Imaging
MAAT-206	Print Production
MAAT-266	Advanced Workflow
MAAT-271	Webpage Production I
MAAT-272	Webpage Production II
MAAT-301	Database Publishing
MAAT-306	Information Architecture Publishing
MAAT-307	Media Business Management
MAAT-355	Media Law
MAAT-356	Strategies in Multimedia
MAAT-359	Media Distribution and Transmission
MAAT-363	Media Industries Analysis
MAAT-364	Digital News Systems Management
MAAT-371	Print Finishing Management
MAAT-377	Advanced Retouching and Restoration
MAAT-446	Magazine Publishing
MAAT-503	Operations Management in the Graphic Arts
MAAT-544	Color Management Systems
MAAT-550	Topics in Media Arts, Sciences, and Technology
MAAT-558	Package Printing
MAAT-561	Industry Issues and Trends
MAAT-563	Building Profit into Media Projects
MAAT-571	Digital Asset Management

Microelectronic Engineering

Michael Jackson, Minor Advisor
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Program overview

The microelectronic engineering minor provides basic integrated circuit fabrication skills to students from science and other engineering related disciplines whose career path may involve the semiconductor industry. RIT has one of the finest cleanrooms in the world specializing in undergraduate microelectronic education. This minor enables students to utilize these state-of-the-art facilities while they develop the skills they need for success in the industry.

Notes about this minor:

- This minor is closed to students majoring in microelectronic engineering.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Prerequisites*	
CHMG-131	General Chemistry for Engineers (or equivalent)
MATH-182	Project-based Calculus II
PHYS-212	University Physics II
Required Courses	
MCEE-201	IC Technology
MCEE-503	Thin Films
Electives	
Choose three of the following:	
EEEE-260	Introduction to Semiconductor Devices†
MCEE-205	Statistics and Design of Experiments
MCEE-360	Semiconductor Devices for Microelectronic Engineers†
MCEE-502	Semiconductor Process Integration
MCEE-505	Lithography Materials and Processes
MCEE-515	Nanolithography Systems
MCEE-550	CMOS Processing
MCEE-620	Photovoltaic Science and Engineering
MCEE-730	Metrology for Failure Analysis and Yield of ICs
MCEE-732	Microelectronics Manufacturing
MCEE-770	Microelectromechanical Systems

* Additional prerequisites may be required based on the choice of microelectronic engineering electives.
† Students may choose Introduction to Semiconductor Devices (EEEE-260) or Semiconductor Devices for Microelectronic Engineers (MCEE-360), but not both.

Military Studies and Leadership

Lt Col Jason A. Turner, Minor Advisor
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LTC Ryan Crosby, Minor Advisor
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Program overview

The minor in military studies and leadership provides students the opportunity to learn about military officer training and its mission to develop leaders for tomorrow's Armed Forces. Courses promote leadership and management, skills that can be employed in any career field, along with courses analyzing the military's role in national security affairs and foreign policy. Students choose the Air Force track or the Army track.

Notes about this minor:

- This minor is available to all RIT ROTC cadets. Students who are interested in this minor, but are not enrolled in the ROTC program, must gain approval and appropriate waivers before registering for courses.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Air Force Track	
Required Courses	
AERO-101	Heritage and Values I
AERO-102	Heritage and Values II
AERO-201	Team and Leadership Fundamentals I
AERO-202	Team and Leadership Fundamentals II
AERO-401	National Security/Leadership Responsibilities & Commissioning Preparation I
AERO-402	National Security/Leadership Responsibilities & Commissioning Preparation II
MGMT-300	Leading People & Effective Communication I
MGMT-301	Leading People & Effective Communication II
Army Track	
Required Courses	
ARMY-101	Introduction to Leadership
ARMY-102	Introduction to Tactical Leadership
ARMY-201	Innovative Team Leadership
ARMY-202	Foundations of Tactical Leadership
ARMY-301	Adaptive Team Leadership
ARMY-302	Applied Team Leadership
ARMY-401	Adaptive Team Leadership II
ARMY-402	Leadership in a Complex World

Mobile Design and Development

Bryan French, Minor Advisor
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Program overview

The minor in mobile design and development provides non-computing majors with a firm foundation in designing applications for mobile devices. There is an explosion in the types and amount of mobile devices and this minor is designed to provide students with the ability to design and implement cross-platform applications.

Notes about this minor:

- This minor is closed to students majoring in computer science, computing and information technologies, computing security, game design and development, human-centered computing, new media interactive development, software engineering, and web and mobile computing.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
ISTE-120	Computational Problem Solving in the Information Domain I
ISTE-140	Web & Mobile I
ISTE-240	Web & Mobile II
ISTE-252	Foundations of Mobile Design
ISTE-260	Designing the User Experience

Mobile Development

Bryan French, Minor Advisor
585-475-6511, bdfvks@rit.edu

Program overview

The minor in mobile development provides students enrolled in computing degree programs with experience designing and creating compelling native applications for mobile devices. Smartphones are outselling desktop computers. New mobile devices of varying sizes, types, and uses are being created everyday for both businesses and personal use and contexts. Developers are needed to create applications for these needs that perform well on the major mobile platforms.

Notes about this minor:

- This minor is closed to students majoring in web and mobile computing.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
ISTE-140	Web & Mobile I*
ISTE-240	Web & Mobile II†
ISTE-252	Foundations of Mobile Design
ISTE-340	Client Programming
ISTE-454	Mobile Application Development I‡
ISTE-456	Mobile Application Development II‡

* Website Design & Implementation (IGME-230) may be substituted for Web & Mobile I (ISTE-140).
† Rich Media Web Application Development I (IGME-330) may be substituted for Web & Mobile II (ISTE-240).
‡ Students may choose Mobile Application Development I (ISTE-454) or Mobile Application Development II (ISTE-456) as the final course in the minor.

Modern Language – Arabic

Hiroko Yamashita, Minor Advisor
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Program overview

This minor provides two full years of modern language and culture instruction to prepare students for living and working within an intercultural society both at home and abroad. The minor consists of five courses, either five language courses or a combination of language courses with up to two culture courses. Students with previous language skills must consult the minor adviser for placement evaluation before they register. Part of the requirements for this minor can be fulfilled by courses taken abroad.

Notes about this minor:

- This minor is closed to students majoring in international and global studies students who have chosen an area of study in Arabic language or a field specialization in the Middle East; or are native speakers of Arabic.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Electives	
Choose five consecutive language courses:	
MLAR-201	Beginning Arabic I
MLAR-202	Beginning Arabic II
MLAR-301	Intermediate Arabic I
MLAR-302	Intermediate Arabic II
MLAR-401	Advanced Arabic I
MLAR-402	Advanced Arabic II
Students can take up to two culture courses as part of the Arabic minor. In addition to culture courses listed for the minor, other courses from other departments or schools dealing with aspects of Arabic culture may be approved by the faculty adviser.	
ANTH-275	Global Islam
ANTH-365	Culture and Politics in the Middle East

Modern Language – Chinese

Zhong Chen, Minor Advisor
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Program overview

This minor provides two full years of modern language and culture instruction to prepare students for living and working within an intercultural society both at home and abroad. The minor consists of five courses, either five language courses or a combination of language courses with up to two culture courses. Students with previous language skills must consult the minor adviser for placement evaluation before they register. Part of the requirements for this minor can be fulfilled by courses taken abroad.

Notes about this minor:

- This minor is closed to students majoring in applied modern language and culture who have chosen the Chinese language track; students majoring in international and global studies students who have chosen an area of study in Chinese language or a field specialization in Asia; or are native speakers of Chinese.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Electives	
Choose five consecutive language courses:	
MLCH-201	Beginning Chinese I
MLCH-202	Beginning Chinese II
MLCH-301	Intermediate Chinese I
MLCH-302	Intermediate Chinese II
MLCH-310	Intermediate Conversational Chinese
MLCH-315	Intermediate Reading and Writing in Chinese
MLCH-401	Advanced Chinese I
MLCH-402	Advanced Chinese II
MLCH-410	Chinese for Science and Technology
MLCH-415	Professional Chinese
Students can take up to two culture courses as part of the Chinese minor. In addition to culture courses listed for the minor, other courses from other departments dealing with aspects of Chinese culture may be approved by the faculty adviser.	
ANTH-255	Regional Archaeology*
HIST-260	History of Premodern China
HIST-261	History of Modern China
HIST-365	Conflict in Modern East Asia
PHIL-311	East Asian Philosophy
POLS-350	Politics in East Asia

* This course may be taken when the topic focuses on East Asia.

Modern Language – French

Philippe Chavasse, Minor Advisor
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Program overview

This minor provides two full years of modern language and culture instruction to prepare students for living and working within an intercultural society both at home and abroad. The minor consists of five courses, either five language courses or a combination of language courses with up to two culture courses. Students with previous language skills must consult the minor adviser for placement evaluation before they register. Part of the requirements for this minor can be fulfilled by courses taken abroad.

Notes about this minor:

- This minor is closed to fluent native speakers of French.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Electives	
Choose five consecutive language courses:	
MLFR-201	Beginning French I
MLFR-202	Beginning French II
MLFR-301	Intermediate French I
MLFR-302	Intermediate French II
MLFR-310	French Oral Communication
MLFR-315	French Reading and Writing Proficiency
MLFR-401	Advanced French I
MLFR-402	Advanced French II
Students can take up to two culture courses as part of the French minor. In addition to culture courses listed for the minor, other courses from other departments dealing with aspects of French and Francophone cultures may also be approved by the faculty adviser.	
ARTH-364	Art in Paris
HIST-270	History of Modern France
HIST-275	Screening the Trenches: The History of WWI through Film
HIST-470	Science, Tech, & European Imperialism: 1800-1965
MLFR-151	Film, Comics, and French Culture
MLFR-351	French Films and Hollywood
MLFR-352	The French Heritage in Films
MLFR-410	French for Science and Technology
MLFR-415	Professional French

Modern Language – German

Ulrike Stroszeck, Minor Advisor
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Program overview

This minor provides two full years of modern language and culture instruction to prepare students for living and working within an intercultural society both at home and abroad. The minor consists of five courses, either five language courses or a combination of language courses with up to two culture courses. Students with previous language skills must consult the minor adviser for placement evaluation before they register. Part of the requirements for this minor can be fulfilled by courses taken abroad.

Notes about this minor:

- This minor is closed to fluent native speakers of German.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Electives	
Choose five consecutive language courses:	
HIST-280	History of Modern Germany
MLGR-201	Beginning German I
MLGR-202	Beginning German II
MLGR-301	Intermediate German I
MLGR-302	Intermediate German II
MLGR-310	German Conversation and Oral Practice
MLGR-315	German Grammar through Reading and Writing
MLGR-351	Modern German Culture through Film
MLGR-401	Advanced German I
MLGR-402	Advanced German II
MLGR-410	German for Science and Technology
MLGR-415	Professional German
Students can take up to two culture courses as part of the German minor. In addition to culture courses listed for the minor, other courses from other departments dealing with aspects of German and German-speaking cultures may also be approved by the faculty adviser.	
FNRT-210	Bach, Händel and the Baroque
FNRT-211	Era of Haydn, Mozart, & Beethoven
PHIL-417	Continental Philosophy

Modern Language – Italian

Elisabetta DAmanda, Minor Advisor
585-475-6522, exdgla@rit.edu

Program overview

This minor provides two full years of modern language and culture instruction to prepare students for living and working within an intercultural society both at home and abroad. The minor consists of five courses, either five language courses or a combination of language courses with up to two culture courses. Students with previous language skills must consult the minor adviser for placement evaluation before they register. Part of the requirements for this minor can be fulfilled by courses taken abroad.

Notes about this minor:

- This minor is closed to fluent native speakers of Italian.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Electives	
Choose five consecutive language courses:	
MLIT-201	Beginning Italian I
MLIT-202	Beginning Italian II
MLIT-301	Intermediate Italian I
MLIT-302	Intermediate Italian II
MLIT-401	Advanced Italian I
MLIT-402	Advanced Italian II
Students can take up to two culture courses as part of the Italian minor. In addition to culture courses listed for the minor, other courses from other departments dealing with aspects of Italian culture may be approved by the faculty adviser.	
ARTH-311	Art and Architecture of Italy: 1250-1400
ARTH-312	Art and Architecture of Italy: 1600-1750
ARTH-317	Art and Architecture in Florence and Rome: 15th Century
ARTH-318	Art and Architecture in Florence and Rome: 16th Century
MLIT-351	Italian Cinema from Neorealism to the New Millennium

Modern Language – Japanese

Yukiko Maru, Minor Advisor
585-475-4558, yxmgsl@rit.edu

Program overview

This minor provides two full years of modern language and culture instruction to prepare students for living and working within an intercultural society both at home and abroad. The minor consists of five courses, either five language courses or a combination of language courses with up to two culture courses. Students with previous language skills must consult the minor adviser for placement evaluation before they register. Part of the requirements for this minor can be fulfilled by courses taken abroad.

Notes about this minor:

- This minor is closed to students majoring in applied modern language and culture who have chosen the Japanese language track; students majoring in international and global studies students who have chosen an area of study in Japanese language or a field specialization in Asia; or are native speakers of Japanese.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Electives	
Choose five consecutive language courses:	
MLJP-201	Beginning Japanese I
MLJP-202	Beginning Japanese II
MLJP-301	Intermediate Japanese I
MLJP-302	Intermediate Japanese II
MLJP-310	Practical Reading and Speaking in Japanese
MLJP-315	Practical Writing and Speaking in Japanese
MLJP-401	Advanced Japanese I
MLJP-402	Creative Writing and Performance in Japanese
MLJP-404	Japanese Culture in Print
MLJP-405	Advanced Speaking in Japanese
MLJP-410	Japanese for Science and Technology
MLJP-415	Professional Japanese
Students can take up to two culture courses as part of the Japanese minor. In addition to culture courses listed for the minor, other courses from other departments dealing with aspects of Japanese culture, society, history, and art may also be approved by the faculty adviser.	
ANTH-255	Regional Archaeology*
FNRT-200	Anime
HIST-160	History of Modern East Asia
HIST-252	The United States and Japan
HIST-265	History of Modern Japan
HIST-266	History of Premodern Japan
HIST-450	Modern Japan in History, Fiction, and Film
HIST-465	Samurai in Word and Image
MLJP-351	Language in Japanese Society
MLJP-451	Structure of the Japanese Language
PHIL-311	East Asian Philosophy
POLS-350	Politics of East Asia

* Course may be used when topic focuses on East Asia.

Modern Language – Portuguese

Hiroko Yamashita, Minor Advisor
585-475-6074, hxygsl@rit.edu

Program overview

This minor provides two full years of modern language and culture instruction to prepare students for living and working within an intercultural society both at home and abroad. The minor consists of five courses, either five language courses or a combination of language courses with up to two culture courses. Students with previous language skills must consult the minor advisor for placement evaluation before they register. Part of the requirements for this minor can be fulfilled by courses taken abroad.

Notes about this minor:

- This minor is closed to fluent native speakers of Portuguese.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Electives	
Choose five consecutive language courses:	
MLPO-201	Beginning Portuguese I
MLPO-202	Beginning Portuguese II
MLPO-301	Intermediate Portuguese I
MLPO-302	Intermediate Portuguese II
MLPO-401	Advanced Portuguese I
MLPO-402	Advanced Portuguese II
Students can take up to two culture courses as part of the Portuguese minor. In addition to culture courses listed for the minor, other courses from other departments or schools dealing with aspects of Brazilian, Portuguese, or other Lusophone cultures may also be approved by the faculty adviser.	
ANTH-335	Culture and Politics in Latin America

Modern Language – Russian

Hiroko Yamashita, Minor Advisor
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Program overview

This minor provides two full years of modern language and culture instruction to prepare students for living and working within an intercultural society both at home and abroad. The minor consists of five courses, either five language courses or a combination of language courses with up to two culture courses. Students with previous language skills must consult the minor advisor for placement evaluation before they register. Part of the requirements for this minor can be fulfilled by courses taken abroad.

Notes about this minor:

- This minor is closed to fluent native speakers of Russian.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Electives*	
Choose five of the following:	
MLRU-201	Beginning Russian I
MLRU-202	Beginning Russian II
MLRU-301	Intermediate Russian I
MLRU-302	Intermediate Russian II
MLRU-401	Advanced Russian I
MLRU-402	Advanced Russian II
Students can take up to two culture courses as part of the Russian minor. In addition to culture courses listed for the minor, other courses from other departments dealing with aspects of Russian culture may be approved by the faculty advisor.	
ENGL-416	Topics in Global Literatures†
ENGL-418	Great Authors†

* Under special circumstances, and with permission of the minor advisor, up to two culture courses may be substituted for two sequential language courses. Students should contact the minor advisor for a list of approved culture courses.

† When course specifically pertains to Russian literature.

Modern Language – Spanish

Diane Forbes, Minor Advisor
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Program overview

This minor provides two full years of modern language and culture instruction to prepare students for living and working within an intercultural society both at home and abroad. The minor consists of five courses, either five language courses or a combination of language courses with up to two culture courses. Students with previous language skills must consult the minor advisor for placement evaluation before they register. Part of the requirements for this minor can be fulfilled by courses taken abroad.

Notes about this minor:

- This minor is closed to students majoring in applied modern language and culture who have chosen the Spanish language track; or are fluent native speakers of Spanish.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Electives	
Choose five consecutive language courses:	
MLSP-201A	Beginning Spanish IA*
MLSP-201B	Beginning Spanish IB*
MLSP-202	Beginning Spanish II
MLSP-301	Intermediate Spanish I
MLSP-302	Intermediate Spanish II
MLSP-305	Spanish for Health Care
MLSP-310	Spanish Grammar Review
MLSP-315	Hispanic Culture & Civilization
MLSP-401	Advanced Spanish I
MLSP-402	Advanced Spanish II
MLSP-410	Spanish for Science and Technology
MLSP-415	Professional Spanish
Students can take up to two culture courses as part of the Spanish minor. In addition to culture courses listed for the minor, other courses from other departments dealing with aspects of Hispanic cultures may also be approved by the faculty advisor.	
ANTH-235	Immigration to the U.S.
ANTH-255	Regional Archaeology†
ANTH-335	Culture and Politics in Latin America
ANTH-350	The Global Economy and the Grassroots
ARTH-561	Latin American Art
ARTH-572	Art of the Americas
ENGL-416	Topics in Global Literatures‡
ENGL-418	Great Authors‡
MLSP-351	Gender and Sexuality in Hispanic Studies
MLSP-352	Caribbean Cinema
MLSP-353	Trauma and Survival in First-person Narrative

* Students who begin the language sequence at the Beginning I Level will take either Beginning Spanish IA (MLSP-201A) or Beginning Spanish 1B (MLSP-201B). Placement will be determined in consultation with the department.
† When course focuses on Mesoamerica or Latin America.
‡ When course deals with Spanish and/or Latin American literature.

Museum Studies

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The museum studies minor provides students with a foundation in the history and practice of the museum as an institution and in the history, theory, and practice of collecting, exhibiting, and preserving the cultural heritage that defines the purpose and function of the museum. Courses cover a wide range of topics that are relevant to contemporary museology: the history of museums and collecting, the technical study of art and materials, the history and theory of exhibitions, interactive design, public history, the rise of the museum profession, legal and ethical concerns, and conservation.

Notes about this minor:

- This minor is closed to students majoring in museum studies.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
MUSE-220	Introduction to Museums and Collecting
MUSE-221/HIST-221	Introduction to Public History
Electives	
*Choose three of the following:**	
FNRT-388	Gender and Contemporary Art
HIST-322	Monuments and Memory
HIST-323	America's National Parks
HIST-324	Oral History
HIST-325	Museums and History
MUSE-224	History & Theory of Exhibitions
MUSE-225	Museums & the Digital Age
MUSE-340	Introduction to Archival Studies
MUSE-341	Museum Education & Interpretation
MUSE-354	Exhibition Design
MUSE-358	Legal and Ethical Issues for Collecting Institutions
MUSE-360	Visitor Engagement & Museum Technologies
MUSE-361	Tablet to Tablet: A History of Books
MUSE-388	Gender and Contemporary Art

* At least one elective course must be a MUSE course and one must be a HIST course.

Music and Technology

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The music and technology minor includes courses in music theory, music history, contemporary and historical musical instrument technology, acoustics, audio engineering, music for media, and music performance. This minor provides students with an avenue to integrate their technological interests and skills with music.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
EEET-261	Fundamentals of Audio Engineering
Plus one of the following:	
FNRT-205	Music Theory 1
FNRT-208	Composing for Media
Electives	
Choose three of the following:†	
EEET-361	Modern Audio Production
FNRT-201	Music in the US
FNRT-202	Studies in World Music
FNRT-203	American Popular & Rock Music
FNRT-204	Music & the Stage
FNRT-209	Medieval and Renaissance Music
FNRT-210	Bach, Handel, and the Baroque
FNRT-211	Era of Haydn, Mozart & Beethoven
FNRT-212	Electronic Music Production
FNRT-250	RIT Singers*
FNRT-251	RIT Orchestra*
FNRT-252	RIT Concert Band*
FNRT-253	World Music Ensemble*
FNRT-254	RIT Jazz Ensemble*
FNRT-255	RIT Chamber Orchestra*
FNRT-320	Music of the Romantic Era
FNRT-321	Music Since 1900
FNRT-322	Survey of Jazz
FNRT-323	Survey of African-American Music
FNRT-324	Sounds of Protest
FNRT-325	American Popular Song
FNRT-326	History & Technology of Musical Instruments
FNRT-328	Composing For Video Games and Interactive Media
FNRT-485	Music Theory 2
IGME-570	Digital Audio Production
IGME-571	Interactive Game and Audio
PRFL-327	American Musical Theater

* Each of these ensembles is one semester credit hour. Three semesters of participation are required to complete one minor course.
† It is strongly recommended that students select two music electives and one technology elective. At least two elective courses must be taken at the 300-level or higher.

Music Performance

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The music performance minor combines courses in music theory, music history, and world music with practical application through ensemble participation and applied music study. This combination of the academic and the practical offers students a more profound understanding of the art of music, and in a broader sense, an introduction to cultural development and the communication of ideas. A total of 15 credit hours from the suggested list of courses must be earned for the minor, with three credits in music theory and three credits from ensemble participation, required. Students can substitute 3 credits of Applied Music for three credits of ensemble, upon approval from the department of performing arts.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Course	
FNRT-205	Music Theory I
Ensemble Courses†	
Students choose at least three semester credits of the following one credit courses:	
FNRT-250	RIT Singers
FNRT-251	RIT Orchestra
FNRT-252	RIT Concert Band
FNRT-253	World Music Ensemble
FNRT-254	RIT Jazz Ensemble
FNRT-255	RIT Chamber Orchestra
FNRT-256	Applied Music
Electives	
*Choose three of the following:**	
FNRT-201	Music in the US
FNRT-202	Studies in World Music
FNRT-203	American Popular & Rock Music
FNRT-204	Music & the Stage
FNRT-208	Composing for Media
FNRT-209	Medieval and Renaissance Music
FNRT-210	Bach, Handel, and the Baroque
FNRT-211	Era of Haydn, Mozart & Beethoven
FNRT-212	Electronic Music Production
FNRT-320	Music of the Romantic Era
FNRT-321	Music Since 1900
FNRT-322	Survey of Jazz
FNRT-323	African American Music
FNRT-324	Sounds of Protest
FNRT-325	American Popular Song
FNRT-326	History & Technology of Musical Instruments
FNRT-327	American Musical Theater
FNRT-328	Composing for Video Games and Interactive Media
FNRT-485	Music Theory 2
SOIS-240	The Harmonica & the Blues

* A minimum of two courses must be taken at the 300-level or above.
† Three credits in Music Theory and three credits of ensemble participation are required.

Networking and Systems Administration

Lawrence Hill, Minor Advisor
585-475-7064, lwhfac@rit.edu

Program overview

This minor provides computing students with a firm foundation in networking and/or systems administration. Computer networks and the systems attached to these networks have become ubiquitous. Therefore, knowledge of how computer networks function, their administration, and the administration of the systems attached to them can be of value to every computing professional since their work is impacted in some way by computer networks and computer systems. Students may choose between two tracks: networking or system administration.

Notes about this minor:

- This minor is closed to students majoring in computing and information technology or those majoring in computing security who have chosen the system administration track.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Prerequisites	
Students choose a two course introductory programming sequence*	
CSCI-141	Computer Science I
CSCI-142	Computer Science II
or	
ISTE-120	Computational Problem Solving in the Information Domain I
ISTE-121	Computational Problem Solving in the Information Domain II
or	
ISTE-100	Computational Problem Solving in the Network Domain I
ISTE-101	Computational Problem Solving in the Network Domain II
or	
IGME-105	Game Development and Algorithmic Problem Solving I
IGME-106	Game Development and Algorithmic Problem Solving II
or	
CPET-121	Computational Problem Solving I
CPET-321	Computational Problem Solving II
Required Courses	
NSSA-102	Computer Systems Concepts
NSSA-241	Introduction to Routing and Switching
Tracks	
Students choose one track and complete all three courses	
Networking	
NSSA-242	Wireless Networking
NSSA-441	Advanced Routing and Switching
NSSA-443	Network Design and Performance
Systems Administration	
NSSA-220	Task Automation Using Interpretive Languages
NSSA-221	Systems Administration I
Choose one of the following two courses:	
NNSA-320	Configuration Management
NSSA-423	Scalable Computing Architectures

* An equivalent sequence may be approved by an advisor.

Nutritional Sciences

Elizabeth Ruder, Minor Advisor
585-475-2402, ehrihst@rit.edu

Program overview

The nutritional sciences minor enhances a student's major with a focus on nutrients and human nutrition issues. The study of nutrients includes knowledge about their sources, metabolism, and relationship to health. Nutritional status impacts medicine, health care policy and promotion, global relationships, issues in anthropology and sociology, exercise science, food systems, hospitality, and behavioral health.

Notes about this minor:

- This minor is closed to students majoring in dietetics and nutrition or nutritional sciences.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
NUTR-215	Contemporary Nutrition
Choose one of the following course sequences	
MEDS-250, 251	Human Anatomy and Physiology I, II
MEDG-101, 102, 103, 104	Human Biology I, II and Human Biology Laboratory I, II
Electives	
Choose two of the following	
BIOL-111	Science in the Garden
BIOL-218	Biology of Plants
BIOL-305	Plants, Medicine and Technology
BIOL-403	Fundamentals of Plant Biochemistry and Pathology
BIOL-414	Animal Nutrition
HSPT-215	Principles of Food Production and Service
NUTR-205	Complementary and Integrative Approaches for Well-Being
NUTR-300	Sports Nutrition
NUTR-333	Techniques of Dietetics Education
NUTR-510	Integrative Approaches to Health
NUTR-525	Medical Nutrition Therapy I
NUTR-526	Medical Nutrition Therapy II
NUTR-554	Life Cycle Nutrition
NUTR-580	Global Food and Nutrition Perspectives

Optical Science

Zoran Ninkov, Minor Advisor
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Program overview

Optical science techniques are used in a variety of consumer products (digital cameras, CD players), communication technologies (optical fibers), medical imaging (infrared imaging), and the sciences (surveillance, remote sensing, astronomical systems). This minor can be an important complement to studies in electrical and microelectronic engineering, the biological sciences, physics, chemistry, mathematics, technical photography, and various majors in the field of applied science and technology.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Prerequisites	
MATH-181	Project-Based Calculus I (or equivalent)
MATH-182	Project-Based Calculus II (or equivalent)
PHYS-211	University Physics I (or equivalent)
PHYS-212	University Physics II (or equivalent)
Electives	
Students must complete one course from Group A, one course from Group B, one course from Group C and any two courses from Group D	
Group A	
IMGS-321	Geometric Optics
IMGS-322	Physical Optics
MCEE-515	Nanolithography Systems
PHPS-211	Photographic Optics
PHYS-365	Physical Optics
Group B	
IMGS-251	Radiometry
PHYS-408	Laser Physics
Group C	
IMGS-451	Imaging Detectors
IMGS-528	Design and Fabrication of Solid State Cameras
IMGS-542	Testing of Focal Plane Arrays
Group D	
CHMP-442	Physical Chemistry II
EEEE-374	EM Fields and Transmission Lines
IMGS-221	Vision & Psychophysics
IMGS-322	Physical Optics
IMGS-341	Interaction Between Light and Matter
IMGS-442	Imaging Systems Analysis and Modeling
MCEE-515	Nanolithography Systems
PHYS-213	Modern Physics I
PHYS-365	Physical Optics
PHYS-412	Advanced Electricity and Magnetism
PHYS-516	Scanning Electron Microscopy

Alternate courses may be substituted for those listed above with the approval/permission of the minor coordinator.

Packaging Science

Stefanie Soroka, Minor Advisor
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Program overview

The packaging science minor offers courses covering a broad range of packaging activities, including development/design, testing, marketing, and production. Related legal, economic, and environmental/sustainability concerns are also addressed. Students from majors such as engineering, engineering technology, multidisciplinary studies, management, marketing, international business, industrial design, and print media could all benefit from the packaging science minor.

Notes about this minor:

- This minor is closed to students majoring in packaging science.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
PACK-301	Packaging Materials
PACK-302	Packaging Containers
Electives	
Choose three of the following:	
GRDE-431	Packaging Systems Collaborative
PACK-152	Packaging Design II
PACK-430	Packaging Regulations
PACK-530	Packaging Sustainability and the Environment
PACK-546	Pharmaceutical & Medical Packaging
PACK-547	Pharmaceutical and Medical Packaging Lab
PACK-550	Packaging Machinery
PACK-555	Import/Export Packaging
PACK-560	Converting and Flexible Packaging

Philosophy

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The philosophy minor provides students with the critical skill of philosophical analysis while they take courses on a wide variety of issues central to everyone's existence. Students get a solid grasp of the major philosophers, movements, and topics of philosophical debate that continue to shape our lives and how we act.

Notes about this minor:

- This minor is closed to students majoring in philosophy.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Electives	
*Choose five of the following:**	
PHIL-201	Ancient Philosophy
PHIL-202	Foundations of Moral Philosophy
PHIL-203	Modern Philosophy
PHIL-205	Symbolic Logic
PHIL-301	Philosophy of Religion
PHIL-303	Philosophy of Art/Aesthetics
PHIL-304	Philosophy of Law
PHIL-305	Philosophy of Peace
PHIL-306	Professional Ethics
PHIL-307	Philosophy of Technology
PHIL-308	Environmental Philosophy
PHIL-309	Feminist Theory
PHIL-310	Theories of Knowledge
PHIL-311	East Asian Philosophy
PHIL-312	American Philosophy
PHIL-313	Philosophy of Film
PHIL-314	Philosophy of Vision and Imaging
PHIL-315	Responsible Knowing
PHIL-316	Bioethics and Society
PHIL-317	Renaissance Philosophy
PHIL-401	Great Thinkers
PHIL-402	Philosophy of Science
PHIL-403	Social and Political Philosophy
PHIL-404	Philosophy of Mind
PHIL-405	Philosophy of the Social Sciences
PHIL-406	Contemporary Philosophy
PHIL-407	Philosophy of Action
PHIL-408	Critical Social Theory
PHIL-409	Existentialism
PHIL-410	Medieval Philosophy
PHIL-411	Metaphysics
PHIL-412	Nineteenth Century Philosophy
PHIL-413	Philosophy of Literature
PHIL-414	Philosophy of Language
PHIL-415	Ethical Theory
PHIL-416	Seminar in Philosophy
PHIL-417	Continental Philosophy
PHIL-449	Topics in Philosophy
PHIL-571	Honors Philosophy

* At least one course must be at the 400 level.

Photography

Paul Muenzer, Minor Advisor
585-475-6994, pjmiao@rit.edu

Program overview

The photography minor explores the diverse subject of photography from either an art or science perspective. Students develop both technical and aesthetic skills needed for creative, communication, or scientific applications. Students choose one of the following areas of emphasis: general photography, fine art photography, photojournalism, or photo sciences. Course selections are based upon career goals and aspirations, personal interests, and the availability of photography courses. Courses are selected from the School of Photographic Arts and Sciences's comprehensive portfolio of offerings in photographic sciences, photojournalism, applied photography, and fine art photography.

Notes about this minor:

- This minor is closed to students majoring in photographic and imaging arts (all options) and photographic sciences.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Prerequisite	
PHAR-160	Intro to Digital Photography
Required Course	
PHAR-161	Intermediate Digital Photography for Non-Majors
Electives	
Students choose an area of emphasis from below. Students must complete the required course plus three elective courses within that area. At least two elective courses must be at the 300 level or higher.	
General Photography	
Required course	
PHAR-201	Elements of Fine Art Photography
Elective courses	
IMSM-301	Imaging Systems
IMSM-302	Color Management Technology
PHAR-150	Introduction to Film Photography
PHAR-204	Elements of Visual Media
PHAR-211	Histories and Aesthetics of Photography I
PHAR-212	Histories and Aesthetics of Photography II
PHAR-363	Black and White Photography I
PHAR-364	Black and White Photography II
PHFA-359	The Constructed Image
PHFA-511	Contemporary Issues
PHFA-565	Color Photography Seminar
PHFA-576	Preservation Care of Photographs
SOFA-127	Digital Filmmaking
Fine Art Photography	
Required course	
PHAR-201	Elements of Fine Art Photography
Elective courses	
PHAR-150	Introduction to Film Photography
PHAR-211	Histories and Aesthetics of Photography I
PHAR-212	Histories and Aesthetics of Photography II
PHAR-363	Black and White Photography I
PHAR-364	Black and White Photography II
PHFA-359	The Constructed Image
PHFA-511	Contemporary Issues
PHFA-565	Color Photography Seminar
PHFA-576	Preservation Care of Photographs
SOFA-127	Digital Filmmaking
Photojournalism	
Required course	
PHAR-203	Elements of Photojournalism

COURSE	
Elective courses	
PHPJ-302	Photojournalism I
PHPJ-306	Picture Editing I
PHPJ-307	Ethics and Law
PHPJ-315	Non-Fiction Multimedia
PHPJ-356	Alternate Influences
PHPJ-455	Advanced Non-Fiction Multimedia
PHPJ-476	Picture Editing II
Photo Sciences	
Required course–Choose one of the following:	
PHPS-201	Scientific Photography I
PHPS-202	Scientific Photography II
Elective courses	
IMSM-301	Imaging Systems
IMSM-302	Color Management Technology
PHPS-106	Photographic Technology I
PHPS-107	Photographic Technology II
PHPS-277	Survey of Non-Conventional Imaging
PHPS-529	High Speed Photography
PHPS-539	Photographic Instrumentation
PHPS-541	High Magnified Imaging I
PHPS-542	High Magnified Imaging II
PHPS-546	Ophthalmic Imaging I
PHPS-563	Forensic Photography

Physics

Dawn Hollenbeck, Minor Advisor
585-475-6652, dmhsps@rit.edu

Program overview

In a broad sense, the aim of physics as a discipline is to develop interconnected unifying threads bridging the vast number of seemingly diverse phenomena observed in the physical world around us. The minor provided students with the opportunity for additional study in physics in order to build a secondary area of expertise in support of their major or other areas of interest.

Notes about this minor:

- The minor is closed to students majoring in physics.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Prerequisites	
MATH-181	Project-Based Calculus I
MATH-182	Project-Based Calculus II
PHYS-211	University Physics I
PHYS-212	University Physics II
Required Courses	
PHYS-213	Modern Physics I
PHYS-283	Vibrations and Waves
Electives	
Choose three of the following (at least one must come from Group A and at least one from Group B):	
Group A	
PHYS-315	Experiments in Modern Physics
PHYS-316	Advanced Laboratory in Physics
PHYS-365	Physical Optics
PHYS-377	Advanced Computational Physics
Group B	
PHYS-214	Modern Physics II
PHYS-320	Mathematical Methods in Physics
PHYS-330	Classical Mechanics
PHYS-360	Introduction to Chaotic Dynamics
PHYS-408	Laser Physics
PHYS-411	Electricity and Magnetism
PHYS-414	Quantum Mechanics
PHYS-440	Thermal and Statistical Physics

* At least two courses must be taken at the 300-level or higher.

Plastics Engineering and Technology

Mary Ann Donato, Minor Advisor
585-475-7603, madast@rit.edu

Program overview

The plastics engineering and technology minor provides students with a foundation in the professional study of plastic materials and their applications. This minor provides a broad perspective in plastics and polymer engineering/technology including the preparation of polymeric materials and polymer composites, their characterization, and the design and processing of these materials into useful products. The minor also includes a plastics characterization laboratory experience.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
CHMG-131	General Chemistry for Engineers*
MCET-210	Foundations of Non-Metallic Materials
MCET-211	Characterization of Non-Metallic Materials Lab
MCET-574	Plastics and Composites Materials
MCET-575	Plastics and Composites Materials Laboratory
MCET-580	Plastics Manufacturing Technology
MCET-583	Plastics Product Design

* General & Analytical Chemistry I (CHMG-141) may be used as an equivalent course.

Political Science

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The political science minor emphasizes the interdependence of domestic politics and international relations in the age of globalization. The minor brings together components of American politics, international relations, and comparative politics to provide students with both national and global perspectives on politics. Perhaps most important, the political science minor seeks to help students make sense of the increasingly complicated political environment that confronts them in their role as citizens.

Notes about this minor:

- The minor is closed to students majoring in political science.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Course	
Choose one of the following:	
POLS-110	American Politics
POLS-120	Introduction to International Relations
Electives*	
American Politics	
Choose two of the following:	
POLS-115	Ethical Debates Amer Politics
POLS-200	Law & Society
POLS-250	State & Local Politics
POLS-290	Politics and the Life Sciences
POLS-295	Cyberpolitics
POLS-300	Rhetoric & Political Deliberation
POLS-305	Political Parties and Voting
POLS-310	The Congress
POLS-315	The Presidency
POLS-320	American Foreign Policy
POLS-340	Medicine, Morality, and Law
POLS-345	Politics and Public Policy
POLS-355	Political Leadership
POLS-365	Anarchy, Technology & Utopia
POLS-415	Evolution and the Law
POLS-420	Primate Politics
POLS-425	Constitutional Law
POLS-430	Constitutional Rights and Liberties
POLS-435	American Political Thought
POLS-460	Classical Constitutionalism, Virtue & Law
POLS-465	Modern Constitutionalism, Liberty & Equality
POLS-481	Women in Politics
POLS-485	Politics Through Fiction
POLS-490	Politics Through Film
POLS-525	Special Topics in Political Science
International Relations	
Choose two of the following:	
POLS-205	Ethics in International Politics
POLS-210	Comparative Politics
POLS-215	Tech, Ethics & Global Politics
POLS-220	Global Political Economy
POLS-285	Environmental Ethics and Political Ecology
POLS-320	American Foreign Policy
POLS-325	International Law and Organizations
POLS-330	Human Rights in Global Perspective
POLS-335	Politics in Developing Countries
POLS-350	Politics of East Asia
POLS-351	Politics of China
POLS-360	International Political Thought
POLS-370	Cyberwar, Robots, & the Future of Conflict
POLS-375	Grand Strategy
POLS-390H	Greece and the Political Imagination
POLS-410	Evolutionary International Relations
POLS-440	War and the State
POLS-445	Terrorism and Political Violence
POLS-455	Comparative Public Policy

COURSE	
POLS-525	Special Topics in Political Science
POLS-541	Peacekeeping and Conflict Transformation
POLS-542	War, Diplomacy, and State-Building

* At least two courses must be at the 300 level or higher.

Psychology

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The minor in psychology provides the opportunity for students to take courses comprising the study of behavior. Students may select from among a variety of courses, which enables students to customize their minor while getting wide exposure to important concepts, issues, methods, and theories in psychology.

Notes about this minor:

- The minor is closed to students majoring in psychology.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Electives	
Choose five of the following:	
PSYC-221	Abnormal Psychology
PSYC-221H	Honors Abnormal Psychology
PSYC-222	Biopsychology
PSYC-223	Cognitive Psychology
PSYC-224	Perception
PSYC-225	Social Psychology
PSYC-226	Developmental Psychology
PSYC-231	Death and Dying
PSYC-233	History & Systems in Psychology
PSYC-234	Industrial and Organizational Psychology
PSYC-235	Learning and Behavior
PSYC-236	Personality
PSYC-237	Psychology of Women
PSYC-238	Psychology of Religion
PSYC-239	Positive Psychology
PSYC-240	Human Sexuality
PSYC-241	Health Psychology
PSYC-300	Topics in Psychology

Public Policy

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The public policy minor provides students with a foundation in the field of public policy and allows them to make connections between public policy and other fields of study. The minor underscores the role of public policy on science and technology-based problems. Students obtain a deeper understanding of public policy and the policy making process, how policy analysis impacts policymaking, and how public policies operate within a number of specific science or technological domains.

Notes about this minor:

- The minor is closed to students majoring in public policy.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Course	
Choose one of the following:	
PUBL-101	Foundations of Public Policy
PUBL-201	Ethics, Values & Public Policy
STSO-201	Science and Technology Policy
Electives	
*Choose four of the following:**	
PUBL-101	Foundations of Public Policy
PUBL-201	Ethics, Values & Public Policy
PUBL-210	Introduction to Qualitative Policy Analysis
PUBL-301	Public Policy Analysis
PUBL-302	Decision Analysis
PUBL-363	Cyber Security Policy and Law
PUBL-510	Technology Innovation and Public Policy
PUBL-520	Information & Communications Policy
PUBL-530	Energy Policy
PUBL-531	Climate Change: Science, Technology and Policy
PUBL-589	Topics in Public Policy
STSO-201	Science and Technology Policy
STSO-341	Biomedical Issues: Science and Technology
STSO-421	Environmental Policy

* At least two courses must be taken at the 300-level or higher.

Robotics and Automation

Mary Ann Donato, Minor Advisor
585-475-7603, madast@rit.edu

Program overview

The robotics and automation minor provides students with a foundation in the professional study and practice of programming, using, and working with industrial robots and the industrial automation systems used in the manufacturing environment. It provides a broad perspective that includes automation components, automation systems (hardware and software), industrial robots (hardware and software), and specific issues to implementing industrial robotic systems in the electronics manufacturing environment. It also includes learning and practice in developing automation/robotic code to accomplish specific functions across the major industrial automation software tools.

Notes about this minor:

- This minor is closed to students majoring in robotics and manufacturing engineering technology.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
Choose one of the following	
CVET-210	Statics
MCET-220	Principles of Statics
MECE-103	Statics
MFET-340	Automation Control Systems
MFET-341	Automation Control Systems Lab
MFET-460	Integrated Design for Manufacture & Assembly
MFET-545	Electronics Manufacturing
MFET-585	Robots & Automation
MFET-586	Robots & Automation Lab

Science, Technology, and Society

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

This minor integrates the studies of human society, science, and technology in their social content and context. The minor bridges the humanities and social sciences to provide better understanding of the ways in which science, technology, and society are mutually interacting forces in our world. Students learn how to analyze the social institutions, the built environment, and their role in creating them. This minor enhances a student's ability to contribute to the development of science and technology in ways that are historically, culturally, and ethically informed.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Course	
STSO-510	Interdisciplinary Capstone Seminar*
Electives	
Choose four of the following:†	
ENGL-419	Literature and Technology
PHIL-402	Philosophy of Science
PUBL-530	Energy Policy
STSO-140	Science, Technology, and Values
STSO-201	Science and Technology Policy
STSO-240	Social Consequences of Technology
STSO-246	History of Women in Science and Engineering
STSO-321	Face of the Land
STSO-335	Industry, Environment, and Community in Rochester
STSO-341	Biomedical Issues: Science and Technology
STSO-342	Gender, Science, and Technology
STSO-345	Makers of Modern Science
STSO-346	Technology in American History
STSO-425	Nature and Quantification
STSO-441	Cyborg Theory: (Re)thinking the Human Experience in the 21st Century
STSO-442	Science, Technology, and Society Classics
STSO-445	The Natural Sciences in Western History
STSO-489	Topics in Science, Technology, & Society

* Interdisciplinary Capstone Seminar (STSO-510) requires enrollment in the minor and the completion of two courses from the minor.
† At least one course must be at the 300 level or higher.

Software Engineering

Megan Lehman, Minor Advisor
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Program overview

Students in disciplines with a heavy reliance on software applications may be interested in pursuing a minor in software engineering. The minor provides a broad view of the software engineering landscape including introductory material and fundamentals in design and process. Students deepen their software design skills and learn techniques for working on a productive software engineering team by choosing electives in design or process to gain a deeper understanding of one of these areas, or they may choose to balance their courses for a broad view of both topics.

Notes about this minor:

- The minor is closed to students majoring in software engineering.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.
- Notations may appear in the curriculum chart below outlining prerequisites, co-requisites, and other curriculum requirements (see footnotes).

Curriculum

COURSE	
Required Courses	
SWEN-261	Introduction to Software Engineering
SWEN-262	Engineering of Software Subsystems
SWEN-256	Software Process and Project Management
Electives	
Choose two courses from the following groups:	
Design	
SWEN-331	Engineering Secure Software
SWEN-342	Engineering of Concurrent and Distributed Software Systems
SWEN-343	Engineering of Enterprise Software Systems
SWEN-440	Software System Requirements and Architectures
SWEN-444	Human-Centered Requirements and Design
SWEN-549	Software Engineering Design Seminar
SWEN-563	Real-Time and Embedded Systems
SWEN-564	Modeling of Real-Time Systems
SWEN-565	Performance Engineering of Real-Time and Embedded Systems
SWEN-567	Hardware/Software Co-Design for Cryptographic Applications
Process	
SWEN-350	Software Process and Product Quality
SWEN-356	Trends in Software Development Processes
SWEN-559	Software Engineering Process Seminar
Other	
SWEN-220	Mathematical Models of Software
SWEN-352	Software Testing
SWEN-590	Software Engineering Seminar

Structural Design

Amanda Bao, Minor Advisor
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Program overview

The structural design minor creates a focus on the different types of structures and materials used in design. It also introduces related design codes. The minor is designed to accommodate students majoring in mechanical engineering technology or mechanical engineering.

Notes about this minor:

- The minor is closed to students majoring in civil engineering technology
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
CVET-230	Elementary Structures
CVET-332	Structural Analysis with STAAD
CVET-431	Structural Design – Steel
CVET-432	Structural Design – Reinforced Concrete
Elective	
Choose one of the following:	
CVET-433	Structural Timber Design
CVET-434	Design of Highway Bridges
CVET-435	Prestressed Concrete
CVET-436	Masonry Structures

Supply Chain Management

Peter Rosenthal, Minor Advisor
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Program overview

The supply chain management minor provides students with the knowledge to assist in developing and implementing efficient supplier systems in order to maximize customer value. Supply chain management is the coordination of the associated processes required both within a business, as well as across businesses and suppliers, to deliver products and services–from raw materials to customer delivery. The minor provides a background in areas commonly needed to support supply chain management, including business strategy, information systems, lean/quality management, customer service, purchasing, negotiations, contracts, forecasting, inventory management, logistics, and project management. Completion of this minor provides students with Lean Six-Sigma Yellow Belt body of knowledge.

Notes about this minor:

- The minor is closed to students majoring in supply chain management.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Prerequisites	
Choose one of the following:	
DECS-310	Operations Management
ISEE-420	Production Planning and Scheduling
Required Courses	
DECS-435	Supply Chain Management Fundamentals
ISEE-582	Lean Six Sigma Fundamentals
MGIS-450	Enterprise Systems
Electives	
Choose two of the following:	
BLEG-300	Business Law II
DECS-350	Project Management
DECS-445	Managing Supplier Relations
INTB-300	Cross-Cultural Management
INTB-315	Exporting and Global Sourcing
INTB-550	Global Entry and Competition Strategies
ISEE-350	Engineering Management
ISEE-626	Contemporary Production Systems
ISEE-703	Supply Chain Management
ISEE-704	Logistics Management
ISEE-728	Production Systems Management
MGIS-320	Database Management Systems
MGIS-330	Systems Analysis and Design
MGIS-355	Business Intelligence
MGMT-450	Negotiations and Decision Making

Surface Mount Electronics Manufacturing

Mary Ann Donato, Minor Advisor
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Program overview

The surface mount electronics manufacturing minor provides students with a foundation in the professional study and practice of the manufacturing of electronic circuits with components placed directly on printed circuit boards (surface mount technology). This minor provides a broad perspective that includes surface mount devices, assembly, lean production, and quality topics. It also includes learning and practice in electronic component layout, placement, high volume production, materials, circuit board design for manufacturability (design for manufacturability - DFM) and process controls.

Notes about this minor:

- This minor is closed to students majoring in robotics and manufacturing engineering technology.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
Choose one of the following:	
MATH-251	Probability and Statistics I
STAT-145	Introduction to Statistics I
STAT-205	Applied Statistics
STAT-251	Probability and Statistics for Engineers I
MFET-420	Quality Engineering Principles
MFET-450	Lean Production & Supply Chain Operations
MFET-545	Electronics Manufacturing
MFET-556	Advanced Concepts in Semiconductor Packaging

Sustainable Product Development

Brian Thorn, Minor Advisor
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Program overview

This multidisciplinary minor is for students interested in exploring issues associated with developing and delivering sustainable product systems. Courses enhance the understanding of the three dimensions of sustainability (economic, ethical, and environmental), develop awareness of the need for more sustainable approaches to product development, and explore strategies for developing and delivering sustainable product systems.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
ISEE-345	Engineering Economy*
ISEE-785	Fundamentals of Sustainable Engineering
ISEE-786	Lifecycle Assessment
Electives	
Choose two courses from the following groups (at least one course must come from the social context group):	
Social Context	
ANTH-280	Sustainable Development
ECON-520	Environmental Economics
PUBL-510	Technological Innovation and Public Policy
PUBL-530	Energy Policy
SOIS-333	Wicked Problems
STSO-120	Introduction to Environmental Studies
STSO-140	Science, Technology, and Values
STSO-201	Science and Technology Policy
STSO-220	Environment and Society
STSO-240	Social Consequences of Technology
STSO-321	Face of the Land
STSO-326	History of Ecology and Environmentalism
STSO-330	Energy and the Environment
STSO-421	Environmental Policy
STSO-422	Great Lakes
STSO-521	Biodiversity and Society
STSO-550	Sustainable Communities
Technical	
EEEE-221	Clean & Renewable Energy Systems & Sources
EEET-251, 252	Green Energy Systems and Lab
ESHS-290	Social Responsibility and Environmental Sustainability
ESHS-310	Solid and Hazardous Waste Management
ESHS-330	Industrial Wastewater Management
ESHS-525	Air Emissions Management
ESHS-565	Sustainable Product Stewardship
ISEE-684	Engineering and the Developing World
ISEE-787	Design for the Environment
MCEE-520	Photovoltaic Science and Engineering
MCET-560	Alternative Energy
MCET-580	Plastics Manufacturing Technology
MCET-583	Plastics Product Design
MECE-348	Contemporary Issues: Energy and the Environment
MECE-550/650	Sustainable Energy Use in Transportation
MECE-629/529	Renewable Energy Systems
PACK-530	Packaging Sustainability and the Environment

* Students majoring in industrial engineering must complete an alternative course.

Theatre Arts

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The theatre arts minor provides an iterative balance of theory and practice that engages students intellectually and creatively. This combination of critical thinking and experiential learning offers students an in-depth understanding of the art of theater, as well as an introduction to the role of theater as both a form of commentary on, and as a reflection of, society and culture. The minor includes student participation in a minimum of three department sponsored theater productions via Theater Ensemble (FNRT-230) and Dramatic Theory and Text Analysis (FNRT-207).

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
PRFL-220	Theatre Ensemble*
PRFL-227	Dramatic Theory and Text Analysis
Electives‡	
Choose three of the following	
FNRT-204	Music & the Stage
PRFL-221	Fundamentals of Acting
PRFL-230	Devising Theatre: Creating Ensemble Based Performance
PRFL-239	Design/Stagecraft Apprenticeship†
PRFL-321	Traditions of Theatre in Europe
PRFL-322	Traditions of Theatre in the U.S.
PRFL-323	Traditions of Shakespearean Theatre
PRFL-324	African American Playwrights
PRFL-327	American Musical Theatre
PRFL-330	Performing Identity in Popular Media
PRFL-331	Fundamentals of Directing
PRFL-332	Fundamentals of Stage Management
PRFL-489	Special Topics
PRFL-490	Special Topics in Performing Arts
PRFN-144	Dance I: Jazz and Hip Hop
PRFN-200	Appreciation of Theatrical Design
PRFN-245	Dance II: Modern Dance and Ballet

* Students must take Theater Ensemble (PRFL-220) three times.
† Students may substitute one credit of Design/Stagecraft Apprenticeship (PRFL-239) for one credit of Theatre Ensemble (PRFL-220).
‡ At least two courses must be taken at the 300-level or higher.

Visual Culture

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

Visual culture explores the role of visual media in everyday life and its critical function in the dissemination of ideas in the public sphere. Emphasizing comparative critical approaches to the convergence of art, popular media, science, and technology, the minor engages globalized visual media ranging from photography, television and film, to new media (the web, digital imaging, and social networks), architecture, design, and art (painting, sculpture, and multimedia forms) in the context of such social arenas, as art, news, science, advertising, and popular culture.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Course	
FNRT-376	Visual Culture Theory
Electives	
Group A	
Choose three of the following:	
FNRT-206	Queer Looks
FNRT-220	Introduction to Museums & Collecting
FNRT-223	Historic Photographic Processes
FNRT-224	History & Theory of Exhibitions
FNRT-354	Exhibition Design
FNRT-370	American Painting
FNRT-371	African-American Art
FNRT-372	American Film of the Studio Era
FNRT-373	American Film Since the Sixties
FNRT-374	Art in the Age of the New Deal
FNRT-375	Women/Gender/Art
FNRT-377	Imag(in)ing Rochester
FNRT-378	Memory, Memorials, Monuments
FNRT-383	Traumatic Images
FNRT-384	Art of Dying
FNRT-388	Gender and Contemporary Art
FNRT-440	Deaf Art & Cinema
Group B	
Choose one of the following:	
ANTH-210	Culture and Globalization
ANTH-265	Native Americans in Film
ANTH-310	African Film and Popular Culture
ANTH-325	Bodies and Culture
ANTH-330	Cultural Images of War and Terror
ANTH-375	Native American Cultural Resources and Rights
ANTH-425	Global Sexualities
ANTH-430	Visual Anthropology
ANTH-435	The Archaeology of Death
COMM-341	Visual Communication
COMM-440	Visual Communication of Technical Information
ENGL-410	Film Studies
ENGL-421	The Graphic Novel
ENGL-422	Maps, Spaces and Places
HIST-421	Hands-on History
MLFR-351	French Films and Hollywood
MLSP-351	Gender and Sexuality in Hispanic Studies
MLSP-352	Caribbean Cinema
PHIL-303	Philosophy of Art/Aesthetics
PHIL-309	Feminist Theory
PHIL-313	Philosophy of Film
PHIL-314	Philosophy of Vision and Imaging
POLS-490	Politics Through Film
STSO-321	Face of the Land

Water Resources

Scott Wolcott, Minor Advisor
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Program overview

The water resources minor broadens the learning experiences and professional opportunities of students in technical disciplines who have an interest in courses related to water treatment, wastewater treatment, hydrology, the environment and society.

Notes about this minor:

- The minor is closed to students majoring in civil engineering technology.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
CVET-250	Hydraulics
CVET-251	Hydraulics Lab
CVET-450	Principles of Water and Wastewater Treatment
Electives	
Choose one course from group A and one from Group B. A third course may be chosen from either group.	
Group A	
CVET-451	Design of Water & Wastewater Treatment Facilities
CVET-452	Groundwater Hydraulics
CVET-453	Stormwater Management
Group B	
CVET-423	GIS for CETEMS
ESHS-360	Sustainable World Water Supply
STSO-421	Environmental Policy

Web Design and Development

Ronald P. Vullo, Minor Advisor
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Program overview

The minor in web design and development is for non-computing majors and students outside the computing field who wish to learn more than just the basics of web usage. The minor features courses in web images, video, communication, development, and integration technologies. Students learn how to design and build websites, and create and manipulate digital images and video for the web. Students develop a broad range of skills and the understanding necessary to design and build a web presence.

Notes about this minor:

- This minor is closed to students majoring in computer science, computing and information technologies, computing security, game design and development, human-centered computing, new media interactive development, software engineering, or web and mobile computing.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Courses	
Choose one of the following two courses:	
ISTE-105	Web Foundations
ISTE-140	Web & Mobile I
ISTE-205	Digital Image Creation
ISTE-206	Digital Video Creation
ISTE-305	Rapid Online Presence
ISTE-405	Web Integration & Application

Web Development

Dan Bogaard, Minor Advisor
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Program overview

This minor provides students with a firm foundation in web development. The web has become a global, essential, and ubiquitous information delivery medium. Hence, knowledge of how the web works and how to effectively develop dynamic websites adds considerable value to computing majors. This minor provides foundational skills in web development, starting with simple sites, moving through dynamic client-side and server-side functionality, and culminating in web-based systems that create and access various information services.

Notes about this minor:

- This minor is closed to students majoring in web and mobile computing.
- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Prerequisites	
Students should complete course work in discrete mathematics and a two-course programming sequence prior to beginning course work for this minor.	
Required Courses	
ISTE-140	Web & Mobile I *
ISTE-230	Introduction to Database and Data Modeling†
ISTE-240	Web & Mobile II‡
ISTE-340	Client Programming
ISTE-341	Server Programming
SWEN-383	Software Design Principles and Patterns§

* Web & Mobile I (ISTE-140) will be waived with completion of Web Design & Implementation (IGME-230).
† Introduction of Database and Data Modeling (ISTE-230) will be waived with completion of Principles of Data Management (CSCI-320).
‡ Web & Mobile II (ISTE-240) will be waived with completion of Rich Media Web Application Development I (IGME-330).
§ Software Design Principles and Patterns (SWEN-383) will be waived with completion of Engineering of Software Subsystems (SWEN-262).

Women's and Gender Studies

College of Liberal Arts, Office of Student Services
585-475-2444, libarts@rit.edu

Program overview

The women's and gender studies minor provides a critical framework to explore the significance of gender—as it intersects with racial, ethnic, religious, national, class, sexuality, and disability-based identities, past and present. Course builds knowledge about the personal, social, cultural, economic, and historical dynamics that inform gender and intersecting social categories. The minor builds fluency with critical analysis and knowledge-building methods drawn from women's and gender studies, feminist theories, critical race studies, queer studies, social justice work, and activism. The minor also provides valuable skills and experience applying these different lenses to real-world interactions with diverse individuals and communities to current social challenges that impact multiple parties, and with an eye to improving equity and fair outcomes for everyone concerned. Students will learn how to analyze and question power relations in all their rich complexities, locally, and globally.

Notes about this minor:

- Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in the minor.

Curriculum

COURSE	
Required Course	
WGST-200	Foundations Of Women And Gender Studies
Electives*†	
Choose four of the following:	
ANTH-290	Language and Sexuality
ANTH-325	Bodies and Culture
ANTH-425	Global Sexualities
ARTH-577	Displaying Gender
GRDE-322	Women Pioneers in Design
MEDS-355	Introduction to Global Health
SOCI-355	CyberActivism: Diversity, Sex, and the Internet
WGST-205	Feminist Practices of Inquiry
WGST-206	Queer Looks
WGST-210	Introduction to LGBTQ+ Studies
WGST-235	Women, Work, and Culture
WGST-237	Psychology of Women
WGST-240	Human Sexuality
WGST-245	Prostitution and Vice
WGST-246	History of Women in Science and Engineering
WGST-250	Domestic Violence
WGST-255	Seminar on Sexual Violence
WGST-265	Women and Crime
WGST-282	Women, Gender, and Computing
WGST-290	American Women's and Gender History
WGST-291	The History of Families and Children in the U.S.
WGST-309	Feminist Theory
WGST-318	Philosophies of Love, Sex, and Gender
WGST-330	Performing Identity in Popular Media
WGST-335	Women and the Deaf Community
WGST-342	Gender, Science, and Technology
WGST-351	Gender and Sexuality in Hispanic Studies
WGST-357	Communication, Gender, and Media
WGST-361	Queering Gender
WGST-383	Traumatic Images
WGST-384	Art of Dying
WGST-388	Gender and Contemporary Art
WGST-414	Topics in Women's and Gender Studies
WGST-451	Economics of Women and the Family
WGST-481	Women in Politics

* Only ONE non-WGST-coded course may be counted toward the minor.
† At least one course must be taken at the 300-level or highe

Immersions

www.rit.edu/study/minors-and-immersions

As a part of their bachelor's degree requirements, students must complete an immersion—a concentration of three courses in a particular area. These upper-level courses are used to meet RIT's general education requirements and provide you with course work in a specialized area that can enhance and complement your major or allow you to explore a personal interest.

Advertising and Public Relations

Program overview

The advertising and public relations immersion provides opportunities for the advanced study of selected areas central to the persuasive arts as they apply to advertising and public relations, as well as education and practice in the writing, speaking, and design skills required of these professions.

Notes about this immersion:

- This immersion is closed to students majoring in advertising and public relations or communication.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Required Course	
Choose one of the following:	
COMM-211	Principles of Advertising
COMM-212	Public Relations
Electives	
Choose two of the following:	
COMM-202	Mass Communications
COMM-211	Principles of Advertising
COMM-212	Public Relations
COMM-221	Public Relations Writing
COMM-303	Small Group Communication
COMM-305	Persuasion
COMM-321	Copywriting and Visualization
COMM-322	Campaign Management and Planning
COMM-341	Visual Communication
COMM-346	Global Media
COMM-356	Critical Practice in Social Media

* At least one course must be taken at the 300-level or above.

African Studies

Program overview

The immersion in African studies enables students to gain knowledge about African societies, cultures, histories, and modern political realities, and diasporic communities in different parts of the world.

Notes about this immersion:

- This immersion is closed to students who are majoring in international and global studies who have chosen a specialization in African studies.
- At least one course must be taken from either INGS, ANTH, or SOCI. Topics in Global Literature (ENGL 416) may be substituted when the topic is Caribbean literature.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Electives	
Choose three of the following:	
ANTH-225	Globalizing Africa
ANTH-310	African Film and Popular Culture
ANTH-345	Genocide and Post-Conflict Justice
ANTH-410	Global Cities
ANTH-430	Visual Anthropology
HIST-245	American Slavery and Freedom
INGS-210/HIST-210	Culture and Politics in Urban Africa
SOCI-210	African-American Culture
SOCI-220	Minority Group Relations
SOCI-295	Global Public Health

* At least one course must be taken from the INGS, ANTH, or SOCI disciplines.

American Arts

Program overview

This immersion provides students with the opportunity to study the American arts through a variety of disciplines, including painting, architecture, film, photography, music, theatre, and mass media. Each course presents American art within the context of the broader current of American life, including its history, philosophy, social, and cultural traditions.

Notes about this immersion:

- Students must take at least one course from each group.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Electives	
*Choose three courses from the following:**	
Visual culture	
FNRT-206	Queer Looks
FNRT-370	American Painting
FNRT-371	African-American Art
FNRT-372	American Film of the Studio Era
FNRT-373	American Film Since the Sixties
FNRT-374	Art in the Age of the New Deal
FNRT-377	Imag(in)ing Rochester
FNRT-378	Memory, Memorials, Monuments
FNRT-383	Traumatic Images
FNRT-384	Art of Dying
Performing arts	
FNRT-201	Music in the US
FNRT-203	American Popular & Rock Music
FNRT-322	Survey of Jazz
FNRT-323	Survey of African-American Music
FNRT-324	Sounds of Protest
FNRT-325	American Popular Song
PRFL-327	American Musical Theatre

* Students must complete one course from the Visual Culture list and one course from the Performing Arts list. The third course may be taken from either list.

American Indian and Indigenous Studies

Program overview

The immersion in American Indian and indigenous studies enhances students' knowledge of the unique heritage of American Indian and indigenous peoples and their relationships with people from other communities and nations. This enhanced understanding is grounded in the study of the histories, collective memories, cultures, and languages of American Indian and indigenous peoples, and the representations, stereotypes, and pertinent laws and policies governing their lives. Immersion courses emphasize indigenous ways of knowing and learning in the past and present in the Americas and across the globe.

Notes about this immersion:

- This immersion is closed to students majoring in sociology and anthropology who have chosen the cultural anthropology track and to students majoring in international and global studies who have chosen the indigenous studies track.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Electives	
*Choose three of the following:**	
ANTH-210	Culture and Globalization
ANTH-215	Field Methods in Archaeology
ANTH-245	Ritual and Performance
ANTH-260	Native North Americans
ANTH-265	Native Americans in Film
ANTH-285	American Indian Languages
ANTH-305	Comparative and Historical Linguistics
ANTH-312	People Before Cities
ANTH-335	Culture and Politics in Latin America
ANTH-345	Genocide and Post-Conflict Justice
ANTH-360	Humans and Their Environment
ANTH-361/SOCI-361	Digitizing People
ANTH-375	Native American Cultural Resources and Rights
ANTH-415	Archaeological Science
ANTH-420	Exploring Ancient Technology
ANTH-430	Visual Anthropology
ANTH-455/ECON-452/ INGS-455	Economics of Native America
INGS-310	Global Slavery and Human Trafficking
SOCI-322	Health and Society

* At least one course must be taken at the 300-level or above.

American Politics

Program overview

Students are introduced to the fundamental principles, institutions, and issues of American government. In addition, the strengths and limitations of American constitutionalism are emphasized throughout and current political and policy questions facing the country are examined. The overarching intention of the immersion is to give students the necessary tools to deliberate upon the political questions of the day and to actively participate in the political process.

Notes about this immersion:

- This immersion is closed to students majoring in political science.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Electives	
*Choose three of the following:**	
POLS-200	Law & Society
POLS-250	State & Local Politics
POLS-290	Politics and the Life Sciences
POLS-295	Cyberpolitics
POLS-300	Rhetoric & Political Deliberation
POLS-305	Political Parties and Voting
POLS-310	The Congress
POLS-315	The Presidency
POLS-320	American Foreign Policy
POLS-340	Medicine, Morality, and Law
POLS-345	Politics and Public Policy
POLS-355	Political Leadership
POLS-365	Anarchy, Technology, & Utopia
POLS-415	Evolution and the Law
POLS-420	Primate Politics
POLS-425	Constitutional Law
POLS-430	Constitutional Rights and Liberties
POLS-435	American Political Thought
POLS-460	Classical Constitutionalism, Virtue & Law
POLS-465	Modern Constitutionalism, Liberty & Equality
POLS-481	Women in Politics
POLS-485	Politics Through Fiction
POLS-490	Politics Through Film

* At least one course must be taken at the 300-level or above.

American Sign Language and Deaf Cultural Studies

Program overview

The ASL and Deaf Cultural Studies immersion prepares students in the multi-disciplinary study of American Sign Language and Deaf Culture. Open to hearing and deaf students, courses address topics in the field of ASL and Deaf Cultural Studies, including the study of ASL and its structure, ASL literature, literature in English pertaining to the Deaf experience, the history of Deaf people in the U.S. and around the world, Deaf art and cinema, the experience of Deaf people from racial, ethnic, and other underrepresented groups, intersectionality, oppression in the lives of Deaf people, and various political, legal, and educational issues affecting members of Deaf communities.

Students enrolled in the ASL-English Interpretation major can pursue the immersion if they choose an emphasis on Deaf Cultural Studies. They cannot apply ASL courses towards the immersion. For ASL-English Interpretation majors, the immersion courses must also be different from the two Deaf Cultural studies courses they elect to fulfill the Deaf cultural studies requirements for their major.

Curriculum

COURSE	
Electives	
Choose three of the following:	
ENGL-417	Deaf Literature
FNRT-440	Deaf Art & Cinema
HIST-230	American Deaf History
HIST-231	Deaf People in Global Perspective
HIST-330	Deafness and Technology
HIST-333	Diversity in the Deaf Community
HIST-334	Oppression in the Lives of Deaf People
HIST-335	Women and the Deaf Community
HIST-430	Deaf Spaces
MLAS-201	Beginning American Sign Language I
MLAS-202	Beginning American Sign Language II
MLAS-301	Intermediate American Sign Language I
MLAS-302	Intermediate American Sign Language II
MLAS-351	Linguistics Of American Sign Language
MLAS-352	American Sign Language Literature
MLAS-401	Advanced American Sign Language I
MLAS-402	Advanced American Sign Language II
NHSS-251	Deaf Culture and Contemporary Civilization
NHSS-275	Visual Expressions of Deaf Culture
SOCI-240	Deaf Culture in America

Applied Statistics

Program overview

Deepen your technical background and gain further appreciation for modern mathematical sciences and the use of statistics as an analytical tool.

Notes about this immersion:

- This immersion is closed to students majoring in applied statistics and actuarial science, applied mathematics, and computational mathematics.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Prerequisites	
MATH-181	Project-Based Calculus I
MATH-182	Project-Based Calculus II
(or equivalents)	
Electives	
*Choose three of the following:**	
MATH-251	Probability and Statistics I
MATH-252	Probability and Statistics II
MATH-505	Stochastic Processes
STAT-205	Applied Statistics
STAT-295	Statistical Analysis for Bioinformatics
STAT-305	Regression Analysis
STAT-325	Design of Experiments
STAT-335	Introduction to Time Series
STAT-345	Nonparametric Statistics
STAT-405	Mathematical Statistics I
STAT-406	Mathematical Statistics II
STAT-521	Statistical Quality Control

* At least one courses must be taken at the 300-level or above.

Archaeology

Program overview

Archaeology is the study of the human past by means of the physical residues of past human behavior: for example, pottery, stone, and metal tools, and the remains of ancient dwelling sites. An archaeologist explains how human society has changed and developed over time using such physical evidence. Archaeology employs techniques from the physical sciences to build a more detailed picture of the human past. Students explore the worlds of the past through hands-on applications of physical science techniques in a diverse range of fields, including chemistry, metallurgy, biology, and material science, applying these disciplines in a novel and challenging context.

Notes about this immersion:

- This immersion is closed to students majoring in sociology and anthropology who have chosen the archaeology track.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Electives	
*Choose three of the following:**	
ANTH-103	Archaeology and the Human Past
ANTH-215	Field Methods in Archaeology
ANTH-230	Archaeology & Cultural Imagination: History, Interpretation, and Popular Culture
ANTH-250	Themes in Archaeological Research
ANTH-255	Regional Archaeology
ANTH-312	People Before Cities
ANTH-315	The Archaeology of Cities
ANTH-360	Humans and Their Environment
ANTH-375	Native American Cultural Resources and Rights
ANTH-415	Archaeological Science
ANTH-420	Exploring Ancient Technology
ANTH-435	The Archaeology of Death

* At least one course must be taken at the 300-level or above.

Art History

Program overview

Explore the history of art and architecture across multiple cultures and eras. Art historians examine a culture's artistic production, analyzing form, content, and creative context to better understand how art expresses the intent of the artist, the interpretation of the viewer, or particular cultural values and ideals. Students will use art historical methodologies to evaluate works of art, formulate a history of artistic style, analyze art in relation to its historical context, and engage with the world of contemporary art.

Notes about this immersion:

- This immersion is closed to students majoring in 3D digital design, film and animation, graphic design, illustration, industrial design, interior design, medical illustration, museum studies, new media design, photographic and imaging arts, and studio arts-all options.

Curriculum

COURSE	
Electives	
*Choose three of the following:**	
ARTH-311	Art and Architecture of Italy: 1250-1400
ARTH-312	Art and Architecture of Italy: 1600-1750
ARTH-317	Art and Architecture in Florence and Rome: 15th Century
ARTH-318	Art and Architecture in Florence and Rome: 16th Century
ARTH-364	Art in Paris
ARTH-366	18th, 19th Century Art
ARTH-368	20th Century Art: 1900-1950
ARTH-369	20th Century Art: Since 1950
ARTH-373	Art of the Last Decade
ARTH-378	Baroque Painting in Flanders
ARTH-379	Renaissance Painting in Flanders
ARTH-392	Theory and Criticism of 20th Century Art
ARTH-457	Art and Activism
ARTH-521	The Image
ARTH-541	Art and Architecture of Ancient Rome
ARTH-544	Illuminated Manuscripts
ARTH-549	Topics in Global Art and Architecture:
ARTH-550	Topics in Art History
ARTH-555	Topics in Medieval Art and Architecture
ARTH-556	Art Comics
ARTH-558	The Gothic Revival
ARTH-561	Latin American Art
ARTH-563	Modern Architecture
ARTH-568	Art and Technology: from the Machine Aesthetic to the Cyborg Age
ARTH-572	Art of the Americas
ARTH-573	Conceptual Art
ARTH-574	Dada and Surrealism
ARTH-576	Modernism and Its Other: Realism in the Shadow of Expressionism
ARTH-577	Displaying Gender
ARTH-578	Edvard Munch
ARTH-583	Installation Art
ARTH-584	Scandinavian Modernism
ARTH-586	History of Things: Studies in Material Culture
ARTH-588	Symbols and Symbol-Making: Psychoanalytic Perspectives on Art
FNRT-224	History & Theory of Exhibitions
FNRT-384	Art of Dying
FNRT-388	Gender and Contemporary Art

* Students may take a maximum of one course from the FNRT discipline.

Astronomy

Program overview

The astronomy immersion provides students with the opportunity for additional study in astronomy in order to build a secondary area of expertise in support of their major or other areas of interest. The immersion offers a broad background in astronomy with courses providing a broad survey of modern astrophysics and the techniques and technologies used to investigate astronomical phenomena.

Notes about this immersion:

- This immersion is closed to students majoring in imaging science and physics.

Curriculum

COURSE	
Prerequisites	
PHYS-211	University Physics I
PHYS-212	University Physics II
Required course	
PHYS-220	University Astronomy
Electives	
Choose two of the following:	
PHYS-370	Stellar Astrophysics
PHYS-371	Galactic Astrophysics
PHYS-372	Extragalactic Astrophysics and Cosmology
PHYS-373	Observational Astronomy

Biology

Program overview

Biology is the study of living organisms, including their structure, systems, function, evolution, and ecology. The immersion provides students with the opportunity to experience courses in a variety of areas of modern biology. Students complete a foundational course in Cell & Molecular Biology, General Ecology, or Evolutionary Biology (which all include laboratory experiences) and then go on to study at least one area in more depth.

Notes about this immersion:

- This immersion is closed to students majoring in biology, biochemistry, bioinformatics and computational biology, biomedical engineering, biomedical sciences, biotechnology and molecular bioscience, environmental science, and physician assistant.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Prerequisites	
BIOL-101	General Biology I
BIOL-102	General Biology II
BIOL-103	General Biology I Lab
BIOL-104	General Biology II Lab
Required Course	
Choose one of the following:	
BIOL-202	Molecular Biology
BIOL-240	General Ecology
BIOL-265	Evolutionary Biology
Electives*	
Choose two of the following:	
BIOL-204	Introduction to Microbiology
BIOL-207	Galapagos: Ecology and Evolution
BIOL-211	Invertebrate Zoology
BIOL-302	Cell Biology
BIOL-313	Comparative Animal Physiology
BIOL-321	Genetics
BIOL-322	Developmental Biology
BIOL-365	Introduction to Population Genetics
BIOL-427	Microbial and Viral Genetics
BIOL-575	Conservation Biology
MEDS-250	Human Anatomy and Physiology I
MEDS-251	Human Anatomy and Physiology II

* At least one course must be taken at the 300-level or above.

Chemistry

Program overview

All of the required or optional courses for the chemistry immersion are core chemistry courses within the chemistry curriculum.

Notes about this immersion:

- This immersion is closed to students majoring in biochemistry, biology, biotechnology and molecular bioscience, chemical engineering, chemistry, and the environmental chemistry concentration of the environmental science major.

Curriculum

COURSE	
Prerequisites	
CHMG-141	General & Analytical Chemistry I
CHMG-145	General & Analytical Chemistry I Lab
CHMG-142	General & Analytical Chemistry II
CHMG-146	General & Analytical Chemistry II Lab
or	
CHMG-131	General Chemistry for Engineers
or	
CHEM-151	General Chemistry
Required course	
CHMO-231	Organic Chemistry I
Electives	
Choose two of the following:	
CHMA-161	Quantitative Analysis
CHMA-261	Instrumental Analysis
CHMB-402	Biochemistry I
CHMI-351	Descriptive Inorganic Chemistry
CHMO-232	Organic Chemistry II

Climate Change: An Interdisciplinary Problem

Program overview

This interdisciplinary immersion introduces students to the scientific, technological, and social issues surrounding global environmental climate change.

Notes about this immersion:

- This immersion is closed to students majoring in environmental science or environmental sustainability, health and safety.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Required Courses	
Choose one of the following courses:	
CHEM-531	Climate Change: Science Technology & Policy
ENVS-531	Climate Change: Science Technology & Policy
PUBL-531	Climate Change: Science, Technology and Policy
Electives	
Choose one of the following courses:	
HIST-345	Environmental Disasters
PHIL-308	Environmental Philosophy
PUBL-530	Energy Policy
SOIS-333	Wicked Problems
STSO-326	History of Ecology and Environmentalism
STSO-421	Environmental Policy
STSO-422	Great Lakes
Choose one of the following courses:	
ENVS-101	Concepts of Environmental Science
ENVS-111	Soil Science
ENVS-250	Applications of Geographic Information Systems
ENVS-301	Environmental Science Field Skills
ENVS-305	Urban Ecology
ESHS-360	Sustainable World Water Supply

Comics Studies

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Program overview

Explore the history of cartooning, comics, sequential art, and visual storytelling. Students learn about and analyze the history of the comics medium, the distinct formal qualities of sequential art, the relations between comics and other popular media forms, and how comics remain a vibrant contemporary cultural form.

Notes about this immersion:

- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Required Course	
SOIS-242	Comics: Image & Text in Popular Culture
Choose one of the following:	
ENGL-314	Ethics in the Graphic Memoir
ENGL-421	The Graphic Novel
SOIS-342	Global Comics
SOIS-344	Popular Genre Studies in Comics and Related Media
SOIS-542	Art Comics
or	
ARTH-556	Art Comics
*Choose one of the following:**	
ARTH-392	Theory and Criticism of 20th Century Art
ARTH-521	The Image
COMM-341	Visual Communication
ENGL-318	Popular Literature
ENGL-373	Media Adaptation
FNRT-376	Visual Culture Theory
FNRT-388	Gender and Contemporary Art
MLFR-151	Film, Comics, and French Culture
PRFL-330	Performing Identity in Popular Media

* The remaining course can be selected from the list of approved courses in the immersion, or may include a third course from the list above.

Communication

Program overview

Advanced study of selected areas of communication, including an overview of the fields of persuasion, mass communications, public speaking, and small group communication. Students will understand and apply several modes of communication in academic, professional, and personal situations.

Notes about this immersion:

- This immersion is closed to students majoring in advertising and public relations and communication.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Electives	
Choose three of the following:	
COMM-201	Public Speaking
COMM-202	Mass Communications
COMM-223	Digital Design in Communication
COMM-253	Communication
COMM-302	Interpersonal Communication
COMM-303	Small Group Communication
COMM-304	Intercultural Communication
COMM-305	Persuasion
COMM-306	Rhetoric Of Race Relations
COMM-341	Visual Communication
COMM-342	Communication Law and Ethics
COMM-343	Technology-Mediated Communication
COMM-344	Health Communication
COMM-346	Global Media
COMM-356	Critical Practice in Social Media
COMM-357	Communication, Gender, and Media
COMM-503	Advanced Public Speaking

* At least one course must be taken at the 300-level or above.

Creative Writing

Program overview

A series of creative writing courses offers students a practical, theoretical, and historical understanding of the art and craft of writing nonfiction, fiction prose, and poetry, as well as experimenting in digital storytelling and interactive media. The immersion encourages students to use these skills and insights for interdisciplinary projects and the enrichment of their careers and personal lives.

Curriculum

COURSE	
Electives	
Choose three of the following:	
ENGL-211	Introduction to Creative Writing
ENGL-376	Experimental Writing
ENGL-386	World Building Workshop
ENGL-389	Digital Creative Writing Workshop
ENGL-390	Creative Writing Workshop
ENGL-490	Advanced Creative Writing Workshop
ENGL-511	Advanced Topics in Creative Writing
ENGL-543	Game-Based Fiction Workshop

Criminal Justice

Program overview

The criminal justice immersion provides students with the appropriate foundation to analyze crime, crime control policy, and the role of the criminal justice system in the maintenance of order in society. Courses focus on the social definition and measurement of crime, a broad understanding of the causes of crime, and societal responses to crime through the police, courts, and corrections.

Notes about this immersion:

- This immersion is closed to students majoring in criminal justice.

Curriculum

COURSE	
Prerequisite	
CRIM-110	Introduction to Criminal Justice
Electives	
Choose three of the following:	
CRIM-210	Technology in Criminal Justice
CRIM-220	Corrections
CRIM-230	Juvenile Justice
CRIM-240	Law Enforcement in Society
CRIM-260	Courts
CRIM-275	Crime and Violence
CRIM-285	Minority Groups and the Criminal Justice System
CRIM-299	Crime, Justice, and Ethics
CRIM-489	Major Issues in Criminal Justice

Cultural Anthropology

Program overview

Cultural anthropology is the study of culture, past and present, from a worldwide comparative perspective. As a disciplinary field, cultural anthropology attempts to provide insights on how human beings across the globe live and work and shape their cultural world in families, cities, societies, ethnic groups, nations, and networked solidarities through ideas, ideologies, beliefs, and values or world views. One of the goals of cultural anthropology is to promote understanding among peoples—an increasingly important venture in our vastly interconnected world communities.

Notes about this immersion:

- This immersion is closed to students majoring in the sociology and anthropology who have chosen the cultural anthropology track.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Electives	
Choose three of the following:	
ANTH-104	Language and Linguistics
ANTH-201/SOCI-201	Ethnographic Imagination: Wrtg about Society and Culture
ANTH-210	Culture and Globalization
ANTH-220	Language and Culture: Introduction to Linguistic Anthropology
ANTH-225	Globalizing Africa
ANTH-235	Immigration to the U.S.
ANTH-245	Ritual and Performance
ANTH-246/SOCI-246	Gender and Health
ANTH-260	Native North Americans
ANTH-265	Native Americans in Film
ANTH-270/INGS-270	Cuisine, Culture, and Power
ANTH-285	American Indian Languages
ANTH-295	Global Public Health
ANTH-301/SOCI-301	Social and Cultural Theory
ANTH-302	Qualitative Research
ANTH-305	Comparative and Historical Linguistics
ANTH-310	African Film and Popular Culture
ANTH-325	Bodies and Culture
ANTH-328	Heritage and Tourism
ANTH-330	Cultural Images of War and Terror
ANTH-335	Culture and Politics in Latin America
ANTH-341	Global Addictions
ANTH-345	Genocide and Post-Conflict Justice
ANTH-361/SOCI-361	Digitizing People
ANTH-370	Media and Globalization
ANTH-375	Native American Cultural Resources and Rights
ANTH-380	Nationalism and Identity
ANTH-410	Global Cities
ANTH-425	Global Sexualities
ANTH-430	Visual Anthropology
ANTH-455/ECON-452/ INGS-455	Economics of Native America
ANTH-489	Topics in Anthropology

* At least one course must be taken at the 300-level or above.

Digital Literatures and Comparative Media

Program overview

We encounter digital texts and codes every time we use a smart phone, launch an app, or interact online. This immersion explores innovative and evolving questions and practices of text and code in literature, creative writing, and interactive media. It invites students to explore the social, cultural, and technological significance of text, code, and their interrelations.

Curriculum

COURSE	
Required Course	
ENGL-215	Text & Code
Electives	
Choose two of the following:	
ENGL-275	Storytelling
ENGL-315	Digital Literature
ENGL-373	Media Adaptation
ENGL-374	Games and Literature
ENGL-375	Storytelling Across Media
ENGL-376	Experimental Writing
ENGL-386	World Building Workshop
ENGL-419	Literature and Technology
ENGL-422	Maps, Spaces, and Places
ENGL-450	Free & Open Source Culture

Diversity in the U.S.

Program overview

This immersion offers students a variety of academic perspectives on how diverse groups may share cultural or inherited characteristics, and how perceptions of difference influence their interactions. Race, ethnicity, gender, and sexualities are the main points of focus. Students examine differential power between groups, analyze the social structures used to maintain, moderate and alter power relations, as well as probe interpersonal relationships across social divides.

Notes about this immersion:

- This immersion is closed to students majoring in sociology and anthropology have chosen tracks in cultural anthropology or sociology.
- At least one course must be taken from a discipline other than sociology (SOCI).

Curriculum

COURSE	
Required Course	
SOCI-220	Minority Group Relations
Electives	
Choose two of the following:	
ANTH-235	Immigration to the U.S.
ANTH-246/SOCI-246	Gender and Health
ANTH-260	Native North Americans
ANTH-285	American Indian Languages
ANTH-361/SOCI-361	Digitizing People
ANTH-375	Native American Cultural Resources and Rights
COMM-304	Intercultural Communication
CRIM-285	Minority Groups and the Criminal Justice System
ENGL-414	Topics in Women's and Gender Studies
FNRT-206	Queer Looks
FNRT-324	Sounds of Protest
SOCI-210	African-American Culture
SOCI-225	Social Inequality
SOCI-235	Women, Work, and Culture
SOCI-240	Deaf Culture in America
SOCI-300	Sociology of American Life
SOCI-330	Urban (In)justice
SOCI-345	Urban Poverty
SOCI-355	CyberActivism: Diversity, Sex, and the Internet
SOCI-395	Borders:Humans, Boundaries, and Empires
SOCI-451/ECON-451/ WGST-451	Economics of Women and the Family

* At least one course for the immersion must be taken in a discipline other than SOCI.

Economics

Program overview

The economics immersion provides a systematic analysis of economic issues through the study of the allocation of scarce resources into production and the distribution of production among the members of society.

Notes about this immersion:

- This immersion is closed to students majoring in economics.

Curriculum

COURSE	
Prerequisites	
ECON-101	Principles of Microeconomics
ECON-101H	Honors Microeconomics
Electives	
Choose three of the following:	
ECON-201	Principles of Macroeconomics
ECON-401	Intermediate Microeconomic Theory
ECON-402	Intermediate Macroeconomic Theory
ECON-403	Econometrics I
ECON-404	Mathematical Methods: Economics
ECON-405	International Trade and Finance
ECON-406	Global Economic Issues
ECON-407	Industrial Organization
ECON-410	Game Theory with Economic Applications
ECON-411	Computational Economics
ECON-421	Natural Resource Economics
ECON-422	Benefit-Cost Analysis
ECON-430	Managerial Economics
ECON-431	Monetary Analysis and Policy
ECON-432	Open Economy Macroeconomics
ECON-433	Financial Economics
ECON-440	Urban Economics
ECON-441	Labor Economics
ECON-444	Public Finance
ECON-445	History of Economic Thought
ECON-448	Development Economics
ECON-449	Comparative Economic Systems
ECON-450	Health Care Economics
ECON-451	Economics of Women and the Family
ECON-452	Economics of Native America
ECON-453	Behavioral & Experimental Economics
ECON-503	Econometics II
ECON-520	Environmental Economics

English

Program overview

Study literature and other cultural works, as well as linguistics, and creative writing. The immersion is flexible in order to accommodate student interest in areas such as specific literary historical periods or geographic areas, multimedia and the visual arts, or literary genres and forms such as science fiction, the novel, the short story, poetry. Courses in the immersion emphasize the ability to read literature and other mediums analytically and write critically.

Curriculum

COURSE	
Choose one of the following:	
ENGL-210	Literature, Culture, and Media
ENGL-216	Literature From Around the World
ENGL-275	Storytelling
Choose two of the following:	
ENGL-301	The Art of Poetry
ENGL-302	The Short Story
ENGL-307	Mythology & Literature
ENGL-308	Shakespeare Drama
ENGL-309	Topics in Literary Forms
ENGL-315	Digital Literature
ENGL-316	Global Literature
ENGL-318	Popular Literature
ENGL-320	Genre Fiction
ENGL-322	Literary Geographies
ENGL-345	History of Madness
ENGL-370	Evolving English Language
ENGL-373	Media Adaptation
ENGL-375	Storytelling Across Media
ENGL-377	Transmedia Storyworlds
ENGL-391	Dangerous Texts
ENGL-410	Film Studies
ENGL-411	Themes in American Literature
ENGL-413	African-American Literature

Environmental Studies

Program overview

The environmental studies immersion is an examination of the basic environmental problems we face, how environmental resource depletion and energy issues are related, and what kind of environmental ethics and/or values we have today and have had in the past. The immersion also explores the economic, legislative, and regulatory framework within which most environmental decisions are made. Since most technological areas are associated with significant environmental implications, it is essential that students have an understanding of and a well-thought-out value orientation about such environmental consequences.

Notes about this immersion:

- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Electives	
Choose three of the following:	
HIST-345	Environmental Disasters
PUBL-530	Energy Policy
STSO-220	Environment and Society
STSO-321	Face of the Land
STSO-325	History of the Environmental Sciences
STSO-326	History of Ecology and Environmentalism
STSO-330	Energy and the Environment
STSO-335	Industry, Environment, and Community in Rochester
STSO-421	Environmental Policy
STSO-422	Great Lakes
STSO-425	Nature and Quantification
STSO-488	Topics in Environmental Studies
STSO-510	Interdisciplinary Capstone Seminar
STSO-521	Biodiversity and Society
STSO-550	Sustainable Communities

* At least one course must be taken at the 300-level or above.

Ethics

Program overview

The ethics immersion helps students to understand more deeply the nature of ethical thinking, to recognize and understand ethical dilemmas in private, professional, and public settings, and to think clearly and critically about possible answers to ethical problems. The immersion also provides students with the opportunity to acquaint themselves with some of the most influential writings and thinkers in the philosophical canon. Courses are especially well suited to students considering careers in law, medicine, business, or politics.

Notes about this immersion:

- This immersion is closed to students majoring in philosophy.
- Students are required to take either Foundations of Moral Philosophy (PHIL-202) or Ethical Theory (PHIL-415). If students take one of these courses, they will choose two elective courses to complete the immersion. If they choose both of these courses students will choose one additional elective.
- At least two courses must be at the 300 level or higher.

Curriculum

COURSE	
Required Courses	
Choose one of the following:	
PHIL-202	Foundations of Moral Philosophy
PHIL-415	Ethical Theory
Electives	
Choose two of the following:	
PHIL-202	Foundations of Moral Philosophy
PHIL-304	Philosophy of Law
PHIL-305	Philosophy of Peace
PHIL-306	Professional Ethics
PHIL-308	Environmental Philosophy
PHIL-309	Feminist Theory
PHIL-311	East Asian Philosophy
PHIL-315	Responsible Knowing
PHIL-316	Bioethics and Society
PHIL-403	Social and Political Philosophy
PHIL-407	Philosophy of Action
PHIL-409	Existentialism
PHIL-415	Ethical Theory
PHIL-449	Topics in Philosophy †
MGMT-340	Business Ethics and Corporate Social Responsibility

* At least two courses must be taken at the 300-level or above.
† Course may be used when the topic includes ethical issues.

Film Studies

Program overview

The film studies immersion allows students to engage in the study of global cinema using a variety of interdisciplinary methodologies and perspectives. Coming from the disciplines of English, anthropology, philosophy, fine arts/visual culture, political science, history, and modern languages, the immersion investigates cinema's mass appeal as a form of entertainment, but also the power it wields as a disseminator of ideas, history, values, aesthetics, behavior, and cultural norms.

Notes about this immersion:

- This immersion is closed to students majoring in film and animation.
- Students must take courses in more than one discipline, e.g., two in fine arts (FNRT) and one in anthropology (ANTH).

Curriculum

COURSE	
Electives	
Choose three of the following:	
ANTH-265	Native Americans in Film
ANTH-430	Visual Anthropology
ENGL-410	Film Studies
FNRT-200	Anime
FNRT-372	American Film of the Studio Era
FNRT-373	American Film Since the Sixties
FNRT-440	Deaf Art & Cinema
HIST-275	Screening the Trenches: The History of WWI Through Film
HIST-450	Modern Japan in History, Fiction, and Film
MLFR-151	Film, Comics, and French Culture
MLFR-351	French Films and Hollywood
MLFR-352	The French Heritage in Films
MLSP-352	Caribbean Cinema
PHIL-313	Philosophy of Film
POLS-490	Politics Through Film

* Students must take courses in more than one discipline, e.g., two in FNRT and one in ANTH.

Gender, Art, and Media

Program overview

In the gender, art, and media immersion students explore how gender issues and identities, in their intersections with culture, race, ethnicity, nationality, social class, age, and (dis)abilities, are represented and portrayed in various artistic, literary, and media forms. By engaging with cultural texts and productions from both historical and contemporary perspectives, the immersion introduces students to critical analysis and knowledge-building methods drawn from fields such as women's and gender studies, feminist theories, critical race studies, queer studies, social justice work, and activism. The immersion teaches students to analyze gendered images as they appear in arts and media, recognize power inequalities and stereotypes in gender representations, and acquire the conceptual skills to critique and improve current conditions of artistic, literary, and media production and consumption in view of increased gender equity and fairness. The immersion complements any course of studies in a number of art and media-related fields such as art and literary criticism, art curation and exhibition, journalism and photojournalism, media studies, filmmaking, literature, photography, advertising and marketing, public relations, social services, and more.

Notes about this immersion:

- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Electives	
Choose three of the following:	
WGST-200	Foundations Of Women And Gender Studies
WGST-205	Feminist Practices of Inquiry
WGST-206	Queer Looks
WGST-210	Introduction to LBGTQ+ Studies
WGST-309	Feminist Theory
WGST-318	Philosophies of Love, Sex, and Gender
WGST-330	Performing Identity in Popular Media
WGST-351	Gender and Sexuality in Hispanic Studies
WGST-357	Communication, Gender, and Media
WGST-375	Women/Gender/Art
WGST-383	Traumatic Images
WGST-384	The Art of Dying
WGST-388	Gender and Contemporary Art
WGST-414	Topics in Women's and Gender Studies

* To ensure interdisciplinarity, only one course among WGST-200, WGST-205, and WGST-210 may be counted.

Geographic Information Systems

Program overview

As the world grows in complexity and interconnectedness, new challenges arise in visually representing, reasoning, and making sense of spatially-oriented problems and data. The geographic information systems immersion allows students to study geographic problem solving and scientific inquiry from an interdisciplinary perspective of interactive, digital mapping tools and related digital data problem solving technologies. Students are introduced to geographic mapping concepts and theory, digital cartography, geographic problem solving with geospatial and related computer tools, geospatial technology ethics and application of GIS to global problems such as natural disasters.

Notes about this immersion:

- This immersion is closed to students majoring in web and mobile computing, human-centered computing, and computing and information technologies.

Curriculum

COURSE	
Required Courses	
IGME-382	Maps, Mapping and Geospatial Technologies
IGME-384	Introduction to Geographic Information Systems
Electives	
Choose one of the following:	
ENGL-422	Maps, Spaces and Places
ISTE-120	Computational Problem Solving in the Information Domain I
ISTE-230	Introduction to Database and Data Modeling
IGME-386	Spatial Algorithms and Problem Solving
IGME-484	Geographic Visualization
STSO-550	Sustainable Communities

Global Justice

Program overview

The global justice immersion examines attempts to create lasting peace and social justice on the international scale. Courses in philosophy and the social sciences help students to understand concepts of human rights, world poverty, and global solidarity. The immersion is well suited for students considering careers in law, politics, or public policy related fields.

Notes about this immersion:

- Students must select courses from at least two different disciplines.
- Students majoring in philosophy, sociology and anthropology, international and global studies, or political science must choose two of the three required courses from outside their respective major.

Curriculum

COURSE	
Electives	
Choose three of the following:	
ANTH-246/SOCI-246	Gender and Health
ANTH-330	Cultural Images of War and Terror
ANTH-345	Genocide and Post-Conflict Justice
ANTH-375	Native American Cultural Resources and Rights
ANTH-425	Global Sexualities
INGS-210	Culture and Politics in Urban Africa
PHIL-202	Foundations of Moral Philosophy
PHIL-304	Philosophy of Law
PHIL-305	Philosophy of Peace
PHIL-308	Environmental Philosophy
PHIL-309	Feminist Theory
PHIL-316	Bioethics and Society
PHIL-403	Social and Political Philosophy
PHIL-415	Ethical Theory
POLS-320	American Foreign Policy
POLS-440	War and the State
SOCI-235	Women, Work and Culture
SOCI-295	Global Public Health
SOCI-315	Global Exiles of War and Terror
SOCI-451	Economies of Women and the Family

* Students must select their courses from at least two different disciplines.
† Philosophy, sociology and anthropology, international and global studies, and political science majors must choose two of the three immersion courses from outside their respective major.

Globalization Theory

Program overview

The immersion in globalization theory analyzes how linkages and interconnections across and beyond conventional borders and boundaries are forged by people, political regimes, social movements, corporate enterprise, and culture industries. The immersion's emphasis is on the causes, signs, and possibilities of globalization with view to mobile populations, permeable borders, transnational flows of capital, and the traffic of culture across space or historical time. Courses examine how global fluidities, mobilities, and connections have been forged, the various dynamic and unpredictable responses of people in diverse locations to global processes, and the implications of global processes for a shared future.

Notes about this immersion:

- This immersion is closed to students majoring in international and global studies.
- Students majoring in philosophy, sociology and anthropology, and international and global studies must select courses from at least two different disciplines.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Electives	
Choose three of the following:	
ANTH-210	Culture and Globalization
ANTH-225	Globalizing Africa
ANTH-235	Immigration to the U.S.
ANTH-246/SOCI-246	Gender and Health
ANTH-270/INGS-270	Cuisine, Culture, and Power
ANTH-295/SOCI-295	Global Public Health
ANTH-328	Heritage and Tourism
ANTH-330	Cultural Images of War and Terror
ANTH-341	Global Addictions
ANTH-345	Genocide and Post-Conflict Justice
ANTH-361/SOCI-361	Digitizing People
ANTH-370	Media and Globalization
ANTH-410	Global Cities
ANTH-425	Global Sexualities
SOCI-305	Crime and Human Rights: Sociology of Atrocities
SOCI-315	Global Exiles of War and Terror
SOCI-322	Health and Society
SOCI-355	CyberActivism: Diversity, Sex, and the Internet
SOCI-395	Borders:Humans, Boundaries, and Empires

* At least one course must be taken at the 300-level or above.

Health and Culture

Program overview

This immersion in health and culture focuses on the shifting configurations of health and culture in a globalizing world. Health beliefs, including notions about bodily integrity or emotional well-being, illness causation, and diagnostic practices, and the experiences, expressions, and treatments of human ailments unfold in concrete cultural contexts. Every society has some form of health care system, which is minimally administered by community members or specialized practitioners. By moving beyond the lens of western biomedicine, the immersion provides students with a set of tools for analyzing the impact of culture on how health care is delivered, how health symptoms are interpreted and communicated by patients and health providers, and how costs for treatment are calculated and managed in relation to perceived benefits. Courses examine the interrelation between health and culture from a number of perspectives and contexts, including the cultural realities within which bodies are meaningfully constituted or in some cases enhanced by technology, the culture-specific communicative or representational health practices, the socially constituted experiences of trauma, death, suffering, and healing, and the various culturally mediated approaches to health care costs and remedies.

Notes about this immersion:

- At least one course must be taken from either anthropology (ANTH) or sociology (SOCI).

Curriculum

COURSE	
Electives	
Choose three of the following:	
ANTH-245	Ritual and Performance
ANTH-246/SOCI-246	Gender and Health
ANTH-270	Cuisine, Culture, and Power
ANTH-295/SOCI-295	Global Public Health
ANTH-325	Bodies and Culture
ANTH-341	Global Addictions
ANTH-345	Genocide and Post-Conflict Justice
ANTH-425	Global Sexualities
COMM-344	Health Communication
CRIM-245	Prostitution and Vice
ECON-450	Health Care Economics
FNRT-383	Traumatic Images
FNRT-384	Art of Dying
MLSP-353	Trauma and Survival in First-Person Narrative
PHIL-316	Bioethics and Society
PSYC-231	Death and Dying
SOCI-305	Crime and Human Rights: Sociology of Atrocities
SOCI-315	Global Exiles of War and Terror
SOCI-322	Health Society
SOCI-330	Urban (In)Justice
SOCI-345	Urban Poverty
SOCI-395	Borders:Humans, Boundaries, and Empires
STSO-341	Biomedical Issues: Science and Technology
STSO-441	Cyborg Theory: (Re)thinking the Human Experience in the 21st Century

* Students must complete courses from at least two different disciplines.
† At least one course must be taken from the ANTH or SOCI disciplines.

History

Program overview

The history immersion provides students with intensive study within the discipline of history. Students may choose to structure their immersion broadly, by choosing a wide range of historical topics to study, or narrowly, by choosing a particular area to study, such as American, European, or Asian history.

Notes about this immersion:

- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Electives	
Choose three of the following:	
HIST-101	Making History
HIST-102	Themes in US History
HIST-103	The City in History
HIST-104	Themes In European History
HIST-105	Themes in History†
HIST-125	Public History and Public Debate
HIST-140	History of the Modern Middle East
HIST-150	World History Since 1500
HIST-160	History of Modern East Asia
HIST-170	Twentieth Century Europe
HIST-180	Information Revolution
HIST-190	American Women's and Gender History
HIST-201	Histories of Globalization
HIST-210	Culture and Politics in Urban Africa
HIST-221	Introduction to Public History
HIST-230	American Deaf History
HIST-238	History of Disability
HIST-240	Civil War America
HIST-245	American Slavery and Freedom
HIST-250	Origins of U.S. Foreign Relations
HIST-251	Modern U.S. Foreign Relations
HIST-252	The United States and Japan
HIST-255	History of World War II
HIST-260	History of Premodern China
HIST-261	History of Modern China
HIST-265	History of Modern Japan
HIST-266	History of Premodern Japan
HIST-270	History of Modern France
HIST-275	Screening the Trenches: The History of WWI Through Film
HIST-280	History of Modern Germany
HIST-282	Women, Gender, and Computing
HIST-290	U.S. History Since 1945
HIST-301	Great Debates in US History
HIST-302	Topics in History
HIST-310	Global Slavery and Human Trafficking
HIST-322	Monuments and Memory
HIST-323	America's National Parks
HIST-324	Oral History
HIST-325	Museums and History
HIST-326	Digital History
HIST-330	Deafness and Technology
HIST-333	Diversity in the Deaf Community
HIST-334	Oppression in the Lives of Deaf People
HIST-335	Women and the Deaf Community
HIST-340	Rochester Reformers: Changing the World
HIST-345	Environmental Disasters
HIST-350	Terrorism, Intelligence, and War
HIST-351	The Vietnam War
HIST-355	The Holocaust: Event, History, Memory
HIST-360	A Global History of Baseball
HIST-365	Conflict in Modern East Asia
HIST-369	Histories of Christianity
HIST-370	Global History of Religions
HIST-380	International Business History
HIST-381	Technology in the Modern World
HIST-390	Medicine & Public Health in American History
HIST-421	Hands-on History
HIST-430	Deaf Spaces
HIST-431	Theory and Methods of Deaf Geographies
HIST-439	Biography as History
HIST-450	Modern Japan in History, Fiction, and Film
HIST-462	East-West Encounters
HIST-465	Samurai in Word and Image
HIST-470	Science, Tech, & European Imperialism: 1800-1965
HIST-480	Global Information Age

* At least one course must be taken at the 300-level or above.

† HIST-105 is used to transfer in courses of AP exam scores and while the course is repeatable, it can only count once in the immersion.

Human Language Technology and Computational Linguistics

Program overview

The human language technology and computational linguistics immersion provides exposure to computational linguistics and relevant language science course work. Students gain knowledge and practical skills in computational natural language processing and technical linguistic analysis, useful for analytics and modeling with language data and for developing, evaluating, and maintaining language technology software.

Curriculum

COURSE	
Required Course	
ENGL-581	Intro to Natural Language Processing
Electives	
Choose two of the following:	
ENGL-310	Introduction to Language Science
ENGL-351	Language Technology
ENGL-482	Science & Analytics of Speech
ENGL-582	Seminar in Computational Linguistics

International Relations

Program overview

The international relations immersion combines the study of the complexities and shifting trends of international politics with the study of the global system. Particular emphasis is placed on the interactions and interconnectedness of nation-states at the international level and other participants in international affairs, such as international organizations, non-governmental organizations, sub-national entities, and individual citizens. Global issues studied include democratization, international and regional conflicts, terrorism, international trade and economic integration, economic development, international law and organizations, and human rights.

Notes about this immersion:

- This immersion is closed to students majoring in political science.

Curriculum

COURSE	
Electives	
*Choose three of the following:**	
POLS-205	Ethics in International Politics
POLS-210	Comparative Politics
POLS-215	Tech, Ethics & Global Politics
POLS-220	Global Political Economy
POLS-285	Environmental Ethics and Political Ecology
POLS-320	American Foreign Policy
POLS-325	International Law and Organizations
POLS-330	Human Rights in Global Perspective
POLS-335	Politics in Developing Countries
POLS-350	Politics of East Asia
POLS-351	Politics of China
POLS-360	International Political Thought
POLS-370	Cyberwar, Robots, & the Future of Conflict
POLS-375	Grand Strategy
POLS-390H	Greece and the Political Imagination
POLS-410	Evolutionary International Relations
POLS-440	War and the State
POLS-445	Terrorism and Political Violence
POLS-455	Comparative Public Policy
POLS-541	Peacekeeping and Conflict Transformation
POLS-542	War, Diplomacy, and State-Building

* At least one course must be taken at the 300-level or higher.

Journalism

Program overview

The journalism immersion provides opportunities for the advanced study of selected areas of journalism, including its history and relevant legal and ethical issues, and for education and practice in writing and editing skills required of journalists.

Notes about this immersion:

- This immersion is closed to students majoring in journalism.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Required Course	
COMM-272	Reporting and Writing I
Electives	
Choose two of the following:	
COMM-261	History of Journalism
COMM-263	Data Journalism
COMM-271	Introduction to Journalism
COMM-273	Reporting and Writing II
COMM-274	News Editing
COMM-342	Communication Law and Ethics
COMM-361	Reporting in Specialized Fields
COMM-442	Professional Writing
COMM-461	Multiplatform Journalism

Language Science

Program overview

The language science immersion prepares students in the interdisciplinary scientific study and analysis of human language. Language science is directly applicable to students interested in computing and media, human-computer interaction, brain and cognition, language acquisition, human health, interpreting, relevant branches of engineering, and policy studies. Students can complete the immersion irrespective of their skills in languages other than English. Besides a core course on linguistic principles, students choose electives covering the technology of language, philosophy of language, and language in culture and society. Electives allow students to customize the immersion to their interests and needs, with the support of a faculty adviser.

Curriculum

COURSE	
Required Course	
ENGL-310	Introduction to Language Science
Electives	
Choose two of the following:	
ANTH-220	Language and Culture: Introduction to Linguistic Anthropology
ENGL-351	Language Technology
ENGL-356	Meaning in Language
ENGL-370	Evolving English Language
ENGL-482	Science & Analytics of Speech
ENGL-581	Intro to Natural Language Processing
ENGL-582	Seminar in Computational Linguistics
MLAS-351	Linguistics Of American Sign Language
MLCU-301	Psycholinguistics
MLCU-302	Introduction to Syntax
MLJP-351	Languages in Japanese Society
MLJP-451	Structure of the Japanese Language
MLST-449	Special Topic: Modern Language*
PHIL-414	Philosophy of Language
Beginning ASL or Modern Language 200 level course	

* This course may be used when the topic focuses on linguistics.

Latino/Latina/Latin American Studies

Program overview

The Latino/Latina/Latin American studies immersion allows students to study Latino or Latin American culture. The goal is to introduce students to the customs and culture (history, art, literature, politics, anthropology, music) of Latin America or of Latinos in the U.S. Students become aware of the relationship between language and culture, and of the differences between their own language and culture and those of Spanish-speaking countries or Brazil.

Notes about this immersion:

- This immersion is closed to students majoring in applied modern language and culture who have chosen the Spanish language track, as well as students majoring in international and global studies who have chosen a focus area on Spanish or Portuguese language or Latin American studies.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.
- This immersion consists of three culture courses. If a student chooses, one of the three courses may be substituted for a Spanish or Portuguese language course. Students who have prior study of either language must take a placement exam through the department of modern languages to determine the appropriate level language course to complete.

Curriculum

COURSE	
Electives	
Choose three of the following:	
ANTH-235	Immigration to the U.S.
ANTH-255	Regional Archaeology*
ANTH-335	Culture and Politics in Latin America
ANTH-350	The Global Economy and the Grassroots
ARTH-561	Latin American Art
ARTH-572	Art of the Americas
MLPO-201	Beginning Portuguese I
MLPO-202	Beginning Portuguese II
MLPO-301	Intermediate Portuguese I
MLPO-302	Intermediate Portuguese II
MLPO-401	Advanced Portuguese I
MLPO-402	Advanced Portuguese II
MLSP-201A	Beginning Spanish IA
MLSP-201B	Beginning Spanish IB
MLSP-202	Beginning Spanish II
MLSP-301	Intermediate Spanish I
MLSP-302	Intermediate Spanish II
MLSP-305	Spanish for Health Care
MLSP-310	Spanish Grammar Review
MLSP-315	Hispanic Culture & Civilization
MLSP-351	Gender and Sexuality in Hispanic Studies
MLSP-352	Caribbean Cinema
MLSP-353	Trauma and Survival in First-Person Narrative
MLSP-401	Advanced Spanish I
MLSP-402	Advanced Spanish II

* This course may be used when the topic focuses on Mesoamerica or Latin America.

Legal Studies

Program overview

The legal studies immersion provides students with a foundation in the study of law and legal institutions, and in the relationship of law to other aspects of society and culture. Courses provide a broad perspective on law and legal institutions including historical, ethical, sociological, political, and philosophical approaches to these areas.

Notes about this immersion:

- Students must complete three courses as part of the immersion, however all three courses cannot come from the same discipline. Students majoring in communication, criminal justice, philosophy, and political science must choose two of the three courses from outside their respective major.

Curriculum

COURSE	
Required Course	
Choose one of the following:	
CRIM-215	Law and Society
POLS-200	Law & Society
Electives	
Choose two of the following:	
COMM-342	Communication Law and Ethics
COMM-362	Law and Ethics of the Press
CRIM-225	Criminal Law
CRIM-260	Courts
CRIM-315	Evidence
PHIL-205	Symbolic Logic
PHIL-304	Philosophy of Law
PHIL-403	Social and Political Philosophy
POLS-325	International Law and Organizations
POLS-330	Human Rights in Global Perspective
POLS-425	Constitutional Law
POLS-430	Constitutional Rights and Liberties
POLS-460	Classical Constitutionalism, Virtue & Law
POLS-465	Modern Constitutionalism, Liberty & Equality

* Students must take courses from at least two different disciplines.

Linguistic Anthropology

Program overview

Language is a fundamental property of being human. Linguistics, the study of human language, is one of the four branches of anthropology. Linguistic anthropology explores the dynamic interrelationships among language, culture, and society, how human beings make sense of the world, and participate in social life through creative speech acts and linguistic play. Courses familiarize students with a range of theoretical and analytic approaches, including general linguistics, sociolinguistics, theories of languages, communication, semiotics, and literary studies.

Notes about this immersion:

- This immersion is closed to students majoring in anthropology and sociology who have chosen the cultural anthropology track.

Curriculum

COURSE	
Required Course	
ANTH-104	Language and Linguistics
Electives	
Choose two of the following:	
ANTH-201/SOCI-201	Ethnographic Imagination: Writing about Society and Culture
ANTH-220	Language and Culture: Introduction to Linguistic Anthropology
ANTH-285	American Indian Languages
ANTH-305	Comparative and Historical Linguistics
ANTH-312	People Before Cities
ANTH-361/SOCI-361	Digitizing People
COMM-304	Intercultural Communication
PHIL-414	Philosophy of Language

* At least one course must be taken at the 300-level or above.

Mathematics

Program overview

Notes about this immersion:

- This immersion is closed to students majoring in applied statistics and actuarial science, applied mathematics, and computational mathematics.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Prerequisites	
MATH-181A	Calculus I (or equivalent)
Plus one of the following:	
MATH-182A	Calculus II
MATH-190	Discrete Mathematics for Computing
MATH-200	Discrete Mathematics and Introduction to Proofs
Electives*	
Choose three of the following:	
MATH-219	Multivariable Calculus†
MATH-221	Multivariable and Vector Calculus†§
MATH-231	Differential Equations‡
MATH-233	Linear Systems and Differential Equations‡
MATH-241	Linear Algebra§
MATH-251	Probability and Statistics I
MATH-311	Linear Optimization
MATH-312	Nonlinear Optimization
MATH-321	Game Theory
MATH-326	Boundary Value Problems
MATH-331	Dynamical Systems
MATH-361	Combinatorics
MATH-367	Codes and Ciphers
MATH-381	Complex Variables
MATH-341	Advanced Linear Algebra
MATH-351	Graph Theory
MATH-371	Number Theory
MATH-411	Numerical Analysis
MATH-412	Numerical Linear Algebra
MATH-431	Real Variables I
MATH-432	Real Variables II
MATH-441	Abstract Algebra I
MATH-442	Abstract Algebra II
MATH-461	Topology
MATH-505	Stochastic Processes

* At least one course must be taken at the 300-level or above.
† Students may choose one of these courses, but not both
‡ Students may choose one of these courses, but not both
§ This course has honors-designated sections taught occasionally.

Modern Languages and Cultures – Arabic

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Program overview

This immersion introduces students to the language, customs, and cultural aspects (history, art, literature, politics, anthropology, and music) of Arabic-speaking countries. The immersion consists of three language courses or two language courses and one culture course. Students with previous language skills must consult the minor adviser for placement evaluation before they register for language courses.

Notes about this immersion:

- This immersion is closed to students majoring in international and global studies who have chosen an area of study in Arabic language, a field specialization in the Middle East, or are native speakers of Arabic.

Curriculum

COURSE	
Electives	
Choose two or three consecutive language courses:	
MLAR-201	Beginning Arabic I
MLAR-202	Beginning Arabic II
MLAR-301	Intermediate Arabic I
MLAR-302	Intermediate Arabic II
MLAR-401	Advanced Arabic I
MLAR-402	Advanced Arabic II
One culture course may be taken in place of one language course:	
ANTH-275	Global Islam
ANTH-365	Culture and Politics in the Middle East

Modern Languages and Cultures – Chinese

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Program overview

This immersion introduces students to the language, customs, and cultural aspects (history, art, literature, politics, anthropology, and music) of Chinese-speaking countries. The immersion consists of three language courses or two language courses and one culture course. Students with previous language skills must consult the minor adviser for placement evaluation before they register.

Notes about this immersion:

- This immersion is closed to students majoring in applied modern language and culture who have chosen the Chinese language track, and those majoring in international and global studies who have chosen an area of study in Chinese language, a field specialization in Asia, or are native fluent speakers of Chinese.

Curriculum

COURSE	
Electives	
Choose two or three consecutive language courses:	
MLCH-201	Beginning Chinese I
MLCH-202	Beginning Chinese II
MLCH-301	Intermediate Chinese I
MLCH-302	Intermediate Chinese II
MLCH-310	Intermediate Conversational Chinese
MLCH-315	Intermediate Reading and Writing in Chinese
MLCH-401	Advanced Chinese I
MLCH-402	Advanced Chinese II
MLCH-410	Chinese for Science and Technology
MLCH-415	Professional Chinese
One culture course may be used in place of one language course:	
ANTH-255	Regional Archaeology*
HIST-260	History of Premodern China
HIST-261	History of Modern China
HIST-365	Conflict in Modern East Asia
PHIL-311	East Asian Philosophy
POLS-350	Politics of East Asia

* This course may be used when the topic focuses on East Asia

Modern Languages and Cultures – French

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Program overview

This immersion introduces students to the language, customs, and cultural aspects (history, art, literature, politics, anthropology, and music) of French-speaking countries. The immersion consists of three language courses or two language courses and one culture course. Students with previous language skills must consult the minor adviser for placement evaluation before they register.

Notes about this immersion:

- This immersion is closed to students majoring in international and global studies who have chosen an area of study in French language, a field specialization in Europe, or are native speakers of French.

Curriculum

COURSE	
Electives	
Choose two or three consecutive language courses:	
MLFR-201	Beginning French I
MLFR-202	Beginning French II
MLFR-301	Intermediate French I
MLFR-302	Intermediate French II
MLFR-310	French Oral Communication
MLFR-315	French Reading and Writing Proficiency
MLFR-401	Advanced French I
MLFR-402	Advanced French II
MLFR-410	French for Science and Technology
MLFR-415	Professional French
One culture course may be used in place of one language course:	
ARTH-364	Art in Paris
HIST-270	History of Modern France
HIST-275	Screening the Trenches: A History of WWI Through Film
HIST-470	Science, Tech, & European Imperialism: 1800-1965
MLFR-351	French Films and Hollywood
MLFR-352	The French Heritage in Films

Modern Languages and Cultures – German

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Program overview

This immersion introduces students to the language, customs, and cultural aspects (history, art, literature, politics, anthropology, and music) of German-speaking countries. The immersion consists of three language courses or two language courses and one culture course. Students with previous language skills will begin the language courses at their current level of proficiency as determined by a placement test.

Notes about this immersion:

- This immersion is closed to students majoring in international and global studies who have chosen an area of study in German language, a field specialization in Europe, or are native speakers of German.

Curriculum

COURSE	
Electives	
Choose two or three consecutive language courses:	
MLGR-201	Beginning German I
MLGR-202	Beginning German II
MLGR-301	Intermediate German I
MLGR-302	Intermediate German II
MLGR-310	German Conversation and Oral Practice
MLGR-315	German Grammar through Reading and Writing
MLGR-401	Advanced German I
MLGR-402	Advanced German II
MLGR-410	German for Science and Technology
MLGR-415	Professional German
One culture course may be used in place of one language course:	
FNRT-210	Bach, Händel and the Baroque
FNRT-211	Era of Haydn, Mozart, & Beethoven
HIST-280	History of Modern Germany
MLGR-351	Modern German Culture through Film
PHIL-417	Continental Philosophy

Modern Languages and Cultures – Italian

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Program overview

This immersion introduces students to the language, customs, and cultural aspects (history, art, literature, politics, anthropology, and music) of Italy. The immersion consists of three language courses or two language courses and one culture course. Students with previous language skills must consult the minor adviser for placement evaluation before they register.

Notes about this immersion:

- This immersion is closed to students majoring in international and global studies who have chosen an area of study in Italian language, a field specialization in Europe, or are native speakers of Italian.

Curriculum

COURSE	
Electives	
Choose two or three consecutive language courses:	
MLIT-201	Beginning Italian I
MLIT-202	Beginning Italian II
MLIT-301	Intermediate Italian I
MLIT-302	Intermediate Italian II
MLIT-401	Advanced Italian I
MLIT-402	Advanced Italian II
One culture course may be used in place of one language course:	
ARTH-311	Art and Architecture of Italy: 1250-1400
ARTH-312	Art and Architecture of Italy: 1600-1750
ARTH-317	Art and Architecture in Florence and Rome: 15th Century
ARTH-318	Art and Architecture in Florence and Rome: 16th Century
MLIT-351	Italian Cinema from Neorealism to the New Millennium

Modern Languages and Cultures – Japanese

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Program overview

This immersion introduces students to the language, customs, and cultural aspects (history, art, literature, politics, anthropology, and music) of Japan. The immersion consists of three language courses or two language courses and one culture course. Students with previous language skills must consult the minor advisor for placement evaluation before they register.

Notes about this immersion:

- This immersion is closed to students majoring in applied modern language and culture who have chosen the Japanese language track, and students majoring in international and global studies who have chosen an area of study in Japanese language, a field specialization in Asia, or who are fluent native speakers of Japanese.

Curriculum

COURSE	
Electives	
Choose two or three consecutive language courses:	
MLJP-201	Beginning Japanese I
MLJP-202	Beginning Japanese II
MLJP-301	Intermediate Japanese I
MLJP-302	Intermediate Japanese II
MLJP-401	Advanced Japanese I
MLJP-402	Creative Writing and Performance in Japanese
MLJP-405	Advanced Speaking in Japanese
One culture course may be used in place of one language course:	
ANTH-255	Regional Archaeology*
FNRT-200	Anime
HIST-252	The United States and Japan
HIST-265	History of Modern Japan
HIST-266	History of Premodern Japan
HIST-450	Modern Japan in History, Fiction, and Film
HIST-465	Samurai in Word and Image
MLJP-310	Practical Reading and Speaking in Japanese
MLJP-315	Practical Writing and Speaking in Japanese
MLJP-351	Languages in Japanese Society
MLJP-404	Japanese Culture in Print
MLJP-410	Japanese for Science and Technology
MLJP-415	Professional Japanese
MLJP-451	Structure of the Japanese Language
PHIL-311	East Asian Philosophy
POLS-350	Politics of East Asia

* This course may be used when the topic focuses on East Asia.

Modern Languages and Cultures – Portuguese

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Program overview

This immersion introduces students to the language, customs, and cultural aspects (history, art, literature, politics, anthropology, and music) of Portugal and Portuguese-speaking countries. The immersion consists of three language courses or two language courses and one culture course. Students with previous language skills must consult the minor advisor for placement evaluation before they register.

Notes about this immersion:

- This immersion is closed to students majoring in international and global studies who have chosen an area of study in Portuguese language, a field specialization in Latin America or Europe, or are fluent native speakers of Portuguese.

Curriculum

COURSE	
Electives	
Choose two or three consecutive language courses:	
MLPO-201	Beginning Portuguese I
MLPO-202	Beginning Portuguese II
MLPO-301	Intermediate Portuguese I
MLPO-302	Intermediate Portuguese II
MLPO-401	Advanced Portuguese I
MLPO-402	Advanced Portuguese II
One culture course may be used in place of one language course:	
ANTH-335	Culture and Politics in Latin America

Modern Languages and Cultures – Russian

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Program overview

This immersion introduces students to the language, customs, and cultural aspects (history, art, literature, politics, anthropology, and music) of Russia and Russian-speaking countries of the world. The immersion consists of three language courses or two language courses and one culture course. Students with previous language skills must consult the minor advisor for placement evaluation before they register.

Notes about this immersion:

- This immersion is closed to students majoring in international and global studies who have chosen an area of study in Russian language, a field specialization in Asia, or are native speakers of Russian.

Curriculum

COURSE	
Electives	
Choose two or three consecutive language courses:	
MLRU-201	Beginning Russian I
MLRU 202	Beginning Russian II
MLRU-301	Intermediate Russian I
MLRU-302	Intermediate Russian II
MLRU-401	Advanced Russian I
MLRU-402	Advanced Russian II
One culture course may be used in place of one language course:	
ENGL-418	Great Authors*

* This course may be used when the topic focuses on Russian Literature.

Modern Languages and Cultures – Spanish

Diane Forbes, Immersion Advisor
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Program overview

This immersion introduces students to the language, customs, and cultural aspects (history, art, literature, politics, anthropology, and music) of Spain and Spanish-speaking countries. The immersion consists of three language courses or two language courses and one culture course. Students with previous language skills must consult the minor adviser for placement evaluation before they register.

Notes about this immersion:

- This immersion is closed to students majoring in international and global studies who have chosen an area of study in Spanish language or a field specialization in Latin America or Europe, students majoring in applied modern language and culture who have chosen the Spanish language track, and to students who are fluent native speakers of Spanish.

Curriculum

COURSE	
Electives	
Choose two or three consecutive language courses:	
MLSP-201A	Beginning Spanish IA†
MLSP-201B	Beginning Spanish IB†
MLSP-202	Beginning Spanish II
MLSP-301	Intermediate Spanish I
MLSP-302	Intermediate Spanish II
MLSP-305	Spanish for Health Care
MLSP-310	Spanish Grammar Review
MLSP-315	Hispanic Culture & Civilization
MLSP-401	Advanced Spanish I
MLSP-402	Advanced Spanish II
MLSP-410	Spanish for Science and Technology
MLSP-415	Professional Spanish
One culture course may be used in place of one language course	
ANTH-235	Immigrating to the U.S.
ANTH-255	Regional Archaeology‡
ANTH-335	Culture and Politics in Latin America
ANTH-350	The Global Economy and the Grassroots
ARTH-561	Latin American Art
ARTH-572	Art of the Americas
ENGL-416	Topics in Global Literatures*
ENGL-418	Great Authors*
MLSP-351	Gender and Sexuality in Hispanic Studies
MLSP-352	Caribbean Cinema
MLSP-353	Trauma and Survival in First-Person Narrative

* When the course deals with Spanish and/or Latin American literature.
† Based on a student's previous study of the Spanish language, students may enroll in either Beginning Spanish IA (MLSP-201A) or Beginning Spanish IB (MLSP-201B).
‡ This course may be used when the topic focuses on Mesoamerica or Latin America.

Museum Studies

Program overview

The immersion in museum studies introduces students to the history, theory, and practice of institutional collecting, exhibiting, storing, and preserving our cultural heritage in museums, archives, collections, galleries, and libraries. It also provides students with an introduction to public history, the technical investigation of art, the history and theory of exhibitions, and interactive design for museums.

Notes about this immersion:

- This immersion is closed to students majoring in museum studies.
- Students must take at least one museum studies (MUSE) course and one history (HIST) course. The third course may be taken from either discipline.

Curriculum

COURSE	
Electives	
Choose three of the following:	
HIST-322	Monuments and Memory
HIST-323	America's National Parks
HIST-324	Oral History
HIST-325	Museums and History
MUSE-220	Introduction to Museums & Collecting
MUSE-221/HIST-221	Introduction to Public History
MUSE-224	History & Theory of Exhibitions
MUSE-225	Museums & the Digital Age
MUSE-341	Museum Education & Interpretation
MUSE-358	Legal and Ethical Issues for Collecting Institutions
MUSE-360	Visitor Engagement & Museum Technologies
MUSE-361	Tablet to Tablet: A History of Books
MUSE-388/FNRT-388	Gender and Contemporary Art

* Students must complete one course from the "MUSE" discipline and one course from the "HIST" discipline. The third course can be taken from either discipline.

Music

Program overview

The immersion in music offers courses in the history, theory, and practice of music. Students with a background in music and/or a genuine desire to know more about the subject will have the opportunity to expand their knowledge of various theoretical and historical aspects, as well as participate in performing groups at RIT.

Notes about this immersion:

- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Electives:	
Choose three of the following:	
FNRT-201	Music in the US
FNRT-202	Studies in World Music
FNRT-203	American Popular & Rock Music
FNRT-204	Music & the Stage
FNRT-205	Music Theory 1
FNRT-209	Medieval and Renaissance Music
FNRT-210	Bach, Handel, and the Baroque
FNRT-211	Era of Haydn, Mozart, & Beethoven
FNRT-250	RIT Singers*
FNRT-251	RIT Orchestra*
FNRT-252	RIT Concert Band*
FNRT-253	World Music Ensemble*
FNRT-254	RIT Jazz Ensemble*
FNRT-255	RIT Chamber Orchestra*
FNRT-320	Music of the Romantic Era
FNRT-321	Music Since 1900
FNRT-322	Survey of Jazz
FNRT-323	Survey of African-American Music
FNRT-324	Sounds of Protest
FNRT-325	American Popular Song
FNRT-326	History & Technology of Musical Instruments
FNRT-485	Music Theory 2
SOIS-240	The Harmonica & the Blues
PRFL-327	American Musical Theater

* Each of these ensembles is one semester credit hour. Three semesters of participation are required to complete one immersion course.

† At least one course must be taken at the 300-level or above.

Philosophy

Program overview

The philosophy immersion provides students with an opportunity to study the nature, methods, problems, and achievements of philosophical inquiry. The immersion emphasizes the following goals: the ability to think rationally and critically, an awareness of ethical values, an appreciation of aesthetic values, an awareness of how the past affects the present and future, and an understanding of the relationship between individuals and the social settings with which they interact.

Notes about this immersion:

- This immersion is closed to students majoring in philosophy.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Electives	
Choose three of the following:	
PHIL-201	Ancient Philosophy
PHIL-202	Foundations of Moral Philosophy
PHIL-203	Modern Philosophy
PHIL-205	Symbolic Logic
PHIL-301	Philosophy of Religion
PHIL-303	Philosophy of Art/Aesthetics
PHIL-304	Philosophy of Law
PHIL-305	Philosophy of Peace
PHIL-306	Professional Ethics
PHIL-307	Philosophy of Technology
PHIL-308	Environmental Philosophy
PHIL-309	Feminist Theory
PHIL-310	Theories of Knowledge
PHIL-311	East Asian Philosophy
PHIL-312	American Philosophy
PHIL-313	Philosophy of Film
PHIL-314	Philosophy of Vision and Imaging
PHIL-315	Responsible Knowing
PHIL-316	Bioethics and Society
PHIL-317	Renaissance Philosophy
PHIL-401	Great Thinkers
PHIL-402	Philosophy of Science
PHIL-403	Social and Political Philosophy
PHIL-404	Philosophy of Mind
PHIL-405	Philosophy of the Social Sciences
PHIL-406	Contemporary Philosophy
PHIL-407	Philosophy of Action
PHIL-408	Critical Social Theory
PHIL-409	Existentialism
PHIL-410	Medieval Philosophy
PHIL-411	Metaphysics
PHIL-412	Nineteenth Century Philosophy
PHIL-413	Philosophy of Literature
PHIL-414	Philosophy of Language
PHIL-415	Ethical Theory
PHIL-416	Seminar in Philosophy
PHIL-417	Continental Philosophy
PHIL-449	Topics in Philosophy
PHIL-571	Honors Philosophy

* At least one course must be taken at the 300-level or above.

Physics

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Program overview

In a broad sense, the aim of physics is to develop interconnected unifying threads bridging the vast number of seemingly diverse phenomena observed in the physical world around us. This immersion provides students with the opportunity for additional study in physics in order to build a secondary area of expertise in support of their major or other areas of interest.

Notes about this immersion:

- This immersion is closed to students majoring in imaging science or physics.

Curriculum

COURSE	
Prerequisites	
PHYS-211	University Physics I
PHYS-212	University Physics II
Required Courses	
PHYS-213	Modern Physics I
PHYS-214	Modern Physics II
Electives	
Choose one of the following:	
PHYS-283	Vibrations and Waves
PHYS-315	Experiments in Modern Physics
PHYS-320	Mathematical Methods in Physics
PHYS-330	Classical Mechanics
PHYS-411	Electricity and Magnetism
PHYS-440	Thermal and Statistical Physics

Political Science

Program overview

The political science immersion emphasizes the interdependence of domestic politics and international relations in the age of globalization. The immersion brings together components of American politics, international relations, and comparative politics to provide students with both national and global perspectives on politics. Perhaps most important, the political science immersion seeks to help students make sense of the increasingly complicated political environment that confronts them in their role as citizens.

Notes about this immersion:

- This immersion is closed to students majoring in political science.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Electives	
Choose three of the following courses–at least one course must come from American Politics and one course must come from International Relations.	
American Politics	
POLS-200	Law & Society
POLS-250	State & Local Politics
POLS-290	Politics and the Life Sciences
POLS-295	Cyberpolitics
POLS-300	Rhetoric & Political Deliberation
POLS-305	Political Parties and Voting
POLS-310	The Congress
POLS-315	The Presidency
POLS-320	American Foreign Policy
POLS-340	Medicine, Morality, and Law
POLS-345	Politics and Public Policy
POLS-355	Political Leadership
POLS-365	Anarchy, Technology & Utopia
POLS-415	Evolution and the Law
POLS-420	Primate Politics
POLS-425	Constitutional Law
POLS-430	Constitutional Rights and Liberties
POLS-435	American Political Thought
POLS-460	Classical Constitutionalism, Virtue & Law
POLS-465	Modern Constitutional, Liberty & Equality
POLS-481	Women in Politics
POLS-485	Politics Through Fiction
POLS-490	Politics Through Film
International Relations	
POLS-205	Ethics in International Politics
POLS-210	Comparative Politics
POLS-215	Tech, Ethics & Global Politics
POLS-220	Global Political Economy
POLS-285	Environmental Ethics and Political Ecology
POLS-320	American Foreign Policy
POLS-325	International Law and Organizations
POLS-330	Human Rights in Global Perspective
POLS-335	Politics in Developing Countries
POLS-350	Politics of East Asia
POLS-351	Politics of China
POLS-360	International Political Thought
POLS-370	Cyberwar, Robots, & the Future of Conflict
POLS-375	Grand Strategy
POLS-390H	Greece and the Political Imagination
POLS-410	Evolutionary International Relations
POLS-440	War and the State
POLS-445	Terrorism and Political Violence
POLS-455	Comparative Public Policy
POLS-541	Peacekeeping and Conflict Transformation
POLS-542	War, Diplomacy, and State-Building

* At least one course must be taken at the 300-level or above.

Principles of Computing

Program overview

Computing has become a tool that is used to solve problems in virtually every discipline. Members of society must have a basic understanding of computing in order to be productive. This immersion introduces students to the central ideas of computing, instilling the ideas and practices of computational thinking, and inviting students to understand how computing affects and changes their world. Students will develop an understanding of computational content, develop computational thinking skills, learn basic programming skills, and be exposed to the effects that computing has on society and culture.

Notes about this immersion:

- The immersion is closed to students majoring in applied mathematics, applied statistics and actuarial science, bioinformatics, computer science, computing and information technologies, computing security, computational mathematics, computer engineering, game design and development, human-centered computing, new media interactive development, software engineering, and web and mobile computing.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Prerequisite	
ISCH-110	Principles of Computing
ISCH-370	Analyzing Digital Data
Electives	
Choose one of the following:	
ISCH-201	Computing, Culture, and Society
IGME-386	Spatial Algorithms and Problem Solving
PUBL-363	Cyber Security Policy and Law

Psychology

Program overview

This immersion reflects the central themes of psychology, including topics such as the study of cognitive, developmental, social, and abnormal psychology. The study of behavior includes many different topics, but the unifying theme is that these courses all include the study of behavior using or applying the scientific method.

Notes about this immersion:

- This immersion is closed to students majoring in psychology.

Curriculum

COURSE	
Prerequisite	
PSYC-101	Introduction to Psychology
Electives	
Choose three of the following:	
PSYC-221	Abnormal Psychology
PSYC-221H	Honors Abnormal Psychology
PSYC-222	Biopsychology
PSYC-223	Cognitive Psychology
PSYC-224	Perception
PSYC-225	Social Psychology
PSYC-226	Developmental Psychology
PSYC-231	Death and Dying
PSYC-233	History & Systems in Psychology
PSYC-234	Industrial and Organizational Psychology
PSYC-235	Learning and Behavior
PSYC-236	Personality
PSYC-237	Psychology of Women
PSYC-238	Psychology of Religion
PSYC-239	Positive Psychology
PSYC-240	Human Sexuality
PSYC-241	Health Psychology
PSYC-300	Topics in Psychology

Public Policy

Program overview

This immersion provides students with a clear understanding of public policy, the policy process, and policy analysis. Students have the opportunity to develop perspectives on a variety of contemporary public policy issues, especially those that emerge from scientific and technological advancements. Policy Analysis (PUBL-301) and Decision Analysis (PUBL-302) are offered especially for students who are considering the MS in public policy or who have an interest in analytical tools.

Notes about this immersion:

- This immersion is closed to students majoring in public policy.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Electives	
Choose three of the following:	
PUBL-201	Ethics, Values & Public Policy
PUBL-210	Introduction to Qualitative Policy Analysis
PUBL-301	Public Policy Analysis
PUBL-302	Decision Analysis
PUBL-363	Cyber Security Policy and Law
PUBL-510	Technology Innovation and Public Policy
PUBL-520	Information & Communications Policy
PUBL-530	Energy Policy
PUBL-531	Climate Change: Science, Technology and Policy
PUBL-589	Topics in Public Policy
STSO-201	Science and Technology Policy
STSO-341	Biomedical Issues: Science and Technology
STSO-421	Environmental Policy

* At lease one course must be taken at the 300-level or above.

Religious Studies

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Program overview

Religion plays a major role in human affairs. To understand more fully the nature of the relationship between society and the individual, it is essential to have some understanding of religion. The religious studies immersion engages students in the study of religion from the perspective of major Western and non-Western traditions through courses in disciplines such as anthropology, history, literature, philosophy, and psychology.

Notes about this immersion:

- Students must select three courses from at least two distinct disciplines (e.g., anthropology, English, history, philosophy, or psychology)
- Philosophy majors must take two courses in disciplines other than philosophy.

Curriculum

COURSE	
Electives	
Choose three of the following:	
ANTH-245	Ritual and Performance
ANTH-275	Global Islam
ANTH-365	Culture and Politics in the Middle East
ENGL-409	Mythology & Literature
FNRT-209	Medieval and Renaissance Music
HIST-369	Histories of Christianity
HIST-370	Global History of Religions
PHIL-301	Philosophy of Religion
PHIL-311	East Asian Philosophy
PHIL-409	Existentialism
PHIL-410	Medieval Philosophy
PHIL-412	Nineteenth Century Philosophy
PSYC-238	Psychology of Religion

* Students must complete courses from at least two distinct disciplines (e.g. anthropology, English, history, philosophy, or psychology).
† Philosophy majors must take two courses in disciplines other than Philosophy.

Renaissance Studies

Program overview

The Renaissance studies immersion is an interdisciplinary set of courses focused on the study of cultural events (artistic, literary, philosophical, religious, scientific, among others) occurring during the Renaissance period (c. 1300-1600). The Renaissance saw the formation of new concepts and the occurrence of groundbreaking events such as the beginning of modern science and technology, the religious Reformation, the birth of the nation-state, the establishment of the banking system, the expansion of geographical horizons, the encounter with new cultures and populations, and the development of the notions of human dignity and human rights. Studying the Renaissance is also crucial to understanding contemporary debates centered on post-humanism, trans-humanism, technological humanism, and the various critiques of humanism, all of which have their conceptual basis in the Renaissance notion of homo universalis, or universal human being.

Notes about this immersion:

- Students must select courses from three different disciplines in order to ensure interdisciplinarity.

Curriculum

COURSE	
Electives	
Choose three of the following:	
ARTH-311	Art and Architecture of Italy: 1250-1400
ARTH-317	Art and Architecture in Florence and Rome: 15th Century
ARTH-318	Art and Architecture in Florence and Rome: 16th Century
ARTH-379	Renaissance Painting in Flanders
ENGL-308	Shakespeare Drama
ENGL-406	Shakespeare: Tragedies
FNRT-209	Medieval and Renaissance Music
FNRT-303	Traditions of Shakespearean Theatre
PHIL-317	Renaissance Philosophy

* Students must select their courses from three different disciplines.

Science and Technology Studies

Program overview

The science and technology studies immersion examines some of the major impacts of science and technology in the contemporary world. Special preference is given to American concerns. Students gain an overall appreciation of the social nature of science and technology as they have developed in the past, as they exist today, and as they may affect society in the future under various scenarios. Science and technology have become social systems in their own right and have made possible increasing freedom, a fantastic variety of choice, and, paradoxically, the growing interdependence of all segments of world society. A new level of public awareness and concern is crucial to understanding and dealing successfully with these consequences.

Notes about this immersion:

- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Electives	
Choose three of the following:	
STSO-201	Science and Technology Policy
STSO-240	Social Consequences of Technology
STSO-246	History of Women in Science and Engineering
STSO-321	Face of the Land
STSO-335	Industry, Environment, and Community in Rochester
STSO-341	Biomedical Issues: Science and Technology
STSO-342	Gender, Science, and Technology
STSO-345	Makers of Modern Science
STSO-346	Technology in American History
STSO-425	Nature and Quantification
STSO-441	Cyborg Theory: (Re)thinking the Human Experience in the 21st Century
STSO-442	Science, Technology and Society Classics
STSO-445	The Natural Sciences in Western History
STSO-489	Topics in Science, Technology, & Society
STSO-510	Interdisciplinary Capstone Seminar

* At least one course must be taken at the 300-level or above.

Science of Film, Photography, and Imaging

Program overview

The science of film, photography, and imaging immersion explores the basic science behind technologies used in film, photography, and other imaging applications. Introductions to human visual perception, color science, imaging physics, and imaging system engineering set a groundwork for common theories underlying all major imaging industries. This immersion also provides necessary prerequisites for completion of a minor in imaging science.

Notes about this immersion:

- The immersion is closed to students majoring in imaging science, motion picture science, and photographic sciences.

Curriculum

COURSE	
Required Course	
SOFA-103	Introduction to Imaging and Video Systems
Electives	
Choose two of the following:	
IMGS-221	Vision & Psychophysics
IMGS-261	Linear and Fourier Methods for Imaging
IMGS-321	Geometric Optics
IMGS-341	Interactions Between Light and Matter
IMGS-351	Fundamentals of Color Science

Social Inequalities

Program overview

Social inequalities and collective responses to them, both locally and globally, are the focus of this immersion. Students explore the interplay between social and cultural dimensions of the rapid globalization of societies, and the concurrent inequalities of race, ethnicity, class, gender, and culture. The egalitarian strivings that emerge from these inequalities also will be examined. Courses offer the unique standpoints of two academic disciplines, sociology and anthropology, to analyze the roles of powerful social institutions and culture industries, and to identify and explain social inequalities and resulting conflicts and egalitarian hopes.

Notes about this immersion:

- This immersion is closed to students majoring in sociology and anthropology.
- All three elective courses cannot come from one discipline.
- At least one course must be taken at the 300 level or higher.

Curriculum

COURSE	
Electives	
Choose three of the following:	
ANTH-210	Culture and Globalization
ANTH-225	Globalizing Africa
ANTH-235	Immigration to the U.S.
ANTH-246/SOCI-246	Gender and Health
ANTH-260	Native North Americans
ANTH-285	American Indian Languages
ANTH-328	Heritage and Tourism
ANTH-335	Culture and Politics in Latin America
ANTH-341	Global Addictions
ANTH-345	Genocide and Post-Conflict Justice
ANTH-361/SOCI-361	Digitizing People
ANTH-375	Native American Cultural Resources and Rights
ANTH-380	Nationalism and Identity
ANTH-410	Global Cities
ANTH-425	Global Sexualities
ANTH-430	Visual Anthropology
ANTH-455/ECON-452/ INGS-455	Economics of Native America
ECON-451/SOCI-451/ WGST-451	Economics of Women and the Family
SOCI-210	African-American Culture
SOCI-215	The Changing Family
SOCI-220	Minority Group Relations
SOCI-225	Social Inequality
SOCI-230	Sociology of Work
SOCI-235	Women, Work, and Culture
SOCI-295	Global Public Health
SOCI-300	Sociology of American Life
SOCI-305	Crime and Human Rights: Sociology of Atrocities
SOCI-315	Global Exiles of War and Terror
SOCI-322	Health and Society
SOCI-330	Urban (In)Justice
SOCI-345	Urban Poverty
SOCI-350	Social Change
SOCI-395	Borders:Humans, Boundaries, and Empires

* Students must take courses from at least two different disciplines.
† At least one course must be taken at the 300-level or above.

Sociology

Program overview

The immersion in sociology provides insights into the interactions between individuals and the major social forces shaping their lives. Students will learn sociology's perspectives and methods and use them to explain how society is possible, to examine various social problems, and to assess collective efforts for social change.

Notes about this immersion:

- This immersion is closed to students majoring in sociology and anthropology who have chosen the sociology track.
- Students are required to complete at least one course at the 300-level or above as part of the immersion.

Curriculum

COURSE	
Electives:	
Choose three of the following:	
SOCI-210	African-American Culture
SOCI-215	The Changing Family
SOCI-220	Minority Group Relations
SOCI-225	Social Inequality
SOCI-230	Sociology of Work
SOCI-235	Women, Work, and Culture
SOCI-240	Deaf Culture in America
SOCI-246	Gender and Health
SOCI-295	Global Public Health
SOCI-300	Sociology of American Life
SOCI-301	Social and Cultural Theory
SOCI-302	Qualitative Research
SOCI-303	Statistics in the Social Sciences
SOCI-305	Crime and Human Rights: Sociology of Atrocities
SOCI-315	Global Exiles of War and Terror
SOCI-322	Health and Society
SOCI-330	Urban (In)Justice
SOCI-345	Urban Poverty
SOCI-350	Social Change
SOCI-355	CyberActivism: Diversity, Sex, and the Internet
SOCI-361	Digitizing People
SOCI-395	Borders: Humans, Boundaries, and Empires
SOCI-451	Economics of Women and the Family
SOCI-489	Topics in Sociology

Theatre Arts

Program overview

The theatre arts immersion offers courses in dramatic literature, theatre history, theory, and practice. Students expand their knowledge of dramatic and theatrical arts as well as study the role and function of theatre in the broader contexts of history, culture, and the communication of ideas.

Notes about this immersion:

- At least one course must be taken at the 300 level or higher.

Curriculum

COURSE	
Electives	
Choose three of the following:	
PRFL-220	Theatre Ensemble*
PRFL-221	Fundamentals of Acting
PRFL-227	Dramatic Theory and Text Analysis
PRFL-230	Devising Theatre: Creating Ensemble Based Performance
PRFL-321	Traditions of Theatre in Europe
PRFL-322	Traditions of Theatre in the U.S.
PRFL-323	Traditions of Shakespearean Theatre
PRFL-324	African American Playwrights
PRFL-327	American Musical Theater
PRFL-330	Performing Identity in Popular Media
PRFL-331	Fundamentals of Directing
PRFN-144	Dance I: Jazz and Hip Hop†
PRFN-200	Appreciation of Theatrical Design
PRFN-245	Dance II: Modern Dance and Ballet†

* Theatre Ensemble counts for one credit hour. The ensemble course may be taken up to three times for a total of three credit hours toward the theatre arts immersion.
† Only one dance class may be counted toward completion of the theatre arts immersion.
‡ At least one course must be completed at the 300-level or above.

Urban Studies

Program overview

Metropolitan areas must address such enduring issues as poverty, homelessness, affordable housing, transportation, pollution, education, water and food security, health, crime, safety, recreation, zoning, segregation, ethno-racial tensions, and economic development. Each city must do so with recognition of its place in the wider regional, national, and global contexts. The urban studies immersion helps students identify and analyze such fundamental issues and allows them to explore and assess various ways policy-makers respond to those issues.

Notes about this immersion:

- This immersion is closed to students majoring in sociology and anthropology who have chosen the urban studies track.
- At least one course must be taken at the 300 level or higher.

Curriculum

COURSE	
Electives	
Choose three of the following:	
ANTH-235	Immigration to the U.S.
ANTH-312	People Before Cities
ANTH-315	The Archaeology of Cities
ANTH-410	Global Cities
ECON-440	Urban Economics
HIST-210/INGS-210	Culture and Politics in Urban Africa
SOCI-220	Minority Group Relations
SOCI-330	Urban (In)Justice
SOCI-345	Urban Poverty
STSO-550	Sustainable Communities

* At least one course must be taken at the 300-level or above.

Visual Culture

Program overview

Visual culture explores the role of visual media in everyday life and its critical function in the dissemination of ideas in the public sphere. Emphasizing comparative critical approaches to the convergence of art, popular media, science, and technology, the immersion engages globalized visual media ranging from photography, television, film, new media (the web, digital imaging, and social networks), architecture, design, and art (painting, sculpture, and multimedia forms) in the context of such social arenas as art, news, science, advertising, and popular culture. The goal is to help students develop media literacy.

Notes about this immersion:

- This immersion is closed to students majoring in museum studies.
- At least one course must be taken at the 300 level or higher.

Curriculum

COURSE	
Electives	
Choose three of the following:	
FNRT-206	Queer Looks
FNRT-220	Introduction to Museums & Collecting
FNRT-224	History & Theory of Exhibitions
FNRT-370	American Painting
FNRT-371	African-American Art
FNRT-372	American Film of the Studio Era
FNRT-373	American Film Since the Sixties
FNRT-375	Women/Gender/Art
FNRT-376	Visual Culture Theory
FNRT-377	Imag(in)ing Rochester
FNRT-378	Memory, Memorials, Monuments
FNRT-383	Traumatic Images
FNRT-384	Art of Dying
FNRT-388	Gender and Contemporary Art
FNRT-440	Deaf Art & Cinema
MUSE-225	Museums & the Digital Age
MUSE-360	Visitor Engagement & Museum Technologies
MUSE-388	Gender and Contemporary Art

Women's and Gender Studies

Program overview

The women's and gender studies immersion allows students to explore the significance of gender as it intersects with racial, ethnic, religious, national, class, sexuality, and dis/ability-based identities, past and present. The immersion introduces critical analysis and knowledge-building methods drawn from fields such as women's and gender studies, feminist theories, critical race studies, queer studies, social justice work, and activism. Courses build knowledge about the personal, social, cultural, economic, and historical dynamics that inform gender and intersecting social categories. It provides valuable skills and experiences applying these different lenses to real-world interactions with diverse individuals and communities, to current social challenges that impact multiple parties, and with an eye to improving equity and fair outcomes for everyone concerned.

Curriculum

COURSE	
Electives:	
Choose three of the following:	
ANTH-325	Bodies and Culture
ANTH-425	Global Sexualities
WGST-200	Foundations Of Women And Gender Studies
WGST-205	Feminist Practices of Inquiry
WGST-206	Queer Looks
WGST-210	Introduction to LGBTQ+ Studies
WGST-235	Women, Work, and Culture
WGST-237	Psychology of Women
WGST-240	Human Sexuality
WGST-245	Prostitution and Vice
WGST-246	History of Women in Science and Engineering
WGST-250	Domestic Violence
WGST-255	Seminar on Sexual Violence
WGST-265	Women and Crime
WGST-282	Women, Gender, and Computing
WGST-290	American Women's and Gender History
WGST-291	The History of Families and Children in the U.S.
WGST-309	Feminist Theory
WGST-318	Philosophies of Love, Sex, and Gender
WGST-330	Performing Identity in Popular Media
WGST-335	Women and the Deaf Community
WGST-342	Gender, Science, and Technology
WGST-351	Gender and Sexuality in Hispanic Studies
WGST-357	Communication, Gender, and Media
WGST-361	Queering Gender
WGST-383	Traumatic Images
WGST-384	Art of Dying
WGST-388	Gender and Contemporary Art
WGST-414	Topics in Women's and Gender Studies
WGST-451	Economics of Women and the Family
WGST-481	Women in Politics

RIT Online

www.rit.edu/ritonline

RIT provides flexible, career-focused online education to a diverse and global audience, reducing barriers to degrees, offering flexible and accessible pathways for a diverse student population, and providing industry with professional education opportunities. We have been providing career-focused education and servicing the demands of employers since 1944. And with over 40 years experience in delivering distance education, we have the infrastructure and expertise to deliver online education with the same level of quality and rigor as offered in face-to-face learning. Online learners benefit from the same esteemed faculty, research opportunities, exceptional education experience, and prestigious degree that traditional campus-based students value.

RIT offers 33 fully online graduate and undergraduate degree programs and over 800 classes taught by over 400 faculty, benefiting thousands of online students in the US and abroad. Online students enjoy full access to all support services that traditional students are offered including the library and its services, academic advising, coaching, tutoring, access services, proctored exam assistance, career services and co-op, and a help-desk dedicated to online students. Online students have access to 130,000+ alumni around the world for networking, mentoring, and career advancement opportunities. Online students in particular are assigned a dedicated student success coach who functions as an advocate for students, and connects them with the support resources, people, and departments across RIT to support their success in and out of class.

While online students may be learning remotely, at RIT, they are never alone. Once enrolled in a program, or even a class, students receive onboarding and orientation outreach to ensure they have everything they need to succeed. Many online students are working professionals--seeking to advance or switch their career--who appreciate the flexibility that online learning provides, allowing them to balance work, school, and personal life. In addition to flexibility, online students also seek the ability to connect and engage with faculty and other students consistently and meaningfully. Online learning at RIT is both a flexible and robust learning experience that goes beyond content delivery into a social, relational experience. Faculty find creative ways using best practices in online pedagogy, tools and technology to create a rich, engaging, and interactive online class experience and community.

Undergraduate Admission

rit.edu/admission

Freshman admission

Students applying for freshman admission for the fall semester may apply through an **Early Decision Plan** or **Regular Decision Plan**. The Early Decision Plan is designed for those who consider RIT their first-choice college and wish to receive an early notification regarding admission. Early Decision 1 requires that candidates file their applications and all supporting documents by November 15. Early Decision 2 requires that candidates file their applications and all supporting documents by January 1. Admission notification will be sent beginning in mid-December by January 15.

Freshmen who choose not to apply for Early Decision 1 and 2 are considered under our Regular Decision Plan. Regular Decision applicants are those who have provided all required application materials by January 15. Regular Decision applicants will begin receiving their admission decision in mid-February. Applications received after January 15 will be reviewed on a space available basis.

All applications for spring or summer semester entry are reviewed as they are received, and notification letters are mailed four to six weeks after all application credentials are received. Some programs are limited to fall entry only. Students interested in beginning their studies in the spring or summer semesters are encouraged to submit all required application materials by November 1.

Transfer admission

Applications for transfer admission are reviewed as they are received, and notification letters are mailed four to six weeks after the application is completed. Because some programs fill to capacity, it is strongly recommended that transfer applicants complete their application by March 1 (December 1 for physician assistant applicants) for fall or summer admission and by November 1 for spring admission.

A transfer credit evaluation is completed as part of the application process. Transfer credit is granted by the academic departments for course work that is related to students' intended majors, if it is completed at a regionally accredited college or university. Usually a grade of C or better is required for transfer credit to be awarded.

There is no limit on the number of credit hours that can be awarded. However, a recipient of a two-year degree from an accredited university cannot receive more than 60 semester credits for that degree. A matriculated undergraduate student's year level is determined by the number of credit hours the student has earned, according to this scale:

YEAR LEVEL	1- 4-YEAR PROGRAMS	5-YEAR PROGRAMS
1	0-26	0-26
2	27-55	27-55
3	56-84	56-75
4	85-above	76-95
5		96-above

Specific instructions for completing the application process are contained in the application packet (also online). Be sure to read the instructions carefully before applying.

Factors considered in the admissions decision include, but are not limited to, past high school/college performance (particularly in required academic subjects), admission test scores (unless you are applying under our test-optional admission plan), competitiveness of high school or previous college, art portfolio (if required for major), and related experiences (work, military, etc.). Recommendations from those familiar with your academic performance and interviews with admissions counselors often are influential.

If you are accepted for admission, a $500 nonrefundable enrollment deposit reserves a place in your class and is credited to your first-semester costs at RIT. The due date for this deposit is indicated with each offer of admission.

International applicants

International students whose native language is not English must submit results of the TOEFL or the IELTS examinations along with the requirements listed below.

Application requirements

In order to complete the application process, you need to submit the following:

1. A fully completed application for admission (includes any required supplemental forms);
2. A nonrefundable $65 application fee;
3. An official high school transcript for all freshman applicants and transfer students with fewer than 30 semester hours completed at the time of application;
4. Official ACT or SAT-I results for all freshman applicants (unless you are applying under our test-optional admission plan);
5. Official transcripts of all completed college course work and a list of any courses in progress (and not on the transcript) or courses to be completed before enrolling at RIT; and
6. A portfolio of original artwork as part of the application process for students applying for admission to academic majors offered by the schools of Art, Design and Film and Animation (BFA programs). Please review the portfolio guidelines available at *www.rit.edu/artdesign/portfolio-requirements* before submitting your portfolio.

Early admission: Students who complete the prescribed number and distribution of high school units in three years, with the exception of fourth-year English/history, may seek admission under an Early Admission Program. Please contact the Undergraduate Admissions Office for details.

Placement testing for admitted students: Many majors at RIT depend on a solid foundation in mathematics. In an effort to enable students to succeed in their college mathematics courses, the School of Mathematical Sciences developed a Mathematics Placement Exam. It assesses students' mastery of some of the fundamental mathematical concepts they have seen in their high school mathematics courses.

The Writing Placement Exam is an online exam in which students are given sixty minutes to read one of two short prompts and write a three paragraph response. The outcome of the exam has no effect on GPA; it is only used to determine which level writing course a student should enroll in first. All first-year students are required to take the exam unless they meet one of the following criteria:

- A score of 560 or higher on the Evidence-based Reading and Writing section of the SAT
- A score of 23 or higher on the English portion of the ACT
- A score of 6 or higher on the SAT essay exam.

New York State immunization requirement: New York State Public Law 2165 requires that all matriculated students enrolled for more than 6 credit hours in a term and born after January 1, 1957, must provide RIT's Student Health Center with proof that they have received the appropriate immunizations against measles, rubella, and mumps. Immunization requirements include two measles vaccinations, at least one month apart, with a live virus (after January 1, 1968, and after the first birthday) and one vaccination each against mumps and rubella (after January 1, 1969, and after the first birthday). Additional information concerning the necessary documentation and where it must be sent is included with the Admissions Office acceptance packet or available from the Student Health Center office.

Admissions services and campus visits: Selecting the appropriate college is a difficult decision, and visiting a campus often helps students form more accurate impressions. We encourage campus visits and personal admission interviews because they allow students to see our outstanding facilities firsthand and get answers to questions they may have while examining personal, academic, and career goals.

Experienced admissions counselors are available to provide information and assist students with exploring academic options. Students may choose to participate in Admissions Open House programs or arrange personal interviews and campus tours. These options are not required for admission. An appointment for an admissions visit and campus tour may be scheduled by contacting the Undergraduate Admissions Office via our website, rit.edu/admissions, or calling (585) 475-6631. Office hours are Monday through Friday, 8:30 a.m. to 4:30 p.m. EST.

Deaf and hard-of-hearing students who wish to enter NTID or another RIT college may contact the NTID Office of Admissions by sending an e-mail to ntidadmissions@ntid.rit.edu or calling (585) 475-6700 (voice), toll free in the U.S. and Canada (866) 644-6843 (voice), or by videophone (585) 743-1366. Office hours are Monday through Friday, 8:30 a.m. to 4:30 p.m. EST.

Part-time enrollment services: The Office of Part-time Enrollment Services provides central information and counseling services to students interested in enrolling in part-time undergraduate studies offered through RIT's various colleges and schools. Contact the office if assistance is needed in selecting an academic major, exploring financial aid opportunities, registering for classes, or receiving information about any aspect of part-time study at RIT.

Staff members are available to assist you from 8:30 a.m. to 6 p.m., Monday through Thursday, and from 8:30 a.m. to 4:30 p.m. on Friday. We invite you to visit our website at rit.edu/parttime, call (585) 475-2229 for information, or visit our office on the lower level of the Bausch & Lomb Center on campus.

Applying to NTID

In addition to the six application requirements listed above for admission to RIT, deaf and hard-of-hearing students applying for admission to programs offered at the National Technical Institute for the Deaf (NTID) or to any other college of RIT must submit an audiological record completed by a certified audiologist (CCC-A). All audiograms must be unaided and have been completed within three years of the application date. The audiogram is required in order to qualify for educational access and support services as well as NTID's federally supported tuition rate. Eligibility for NTID access and support services, which is agreed upon by RIT and the United States Department of Education, includes this criteria:

Hearing loss: An audiogram is required. Students must demonstrate a significant hearing loss and demonstrate the ability to benefit from the models used at RIT/NTID designated specifically to provide access to academic programs for deaf and hard-of-hearing students.

The NTID Office of Admissions adheres to the same application deadlines and notification dates for early and regular decision as outlined in the freshman admission text in this section.

Deaf and hard-of-hearing students may enter into an NTID program, or they may qualify for entry directly into a program in another RIT college with NTID sponsorship. The transfer credit of deaf students accepted to NTID's Summer Vestibule Program will be evaluated in the fall when they are accepted into a specific program.

FRESHMAN ADMISSION PREPARATION & REQUIREMENTS

Most students applying to RIT choose a specific major as part of the admission process. In addition, most colleges offer undeclared options, and the University Exploration program is available to applicants with interests in two or more colleges. Given the variety of majors, admission requirements vary from one major to another. The chart below is provided to help you select a major or option that best fits your interests and academic background.

For all bachelor's degree programs, a strong performance in a college preparatory program is expected. Generally, this includes 4 years of English, 3-4 years of mathematics, 2-3 years of science and 3 years of social studies and/or history. **See specific math and science requirements and other recommendations below.**

College	Majors and Options	Specific Math and Science Requirements and Other Recommendations
College of Art and Design	**School of Art** • Illustration • Medical Illustration • Studio Arts – Ceramics Option – Expanded Forms Option – Furniture Design Option – Glass Option – Metals and Jewelry Design Option – Non-Toxic Printmaking Option – Painting Option – Sculpture Option • Art Exploration[1] **School of Design** • 3D Digital Design • Graphic Design • Industrial Design • Interior Design • New Media Design • Design Exploration[1]	• Studio art experience and a portfolio of original artwork are required for all programs in the schools of Art and Design. • Portfolio guidelines can be found at: www.rit.edu/artdesign/portfolio-requirements. • Medical Illustration requires biology.
	School of Film and Animation • Film and Animation – Animation Option – Production Option • Motion Picture Science	• Film and Animation applicants are required to submit a portfolio of original work. Portfolio guidelines can be found at: www.rit.edu/artdesign/portfolio-requirements. • Motion Picture Science requires 3 years of math; pre-calculus **and** physics are recommended.
	School of Photographic Arts and Sciences • Photographic and Imaging Arts – Advertising Photography Option – Fine Art Photography Option – Photojournalism Option – Visual Media Option • Photographic Sciences • Photographic Arts and Sciences Exploration[1]	• Biology is required for the biomedical photographic communications option of photographic sciences.
Saunders College of Business	• Accounting • Finance • Hospitality and Tourism Management • International Business • Management • Management Information Systems • Marketing • Supply Chain Management • Business Exploration[1]	• 3 years of math required; pre-calculus recommended
Golisano College of Computing and Information Sciences	• Computer Science • Computing and Information Technologies • Computing Security • Game Design and Development • Human-Centered Computing • New Media Interactive Development • Software Engineering • Web and Mobile Computing • Computing Exploration[1]	• 4 years of math including pre-calculus required in all programs except Computing and Information Technologies, Human-Centered Computing, and Web and Mobile Computing, where 3 years of math are required and pre-calculus is recommended • All programs require chemistry or physics and strongly recommend both • Computing electives are recommended
Kate Gleason College of Engineering	• Biomedical Engineering • Chemical Engineering • Computer Engineering • Electrical Engineering (all options) • Industrial Engineering (all options) • Mechanical Engineering (all options) • Microelectronic Engineering • Engineering Exploration Program[1]	• 4 years of math required; including pre-calculus or above • Chemistry **and** physics required • Biology required for Biomedical Engineering

Pre-Professional Studies

Students interested in pre-professional studies (pre-law, pre-med and other pre-health professions) may enroll in any major at RIT and then take advantage of the advising and student organizations associated with their respective interests.

University Exploration Option

The University Exploration option is coordinated by the University Studies Division for students who wish to explore majors across two or more of RIT's colleges. The program provides students one year to explore and focus their academic and career interests. Admission to this program is based on high school performance, standardized test scores and appropriate preparation for possible academic interests. Please refer to admissions requirements in the colleges that correspond to your possible interests.

[1] A one-year program for students wishing to explore alternatives before selecting a specific major within this RIT college or school.

College	Majors and Options	Specific Math and Science Requirements and Other Recommendations
College of Engineering Technology	• Civil Engineering Technology • Computer Engineering Technology (all options) • Electrical Engineering Technology (all options • Environmental Sustainability, Health and Safety • Mechanical Engineering Technology • Mechatronics Engineering Technology • Packaging Science • Robotics and Manufacturing Engineering Technology • Engineering Technology Exploration[1]	• 3 years of math required; pre-calculus recommended • Chemistry **or** physics required; biology recommended • Technology electives desirable
	Department of Graphic Media Science and Technology • Media Arts and Technology	• 3 years of math required • Chemistry **or** physics required
College of Health Sciences and Technology	• Biomedical Sciences • Diagnostic Medical Sonography (Ultrasound) • Dietetics and Nutrition • Exercise Science • Nutritional Sciences • Physician Assistant (BS/MS)	• 3 years of math is required. Pre-calculus is recommended for all programs except Dietetics and Nutrition and Nutritional Sciences. • Biology is required for all programs. Chemistry is required for all programs except diagnostic medical sonography, where is it recommended.
College of Liberal Arts	• Advertising and Public Relations • Applied Modern Language and Culture (all options) • Communication • Criminal Justice • Digital Humanities and Social Sciences • Economics • International and Global Studies • Journalism • Museum Studies • Philosophy • Political Science • Psychology • Public Policy • Sociology and Anthropology • Liberal Arts Exploration[1]	• Public Policy requires 3 years of math. • Strong performance in English and social studies is expected.
College of Science	• Applied Mathematics • Applied Statistics and Actuarial Science • Biochemistry • Bioinformatics and Computational Biology • Biology • Biotechnology and Molecular Bioscience • Chemistry • Computational Mathematics • Environmental Science • Imaging Science • Physics • Science Exploration[1]	• 3 years of math required; pre-calculus is required for Imaging Science and Physics and recommended for all • Biology required for Biological Sciences and Environmental Science and recommended for Science Exploration • Chemistry required for Biological Sciences, Bio-chemistry, Chemistry and Environmental Ecience • Chemistry **or** physics required for Physics
National Technical Institute for the Deaf (NTID)	Deaf and hard-of-hearing students seeking admission to bachelor's degree programs in the other colleges of RIT should refer to the information for the appropriate college and apply for NTID support and access services during the application process. A **Pre-baccalaureate Studies Option** also is available for students who may need additional preparation before entering a bachelor's degree program.	
	• American Sign Language-English Interpretation (BS)	• 3 years of math required • 2 years of a foreign language recommended • Must demonstrate beginning ASL competency
	Associate Degree Leading to Bachelor's Degree (A + B) Programs (Deaf and Hard-of-Hearing Students ONLY) • Accounting Technology • Administrative Support Technology • Applied Computer Technology • Applied Liberal Arts • Applied Mechanical Technology • Business • Business Administration • Career Exploration Studies[1] • Civil Technology • General Science • Laboratory Science Technology • Mobile Application Development • 3D Graphics Technology	• 2 years of math required; students interested in engineering, math and science transfer programs should have three or more years of math. • 1 year of science required; students interested in engineering, math and science transfer programs should have two or more years of science. • Physics is recommended for students interested in engineering. • English language skills as evidenced by application materials determine associate degree options.
	Career-focused Associate Degree Programs (Deaf and Hard-of-Hearing Students ONLY) • Accounting Technology • Architectural and Civil Drafting Technology Administrative Support Technology • Applied Computer Technology • Business Administration • Business Technology • Career Exploration Studies[1] • Computer Integrated Machining Technology • Design and Imaging Technology • Laboratory Science Technology • Mobile Application Development • 3D Graphics Technology	• 2 years of math required • 1 year of science required • English language skills as evidenced by application materials determine associate degree options.
School of Individualized Study (SOIS)	• Applied Arts and Sciences	This degree offers students the opportunity to create individualized undergraduate programs of technical and professional study.

[1] A one-year program for students wishing to explore alternatives before selecting a specific major within this RIT college or school.

[2] RIT is now test optional. For reference, these SAT and ACT score ranges are from those applicants who submitted scores for admission up to and including fall 2020.

Transfer Admission Guidelines

COLLEGE OF ART AND DESIGN

Majors and Options	Transfer Course Recommendations without Associate Degree	Appropriate Associate Degree Programs for Transfer
School of Art Illustration, Medical Illustration, Studio Arts **School of Design** 3D Digital Design, Graphic Design, Industrial Design, Interior Design, New Media Design	Courses in studio art, art history, and liberal arts. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program.	Related programs or studio art experience in desired disciplines. A portfolio of original artwork is required to determine admissions, studio art credit, and year level in the program.
School of Film and Animation Film and Animation	Courses in liberal arts, science, design, drawing, and film, video, or animation	Transfer as a third-year student is uncommon, as comparable programs are not generally available at other colleges
Motion Picture Science	Courses in calculus or higher mathematics, college chemistry, calculus-based physics, and liberal arts	Transfer as a third-year student is uncommon, as comparable programs are not generally available at other colleges
School of Photographic Arts and Sciences Photographic and Imaging Arts *Advertising Photography Option* *Fine Art Photography Option* *Photojournalism Option* *Visual Media Option*	Courses in liberal arts, photography, design, and art history. Portfolio required for photo credit.	Applied Photography. Portfolio required for photo credit.
Photographic Sciences	Courses in biology, photography, and liberal arts. Portfolio required for photo credit.	No common program available
	Courses in college physics, mathematics, photography, and liberal arts. Portfolio required for photo credit.	No common program available

SAUNDERS COLLEGE OF BUSINESS

Majors and Options	Transfer Course Recommendations without Associate Degree	Appropriate Associate Degree Programs for Transfer
Accounting	Courses in economics, accounting, liberal arts, science, and mathematics	AS degree in Accounting or Business Administration
Finance International Business Management Marketing Supply Chain Management	Courses in economics, liberal arts, science, and mathematics	AS degree in Business Administration or Liberal Arts
Management Information Systems	Courses in liberal arts, math, science, economics, and computer science	AS degree in Data Processing/Management Information Systems or in Business Administration
Hospitality and Tourism Management	Courses in business and economics, foreign language, math, science, and liberal arts.	Dietetics or Nutrition, Food Service Management, Hotel/Resort Management, Restaurant Management, Travel/Tourism Management, Agriculture and Technology, Business, or Liberal Arts

B. THOMAS GOLISANO COLLEGE OF COMPUTING AND INFORMATION SCIENCES

Majors and Options	Transfer Course Recommendations without Associate Degree	Appropriate Associate Degree Programs for Transfer
Computer Science Department Computer Science	Courses in computer science, calculus, liberal arts, calculus-based physics, chemistry, or biology	AS degree in Computer Science, Engineering Science, or Liberal Arts
Computing Security Department Computing Security **School of Information** Computing and Information Technologies Human-Centered Computing Web and Mobile Computing **School of Interactive Games and Media** Game Design and Development New Media Interactive Development	Courses in programming, computer applications, calculus, lab sciences, liberal arts	AS degree in Computer Applications, Computer Science, Information Technology, or Liberal Arts
Software Engineering Department Software Engineering	Courses in computer science, calculus, liberal arts; calculus-based physics, chemistry, or biology	AS degree in Computer Science, Engineering Science, or Liberal Arts

KATE GLEASON COLLEGE OF ENGINEERING		
Majors and Options	**Transfer Course Recommendations without Associate Degree**	**Appropriate Associate Degree Programs for Transfer**
Biomedical Engineering Chemical Engineering Computer Engineering Electrical Engineering *Computer Engineering Option* *Energy Option* *Robotics Option* Industrial Engineering *Ergonomics Option* *Lean Six Sigma Option* *Manufacturing Option* *Six Sigma Option* *Supply Chain Management Option* Mechanical Engineering *Aerospace Option* *Automotive Option* *Bioengineering Option* *Energy and Environment Option* Microelectronic Engineering	Pre-engineering courses such as calculus, calculus-based physics, chemistry, and liberal arts. Computer science courses for computer engineering applicants.	AS degree in Engineering Science (plus computer science electives for computer engineering applicants)

COLLEGE OF ENGINEERING TECHNOLOGY		
Majors and Options	**Transfer Course Recommendations without Associate Degree**	**Appropriate Associate Degree Programs for Transfer**
School of Engineering Technology		
Civil Engineering Technology	Courses in mathematics, science, engineering science, and engineering technology	Civil, Construction, Environmental, Architectural, Transportation, or Surveying Technology; Engineering Science
Computer Engineering Technology (all options)	Courses in computer science, math, science, engineering science, and engineering technology	Computer Technology, Electrical or Electronic Technology, or Computer Science
Electrical Engineering Technology (all options)	Courses in mathematics, science, engineering science, and engineering technology	Electrical Technology, Electronic Technology, Engineering Science
Environmental Sustainability, Health and Safety	Math through Calculus I, micro and macro economics, introductory courses in biology, chemistry, and physics	Biology, Chemistry, or Environmental Sciences; Business or Public Administration; Liberal Arts with math/science
Mechanical Engineering Technology	Courses in mathematics, science, engineering science, and engineering technology	Mechanical, Design and Drafting, Air Conditioning, or Electromechanical Technology; Engineering Science
Mechatronics Engineering Technology	Courses in mathematics, science, engineering science, and engineering technology	Electrical or Mechanical Technology, Electronic Technology, Engineering Science
Packaging Science	Courses in business, mathematics, science, liberal arts, statistics, or computer science	Business Administration, Marketing, Management, Graphic Arts, Engineering Science, Liberal Arts with math/science
Robotics and Manufacturing Engineering Technology	Courses in mathematics, science, engineering science, and engineering technology	Manufacturing, Mechanical, Drafting and Design, Robotics, or Electromechanical Technology; Engineering Science
Department of Graphic Media Science and Technology Media Arts and Technology	Courses in liberal arts, college math, physics and chemistry, business	Transfer from associate degree programs considered on an individual basis

COLLEGE OF HEALTH SCIENCES AND TECHNOLOGY		
Majors and Options	**Transfer Course Recommendations without Associate Degree**	**Appropriate Associate Degree Programs for Transfer**
Biomedical Sciences	Courses in liberal arts, sciences, and math	AS degree in Biology or Liberal Arts with biology option
Diagnostic Medical Sonography (Ultrasound)	Courses in liberal arts, sciences, and math	AS degree in Liberal Arts with science option; Allied Health; Radiologic Technology
Dietetics and Nutrition Nutritional Sciences	Courses in liberal arts, sciences, and math. Science courses are required for Dietetics and Nutrition major.	Dietetics or Nutrition, Foodservice Management, or Liberal Arts
Exercise Science	Courses in liberal arts, sciences, and math	AS degree in Liberal Arts with science option; Allied Health areas
Physician Assistant *(Fall Entry Only)*	Courses in liberal arts, sciences, and math	AS degree in Liberal Arts with science option; Allied Health areas

COLLEGE OF LIBERAL ARTS

Majors and Options	Transfer Course Recommendations without Associate Degree	Appropriate Associate Degree Programs for Transfer
Advertising and Public Relations	Courses in advertising, marketing, communications, liberal arts, and science	Advertising, Business/Marketing, Communications, Public Relations, or Liberal Arts
Applied Modern Language and Culture (all options)	Courses in liberal arts, science, foreign language, and history	Liberal Arts with social sciences, science, or languages
Communication	Courses in liberal arts, math, science, and computer science	Liberal Arts with emphasis in communication and a technical field such as business, photography, or computer science
Criminal Justice	Courses in criminal justice or related areas, liberal arts, math, and science	Criminal Justice, Human Services, or Liberal Arts
Digital Humanities and Social Sceicnes	Courses in liberal arts, math, science, and computer science	Liberal Arts with emphasis in communication and a technical field such as business, photography, or computer science
Economics	Courses in business, liberal arts, math, science, and computer science	AS degree in Business Administration or Liberal Arts
International and Global Studies Political Science	Courses in liberal arts, science, foreign language, and history	Liberal Arts with social sciences, sciences, or languages
Journalism	Courses in liberal arts, math, science, and computer science	Liberal Arts with emphasis in communication and a technical field such as business, photography, or computer science
Museum Studies	Courses in liberal arts, art history, studio arts, photography, business, and chemistry	Fine Arts, Liberal Arts, or Business/Marketing
Philosophy	Courses in liberal arts, math, science, philosophy, and ethics	Liberal Arts
Psychology	Courses in liberal arts, sciences, social sciences	Liberal Arts with science or social science
Public Policy Sociology and Anthropology	Courses in liberal arts, sciences, and math	Liberal Arts, Environmental Studies, Economics, Government, Science

NATIONAL TECHNICAL INSTITUTE FOR THE DEAF

Majors and Options	Transfer Course Recommendations without Associate Degree	Appropriate Associate Degree Programs for Transfer
3D Graphics Technology, Accounting Technology, Administrative Support Technology, Applied Computer Technology, Applied Liberal Arts, Applied Mechanical Technology, Architectural and Civil Drafting Technology, ASL-English Interpretation, Business, Business Technology, Civil Technology, Computer Integrated Machining Technology, Design and Imaging Technology, General Science, Hospitality and Service Management, Laboratory Science Technology, Mobile Application Development, Pre-baccalaureate Studies	Transfer requirements vary by program.	Transfer requirements vary by program. Please contact NTID Office of Admissions, 585-475-6700, toll free in the U.S. and Canada at 866-644-6843, or by videophone at 585-743-1366.

COLLEGE OF SCIENCE

Majors and Options	Transfer Course Recommendations without Associate Degree	Appropriate Associate Degree Programs for Transfer
Chester F. Carlson Center for Imaging Science Imaging Science	Courses in math, computer science, and liberal arts	AS degree in Liberal Arts with math/science option, Computer Science, Engineering Science, Science
Thomas H. Gosnell School of Life Sciences Biology	Courses in liberal arts, sciences, and math	AS degree in Biology or Liberal Arts with biology option
Bioinformatics and Computational Biology Biotechnology and Molecular Bioscience	Courses in liberal arts, sciences, math, and computing	AS degree in Biotechnology or Liberal Arts with biology
Environmental Science	Courses in liberal arts, sciences, and math	AS degree in Biology, Chemistry, Environmental Science, Liberal Arts with science option
School of Mathematical Sciences Applied Mathematics Applied Statistics Computational Mathematics	Courses in liberal arts, physics, math, and chemistry	AS degree in Liberal Arts with math/science option
School of Chemistry and Materials Science Biochemistry Chemistry	Courses in liberal arts, chemistry, math, and physics	AS degree in Liberal Arts with chemistry option; Chemical Technology, Laboratory Technology
School of Physics and Astronomy Physics	Courses in calculus or higher mathematics, college chemistry, calculus-based physics, and liberal arts	No common program available.

CENTER FOR MULTIDISCIPLINARY STUDIES

Majors and Options	Transfer Course Recommendations without Associate Degree	Appropriate Associate Degree Programs for Transfer
Applied Arts and Sciences		The Applied Arts and Sciences program is particularly appropriate for individuals who have prior college-level learning, are interested in changing majors, have unique ideas about how they want to design their academic areas of study, or want to prepare themselves for a career that requires skills and expertise from several disciplines.

University Costs

The following information is provided to assist students and their families in understanding the full range of student financial aid and scholarship programs available to undergraduates, as well as the costs, payment procedures, and refund policies associated with student enrollment at RIT.

Costs and payment procedures

Charges for tuition, fees, and room and board are computed on a term basis. University billing statements may be paid by cash, check, or electronic check (e-check). The university does not accept credit card payments for tuition, fees, and room and board that appear on the student billing statement. However, we have an arrangement for a third-party vendor to accept MasterCard, VISA, and Discover Card when payment is made online. The vendor does charge a service fee for each credit card transaction.

Billing-related payments by check may be mailed to: Rochester Institute of Technology, Student Financial Services, P.O. Box 92878-200, Rochester, N.Y. 14692-8978. Payment also may be made in person at the Student Financial Services Office on the first floor of the Student Services Center. Credit card and e-check payment information can be found on the Student Financial Services website at rit.edu/eservices.

Due dates are clearly designated on the billing statement and our website. Failure to pay the amount due or arrange an optional payment plan by the due date will result in a late payment fee for students without a valid deferral.

Due dates for the 2020-2021 academic year are as follows:

Fall Semester—August 15, 2020

Spring Semester—January 15, 2021

Tuition assessment policies

1. Degree-seeking day college students are charged the undergraduate rate for all courses taken, including those courses taken while on co-op.

2. Students on co-op will not be charged tuition for those semesters unless they also are enrolled in classes.

3. Non-degree seeking students are charged for the type of course taken (day rate for day courses, graduate rate for graduate courses).

4. Students taking courses during summer semester should refer to the Summer Bulletin for policies and procedures.

2020–21 RIT Undergraduate Cost of Attendance (Estimated charges, two semesters)

Expenses	Per Semester	Per Year
BILLABLE COSTS		
Tuition (12-18 credit hours)	$25,282	$50,564
Student Activities Fee	$153	$306
Student Health Services Fee	$185	370
Rent*	$4,070	$8,140
Board†	$2,918	$5,836
Total Estimated Billable Expenses	**$32,608**	**$65,216**
ESTIMATED OTHER EXPENSES		
Books, personal expenses, and transportation	$1,044	$2,088
Total Estimated Cost of Attendance	**$33,652**	**$67,304**

* Cost above based on multiple occupany in a residence hall. Please see www.rit.edu/fa/housing/content/housing-rates?academic_year=2020-2021 for additional housing plans ans costs.

† Cost above based on the Tiger10 meal plan. See www.rit.edu/fa/diningservices/meal-plans for additional meal plan selections and costs.

Freshman Undergraduate Students, add $300 for Orientation fees.
Transfer Undergraduate Students, add $150 for Orientation fees.

Credit by experience/credit by exam is assessed at $491 per credit hour.
Per year amount is based on 2 semesters.

Students enrolled in more than 18 credit hours are charged $1,197 for each additional credit hour.
Students in the Honors Program are not assessed additional tuition for overloads (up to 24 credit hours).

For financial aid purposes, students living off-campus are provided the same rent and board allowance as on campus. Students living at home with a parent or a relative are provided with a modest allowance for expenses related to living at home and may contact the Office of Financial Aid and Scholarships for more information.

Other fees

In addition to the fees specified, certain groups of students may incur other fees, such as New Student Orientation fee. Contact Student Financial Services for information: rit.edu/fa/sfs/

Some courses require additional charges to cover laboratory, studio, or supply fees. Consult the registrar's schedule. Students are responsible for incuring the costs associated with textbooks and other supplies.

Student accident and sickness insurance: All registered students are required to maintain medical insurance while attending RIT. Insurance coverage can be through RIT, a family member's policy, or a personal policy.

A student accident and sickness insurance plan is available through RIT. There is a separate charge for this insurance. The plan provides coverage, within limits specified in the

policy, for sickness and injury, outpatient services, emergency care, and prescriptions.

Enrollment in this plan is voluntary for all students except registered international undergraduate students (full- and part-time) on A, B, E, F, G, I, J, K, O, Q, R, and V visas. These students will be enrolled automatically in the basic accident and sickness policy on a semiannual basis.

There is no need to waive coverage if it is not desired. Students who want to enroll in this plan may enroll online or by mail. An open enrollment period is available at the beginning of each academic semester. Premium can be paid by check, money order, credit card, or may be added to the student's account.

The open enrollment period ends 30 days after the start of the academic semester in which the student first registers at RIT.

For plan and enrollment information, visit the university health plans website (universityhealthplans.com) or call 800-437-6448. Students are not required to obtain the RIT student accident and sickness insurance plan to receive services at the RIT Student Health Center.

Vocational rehabilitation

Students receiving vocational rehabilitation (VR) support for fees and tuition must file authorization with RIT before registration. If authorization has not been received before registration, students must either obtain from their VR counselors a letter of commitment stating the dollar amount that is authorized and present it to Student Financial Services or be prepared to pay for the charges in question. If authorization is received after a student has paid the charges, he or she will receive a refund.

1. Students must pay all charges not authorized for payment by VR before the semester due date.
2. VR counselors should specify each charge they are covering on their authorization forms.
3. Clarification of VR authorization/billing procedures should be addressed to:

Rochester Institute of Technology
NTID/VR Billing
Student Financial Services
25 Lomb Memorial Drive
Rochester, NY 14623-5603

Financial standing

Students, former students, and graduates are in good financial standing when their account is paid in full through the Student Financial Services Office. A late payment fee will be charged to all student accounts that become past due. This includes, but is not limited to, deferred payment accounts that become past due. Those whose account is not paid in full will not receive transcripts, diplomas, or other forms of recognition or recommendation from the university.

The university reserves the right to change its prices and pricing policies without prior notice.

Electronic billing procedures

The university has an electronic billing (eBill) program for students. Each month, all RIT students receive an e-mail notification on their official university e-mail account stating that their eBill is available. Students have the option of granting additional access to allow for a parent, guardian, sponsor, or other authorized user to receive eBill notifications.

Refund policies

The acceptable reasons for withdrawal with full refund during the semester are:

1. Active military service: A student called to active military service during the first eight weeks of the term may receive a full tuition refund. If called after the eighth week, he or she may elect to complete the course by making special arrangements with both the instructor and department, or may withdraw and receive a full tuition refund. If he or she withdraws, the course must be repeated at a later date.
2. Academic reasons: Students sometimes register before grades for the previous semester are available. If they later find they are subject to academic suspension or have failed prerequisites, they will be given a full refund upon withdrawal.
3. Part-time students: If part-time students drop a course during the official drop/add period (first six days of classes in any semester), they may contact the Student Financial Services Office for a full refund for the course dropped.

A full-time student must officially withdraw from all courses or take a leave of absence in order to be eligible for a partial tuition refund. Students must complete a leave of absence or withdrawal form, which can be initiated with their academic department. A partial refund will be made during a semester if withdrawal/leave of absence is necessitated for one of the following reasons:

1. Illness, certified by the attending physician, causing excessive absence from classes
2. Withdrawal for academic or disciplinary reasons, at the request of RIT, during a semester
3. Transfer by employer, making class attendance impossible
4. Withdrawal for academic, disciplinary, or personal reasons at the request of the student, approved by the student's adviser or department representative and the Student Financial Services Office

Partial refund schedule for tuition

For more information, please visit rit.edu/sfs/refund for refund schedules and questions regarding refund policies.

Please note that nonattendance does not constitute an official withdrawal.

A student is not officially withdrawn until he or she receives a copy of the withdrawal form. The date on which a withdrawal form is properly completed will be the date of official withdrawal used to determine the refundable amount.

If the student drops his or her course load from full-time (12 or more credits) to part-time (less than 12 credits) status during the official drop/add period, he or she may contact the Student Financial Services Office for a refund based on

the difference between the full-time tuition charge and the total per-credit charge for the part-time course load.

No refund will be made for classes dropped after the official drop/add period unless the student is officially withdrawing from the university.

Advance deposits are not refundable.

If institutional charges are reduced due to withdrawals, financial aid programs are reimbursed before a cash refund is issued to the student. The student also is responsible for any unpaid balance at the time of withdrawal. Aid programs are reimbursed in the following sequence: Federal Direct Unsubsidized Loan, Federal Direct Subsidized Loan, Graduate PLUS Loan, Parent PLUS Loan, Federal Pell Grants, Federal SEOG, other federal grants, state aid, institutional aid. If a credit balance still remains, the student is then issued a refund.

For further information or comments regarding refund policies and specific withdrawal dates, contact the Student Financial Services Office.

Appeal process

An official appeal process exists for those who feel that individual circumstances warrant exceptions from published policy. The inquiry in this process should be made to the director of Student Financial Services.

Partial refund schedule for room and board

To complete a withdrawal from RIT, a resident student must check out with Housing Operations. All students on a meal plan should check out with the Food Service administrative office. Refunds, when granted, are from the date of official checkout. Room and board refund policies are established by the Center for Residential Life and RIT Food Service.

Refund schedule and percentages for room and board are as follows:

Room

1. During the first week of classes—90 percent of unused room charge
2. During the second week of classes—75 percent of unused room charge
3. During the third week of classes—60 percent of unused room charge
4. During the fourth week of classes—50 percent of unused room charge
5. Fifth and subsequent weeks—no refund

Board

1. Within the first four weeks—75 percent of the unused meal/debit charges
2. After the fourth week (during week five through the end of week eight)—50 percent of the unused meal/debit charges
3. During the last two weeks of classes—no refund

Any student who intentionally defrauds or attempts to defraud the university of tuition, fees, or other charges, or who gives false information in order to obtain financial aid, is subject to legal liability, prosecution, and university disciplinary action.

Financial Aid and Scholarships

rit.edu/financialaid

RIT feels strongly that cost should not prohibit qualified students from considering RIT. With this in mind, the university offers a full range of financial aid programs.

Approximately 90 percent of RIT full-time undergraduate students receive some type of financial assistance each year. Last year, RIT undergraduates received more than than $400 million from all sources, including more than $200 million in scholarships and grants directly from RIT. Additional information can be found on our website at www.rit.edu/admissions/aid..

Your financial need

Eligibility for need-based financial aid at RIT begins with admission in an approved degree program and demonstration of financial need using information from the Free Application for Federal Student Aid (FAFSA). Most financial aid programs also require at least half-time enrollment.

Financial need is the difference between the cost of education and the amount a student is expected to contribute toward those educational costs (the expected family contribution). The formula used to calculate the expected family contribution is called the federal methodology, and use of the formula is required when colleges determine a student's financial need for federal financial aid programs. Financial aid programs are designed to supplement the expected family contribution.

For RIT need-based aid programs we use an institutional methodology which includes a minimum student contribution from earnings of $2,300 and a includes a minimum student contribution from earnings of $2,300 and a minimum of increase $2,100 - $5,600 to the federally calculated parental contribution.

The Free Application for Federal Student Aid (FAFSA) should be completed in order to determine a student's financial need. Information on the FAFSA is used to calculate the expected family contribution. All colleges and universities that award federal financial aid use the FAFSA. Students can complete the FAFSA online at fafsa.gov.

Determination of financial aid eligibility can be complex. Therefore, individuals are encouraged to contact the Office of Financial Aid and Scholarships with any questions or concerns. Students are encouraged to pursue all available sources of financial aid.

Application process

The process of applying for financial aid should begin in October of the year prior to when the student plans to attend. Students can begin filing the Free Application for Federal Student Aid (FAFSA) beginning October 1. The application priority date for freshmen varies depending on the type of admission the student is considering for fall semester:

Early Decision I:	November 1
Early Decision II:	January 1
Regular Decision:	January 15
Transfer:	March 1

Current undergraduate students should submit the FAFSA by March 1. Filing the FAFSA by these priority dates will allow RIT to provide students with financial aid awards when award notification begins. Applications received after these dates will be awarded as long as funds are available.

Students must reapply for financial aid each year by completing the FAFSA. Also, students must maintain minimum standards of satisfactory academic progress. The Office of Financial Aid and Scholarships will make every effort to provide a similar amount of institutional gift aid, provided students apply on time and demonstrate a similar amount of financial need.

Notification

Students accepted for admission generally will receive a financial aid award notifications beginning two weeks after acceptance. Notifications for currently enrolled RIT students begin in mid-May.

Types of aid

At RIT, there are four general categories of financial aid: scholarships, grants, loans, and employment. An applicant for financial aid is considered for each of these categories.

Scholarships

Scholarships generally are awarded on the basis of academic record. RIT awards many such scholarships each year. Other typical scholarship sources include corporations, private donors, foundations, fraternal organizations, unions, and local and state governments.

RIT offers academic merit-based scholarships to both freshman and transfer students. For example, Presidential Scholarships, Founders Scholarships, and Computing Medal Scholarships are awarded to freshmen. Trustee Scholarships, Founders Scholarships for Transfer Students, and Phi Theta Kappa Scholarships are awarded to transfer students. Scholarship recipients are chosen on the basis of their academic record, recommendations, extracurricular activities, and requirements for their intended major. The combination of RIT grants and scholarships may not exceed tuition. Please contact the Office of Financial Aid and Scholarships for more details on these programs.

The Office of Financial Aid and Scholarships encourages students to apply for scholarships awarded by private organizations. This is an excellent source of funding that may reduce the need to borrow. In many cases, no adjustment to a student's financial aid award is necessary. If we are required by federal regulations to adjust a financial aid award as a result of an outside scholarship, we will make every effort to reduce the student's loan or work study award before reducing RIT need-based grants.

Grants

Grants are gifts of financial assistance awarded on the basis of demonstrated need. Grant award amounts vary. RIT also awards grants under the federally funded Supplemental Education Op-

portunity Grant Program (SEOG). The Federal Pell Grant and the New York State Tuition Assistance Program (TAP) are additional examples of grants. Other states offer grants as well.

Student loans

Student loans are provided through a formal financial obligation that must be repaid. Students need to be aware of the interest rates, the method of payment after graduation, and the effect that loans will have on their ability to meet later financial obligations. Student loans generally are not repaid until after graduation or termination of study.

Many students utilize the Subsidized Federal Direct Loan or the Unsubsidized Federal Direct Loan in meeting their costs. These programs are administered by the Office of Financial Aid and Scholarships for eligible students.

Parents also are eligible to participate in the Federal Parent Loan for Undergraduate Students (PLUS) program. This program is available to supplement other aid programs in meeting educational costs. While the PLUS is not based on need, the amount borrowed in any year cannot exceed educational costs minus other financial aid received. Details on federal loan programs, including interest rates and repayment plans, may be found at studentloans.gov.

Private lenders also offer educational loans to assist families in meeting educational expenses. These loans are available to students who are creditworthy as determined by the lender. We encourage students and families to use alternative loans as a last option after first pursuing all federal loan options. Students have the option of choosing their lender for a private loan. Additional information is available from the Office of Financial Aid and Scholarships at rit.edu/financialaid.

Employment

Employment opportunities are available to assist RIT students in meeting college expenses. Students may choose to defray some of their expenses by working part time while attending the university.

As part of a financial aid award at RIT, students may be offered employment in the federal work-study program. More than 8,000 students are employed on campus each year. The Student Employment Office also assists students in securing part-time employment off campus.

RIT's cooperative education program is another employment opportunity available to assist in meeting college expenses. Students are encouraged to contact the Office of Cooperative Education and Career Services and their academic adviser to learn more about co-op opportunities.

Academic progress requirements for state aid programs

New York State Tuition Assistance Program (TAP)

In order to receive a TAP grant, an individual must be admitted as a full-time student in an approved program, meet New York State residency and income requirements, pursue the program of study in which he or she is enrolled, and make satisfactory progress toward completion of his or her program of study.

TAP academic requirements are current as of the 2019-20 year. Standards are subject to change by legislative action.

Completion of a course is defined as meeting course requirements and receiving a letter grade of A, B, C, D or F.

State regulations mandate that if a student repeats a course in which a passing grade acceptable to the university was previously received, the repeated course does not count toward the minimum 12-credit-hour course load required for TAP and other state programs.

In addition, an accelerated TAP payment cannot be received unless the recipient completes a minimum of 24 RIT credit hours in the previous two terms. An accelerated term is the third consecutive term of enrollment at RIT.

Waiver of academic progress standards for TAP

Students who have been denied TAP benefits due to failure to maintain satisfactory standards of academic progress may request a one-time waiver of those standards. State regulations require that these waivers be granted only under extraordinary circumstances. Students failing to meet satisfactory progress standards will be given the opportunity to contact an institutional representative in the Office of Financial Aid and Scholarships to discuss their situation. The institutional representative will require documentation as appropriate and establish deadlines for submission of this documentation.

Under the regulations established by the Commissioner of Education, the decision of the institutional representative will be final. Students who, in the judgment of the institutional representative, satisfactorily meet the criteria for the waiver may have one waiver at the undergraduate level. Those wishing to apply for waivers must do so during the term in which notification of TAP denial was sent.

Reasons for which a waiver may be granted include the following:

1. Verifiable illness of the student or member of the student's immediate family during the semester in which academic standards were not met.

2. Death of a member of the student's family during the semester in which standards were not met

TAP Satisfactory Academic Progress Standards (for non-remedial (HEOP) students who received their first TAP award in 2010-2011 and thereafter)

BACHELOR'S DEGREE—SEMESTER CALENDAR								
Before being certified for this payment	**1st**	**2nd**	**3rd**	**4th**	**5th**	**6th**	**7th**	**8th**
a student must have accrued at least this many credits	0	6	15	27	39	51	66	81
with at least this grade point average	0	1.5	1.8	1.8	2.0	2.0	2.0	2.0
AND complete the following minimum number of credits in the previous term a state grant or scholarship was received	0	6	9	9	12	12	12	12

TAP Satisfactory Academic Progress Standards (for non-remedial (HEOP) students who received their first TAP award in 2010-2011 and thereafter)

ASSOCIATE DEGREE—SEMESTER CALENDAR						
Before being certified for this payment	**1st**	**2nd**	**3rd**	**4th**	**5th**	**6th**
A student must have accrued at least this many credits	0	6	15	27	39	51
with at least this grade point average	0	1.3	1.5	1.8	2.0	2.0
AND complete the following minimum number of credits in the previous term a state grant or scholarship was received	0	6	9	9	12	12

TAP Satisfactory Academic Progress Standards for remedial (HEOP) students who received their first TAP award in 2006-2007 and thereafter

BACHELOR'S DEGREE—SEMESTER CALENDAR								
Before being certified for this payment	**1st**	**2nd**	**3rd**	**4th**	**5th**	**6th**	**7th**	**8th**
A student must have accrued at least this many credits	0	6	15	27	39	51	66	81
with at least this grade point average	0	1.5	1.8	1.8	2.0	2.0	2.0	2.0
AND complete the following minimum number of credits in the previous term a state grant or scholarship was received	0	6	9	9	12	12	12	12

Please note: Only students in the HEOP program are eligible for more than four years of undergraduate awards.

3. Divorce/separation within the student's immediate family creating a demonstrable financial/emotional disruption sufficient to affect progress.

4. Circumstances that the student feels were extenuating; applicants must explain why circumstances were extenuating and beyond their control.

NYS TAP regulations require that students achieve a cumulative C average or the equivalent after receiving four semester award payments.

The regulations also provides that "The President [of the NYS Higher Education Services Corporation] may waive the requirement that a student have a cumulative C average or its equivalent for undue hardship based on: (i) the death of a relative of the student; (ii) the personal injury or illness of the student; or (iii) other extenuating circumstances. . ."

Unlike the good academic standing waiver, it is possible, should circumstances warrant it, for a student to receive more than one C-average waiver. Students interested in seeking a waiver for the cumulative C average requirement should meet with a counselor in the Office of Financial Aid and Scholarships for further guidance.

These regulations are subject to legislative change. For additional information on the NYS TAP program visit https://www.hesc.ny.gov/pay-for-college/apply-for-financial-aid/nys-tap.html

Academic progress requirements for federal aid programs

I. Purpose of Satisfactory Academic Progress Policy

To be eligible for federal financial aid, students who are U.S. Citizens or permanent resident aliens (i.e. green card) are required by the U.S. Department of Education (34 CFR 668.34) to maintain Satisfactory Academic Progress toward their degree objectives. RIT has established this SAP policy to ensure student success and accountability and to promote timely advancement toward degree objectives. *(Students receiving New York State aid (TAP & HEOP) are subject to additional Satisfactory Academic Progress requirements. Please refer to the following for these requirements: https://www.rit.edu/admissions/aid/policies/ugrad-progress*

This policy, except as noted, does not impact RIT institutional financial aid, however RIT merit based and endowed scholarships may have other criteria for eligibility. NTID aid sources of aid eligibility are determined by NTID regardless of SAP status. A student who does not meet the conditions for renewal of RIT or NTID funding is notified separately. It is also worth mentioning that the criteria for measuring SAP for federal financial aid purposes have some differences from RIT academic measurements.

The following guidelines provide academic progress criteria for all undergraduate students (including transfer students) receiving federal financial aid. They are effective with the review of student academic records at the end of the summer 2017 semester and thereafter. Although the requirements for students receiving such financial aid are somewhat more restrictive than for the general student population, they are based on reasonable expectations of academic progress toward a degree.

Table 1

Programs Subject to Federal Financial Aid SAP Policy
Federal Pell Grant
Federal Supplemental Opportunity Grant (SEOG)
Federal Work-Study
Federal Perkins Loans
Federal Direct Loans (subsidized and unsubsidized)
Federal Direct Parent PLUS Loans

II. Definition of Federal Satisfactory Academic Progress (SAP) and SAP Status

At RIT, to be eligible for federal financial aid, as identified above, you must maintain Satisfactory Academic Progress as defined by the following criteria:

- Meeting a minimum Semester Grade Point Average (GPA) and Cumulative Grade Point Average (CGPA) requirement
- Completing the degree objective within a maximum number of credits attempted (Maximum Attempted Credits Allowance)
- Earning a minimum number of credits each semester to ensure timely progress toward degree completion (Pace)

If you do not meet one or more of the above criteria you will be considered ineligible for Federal Financial Aid unless placed on *Federal Financial Aid Warning* or granted *Federal Financial Probation status*. *Federal Financial Aid Warning* allows you to continue to receive federal financial aid even though you are not making SAP. It allows you one semester to regain federal SAP without having to request consideration for *Federal Financial Aid Probation*. You must request *Federal Financial Aid Probation* and provide a Federal SAP Action Plan developed in conjunction with the designated individual within your academic unit. If you are granted Federal Financial Aid Probation, you must follow the Federal SAP Action Plan that outlines how you will regain SAP within a prescribed time frame.

The following explains each of the federal SAP evaluation criteria:

A. Grade Point Average Requirements

To maintain federal SAP, as an undergraduate student you must meet a minimum semester grade point average and minimum cumulative grade point average of at least **2.0** for each enrolled semester. Refer to Tables 2 and 3 below to understand how specific grades and course types affect your grade point averages.

Table 2
Impact of Grades on Cumulative and Semester GPA Calculation

Grade Earned	Counted in Grade Point Average for Federal SAP
A, B, C, D, F (+/-)	Yes
I — Incomplete*	Yes *(note that incompletes are counted as "F" grades for SAP GPA calculations)*
S — Satisfactory	No
SE (Satisfactory), PE (Pass), UE (Pass) and NE (No Pass) Designation allowed for Spring 2020 semester only.	No
W — Withdrawal	No
AU — Audit	No
NG — Non-graded	No
X — Credit by Exam or Experience	No
Missing Grade	No

* Incomplete grades are not calculated in your completed credits and are assumed to be failing grades when determining your GPA and CGPA. You cannot retroactively restore your eligibility for Federal aid programs for a subsequent semester unless you make up the incompletes PRIOR to the start of the next semester you would attend after receiving an Incomplete grade or by being placed on Federal Financial Aid Probation. determining your GPA and CGPA. You cannot retroactively restore your eligibility for Federal aid programs for a subsequent semester unless you make up the incompletes PRIOR to the start of the next semester you would attend after receiving an Incomplete grade or by being placed on *Federal Financial Aid Probation*.

Table 3
Impact of Course Type on Cumulative GPA Calculation

Course Type	Counted in Grade Point Average
Repeated course work – Most Recent Final Grade	Yes
Repeated course work – Previous Grades	No
Transfer course work (pre- and post-matriculation)	No
Grade Exclusions	No

For more information about grading policy, please visit the RIT Educational Policies at https://www.rit.edu/academicaffairs/policiesmanual/d050

B. Maximum Attempted Credits Allowance

We take the number of credits that are normally required to earn your degree, multiply it by 150%, to determine the maximum attempted credits allowance you can have while pursuing your degree. Then we compare this to the total number of credits you have attempted, inclusive of all transfer credit, test credit and credits attempted at RIT. Once you have exceeded the maximum attempted credits allowance you are no longer eligible to receive federal or institutional financial aid.

For example, Robert is in a BS program in Engineering that requires 128 credits, therefore the maximum attempted credit allowance for Robert is 192 (128 X 150%). Robert transferred in 50 credits and has attempted 100 credits while at RIT, for a total of 150 credits attempted. So, Robert can attempt 42 (192-150) more credits before he would lose his federal aid eligibility. *(Notice that we must include all attempted credits and not only earned credits.)*

Double Major: Because a double major program leads to a single Bachelor's degree, each of the two majors must be associated with the same degree type (i.e., both must be registered as a BS degree or both must be registered as a BFA degree). If you are in an approved double major the 150% measurement applied to the program with the larger number of required credits. For example, your BFA requires 120 credits and your second BFA requires 124 credits. The 150% calculation is based on the BFA requiring 124 credits (i.e. 124 x 150% = 186 maximum attempted credit allowance).

Dual Degree: A dual degree program is one in which the student works towards satisfying the academic requirements for two distinct degree types in an integrated fashion. Currently at RIT at the undergraduate level, this option applies solely to those students who aspire to earning the Bachelor of Science (BS) and the Bachelor of Fine Arts (BFA) in a single program of study. If you are in an approved dual degree program the 150% measurement applies to the program with the smaller number of required credits plus an additional 30 credits. For example your BS requires 129 credits and your BFA requires 120 credits, the 150% calculation is based on the BFA requiring 120 credits plus the additional 30 credits (i.e. [(120 x 150% = 180) + 30 = 210] maximum attempted credit allowance).

Minors: A minor must be declared prior to the completion of major program of study requirements or last semester of attendance whichever comes first and must be part of the Registrar record. The minor will be considered part of the student program of study for SAP determination.

The minor must be completed within the 150% timeframe rule for attempted credits for major program of study. There is no limit to the number of minors a student may obtain as long as it is within the 150% Rule for SAP policies. The 150% timeframe is monitored by ALL attempted and completed course work, regardless of change in major.

Students may continue with federal and institutional aid as long as they meet all other eligibility requirements.

Cooperative Education: A student who is not making SAP in the term prior to participating in cooperative education (co-op) and seeking federal aid must contact the Office of Financial Aid and Scholarships.

C. Pace

We take the cumulative number of earned credits divided by the total cumulative credits you have attempted. This gives us the percentage of attempted coursework you must complete each time you are evaluated. At RIT, this value is 67% (no rounding is allowed).

So, if you are an undergraduate student, we will look to the total number of credits you have completed divided by the total number of credits you have attempted. If the result is less than 67% you will be considered to not be making federal SAP and potentially could lose your federal aid eligibility.

For example, Roberta is a student who has attempted 85 credits and completed 60 credits. She is making "Pace" because she has completed 70.5% of her attempted credits. Ian is a student who has attempted 32 credits and completed 20 credits. He is not making "Pace" because he has only completed 62.5% of his attempted credits.

Review Tables 4 and 5 below to understand how grades and course types will affect students' Maximum Attempted Credits Allowance and Pace of Progression calculations:

Table 4
Impact of Grades on Pace and Maximum Attempted Credits Allowance
(Pace is the 67% measurement and Maximum Attempted Credits Allowance is 150% of degree program credits.)

	Pace		Counted Toward Maximum
Grade Earned	Units Attempted	Units Completed	Attempted Credits
A, B, C, D (+/-)	Yes	Yes	Yes
F, I, W	Yes	No	Yes
SE (satisfactory) and PE (Pass) UE(Pass). Designation allowed for Spring 2020 semester only	Yes	Yes	Yes
NE (No Pass) Designation allowed for Spring 2020 semester only	Yes	No	Yes
S (Study Abroad Courses)	Yes	Yes	Yes
X — Credit by Exam or Experience	Yes	Yes	Yes
AU, NG	No	No	No

Table 5
Impact of Course Types on Pace of Progression and Maximum Attempted Credits Allowance

	Pace		Counted Toward Maximum
Course Type	Units Attempted	Units Completed	Attempted Credits
Repeated course work (previous passing grade)	Yes	No	Yes
Repeated course work (previous failing grade)	Yes	No	Yes
Transfer course work (pre- and post-matriculation)	Yes	Yes	Yes
Grade Exclusions – passing grades	Yes	Yes	Yes
Grade Exclusions – failing grades	Yes	No	Yes

III. How and When Federal Satisfactory Academic Progress is Monitored

The Office of Financial Aid & Scholarships utilizes information from the Registrar to monitor the Semester and Cumulative Grade Point Average requirements, Maximum Attempted Credits Allowance and Pace. Satisfactory Academic Progress is monitored for all undergraduate students at the end of each enrolled semester after grades have been made official by the Registrar.

The Office of Financial Aid and Scholarships cannot complete the SAP evaluation until prior semester grades have been officially posted. An otherwise eligible student who is in a *Federal Financial Aid Warning* or *Federal Financial Aid Probation* period may experience a delayed financial aid disbursement if grades are not made official before the beginning of the subsequent semester. Likewise it is possible for a student to have federal aid disbursed to their account that would need to be reversed if it is determined that the student is not making SAP. No exceptions can be made to this process. Additionally, because financial aid awards may be released prior to Registrar receiving grade information, it is possible that a student may receive an aid package that is subsequently revised because it is determined that the student is not making federal SAP after the initial award notification is provided.

IV. Failure to Maintain Federal Satisfactory Academic Progress

The Office of Financial Aid & Scholarships will notify you if you are not meeting federal SAP requirements via your RIT email address. If you are meeting Federal Satisfactory Academic Progress requirements you will not receive a SAP notification.

A. Failing to Meet GPA and/or Pace Requirements

If you do not meet the Semester GPA or Cumulative GPA or Pace requirements you may be placed on a one-time, one-semester **Federal Financial Aid Warning**. This status applies only if you have never been on *Federal Financial Aid Warning* while attending RIT and are currently not making Federal Financial Aid Satisfactory Academic Progress nor on *Federal Financial Aid Probation*.

You may continue to receive federal financial aid for one semester on this status. You may be placed on *Federal Financial Aid Warning* status one time while attending RIT as an undergraduate. This status is provided automatically to you; no appeal is considered nor required.

It is also important to remember that you will be placed on this status regardless if you are a federal aid recipient for the semester you are designated on *Federal Financial Aid Warning*. If you regain eligibility by meeting SAP standards at the end of the warning period and subsequently fall below the standards you will be considered ineligible for federal financial aid without an approved *Federal Financial Aid Probation*.

If you do not meet the minimum SAP requirements by the end of the one-semester *Federal Financial Aid Warning* for federal SAP violations you will no longer be considered making Satisfactory Academic Progress and will become ineligible for federal financial aid without an approved *Federal Financial Aid Probation (see section V. B).*

B. Exceeding the Maximum Attempted Credit Allowance

You should be aware that if you reach the Maximum Attempted Credits Allowance you are ineligible for further federal financial **and** RIT institutional aid. The Office of Financial Aid and Scholarships may make an exception based upon its review of your academic record. The office will notify you if it wishes to allow for an exception consideration and provide guidance for additional steps that you will need to take. Consideration for an exception does not guarantee an exception. If granted an exception, you must regain SAP within a certain timeframe, or if meeting SAP requirements, you must continue to meet SAP requirements. You may not change your program of study, and you must graduate within the timeframe outlined for you. The exception will apply to both federal and institutional aid. Other conditions may apply. If you do not follow one or more of the conditions outlined you will no longer be eligible for federal or institutional aid.

V. Regaining Federal SAP and Financial Aid Eligibility after not making SAP

If you are not making SAP there are two ways that you may regain it:

A. Meet all SAP requirements

B. Appeal for Federal Financial Aid Probation

Students not meeting SAP may request to be placed on Federal Financial Aid Probation. It is critical that the application guidelines and time lines be followed as detailed below.

1. Federal Financial Aid Probation

If you are not meeting SAP, you may be granted this classification upon successfully outlining the reasons not being able to attain SAP requirements and being able to demonstrate that SAP requirements will be met within a prescribed time frame. If the appeal is approved, you may continue to receive federal financial aid. While it is possible for you to remain on *Federal Financial Aid Probation* for consecutive semesters, you may not be on this status for more than three consecutive semesters.

Additionally, understand that a student who has been on *Federal Financial Aid Probation*, regained SAP, who then later loses SAP may only be granted one additional *Federal Financial Aid Probation* while attending RIT as an undergraduate. This also applies to a student who while on *Federal Financial Aid Probation*, fails to meet the Federal SAP Action Plan outlined, appeals and is granted an additional *Federal Financial Aid Probation* status. In other words, you may be granted *Federal Financial Aid Probation* twice, with each *Federal Financial Aid Probation* lasting a maximum of three semesters.

Exceptions: If you are enrolled in associate degree program you are limited to one Federal Financial Aid Probation which cannot be more than two semesters in length.

If you are enrolled in a certificate program you are limited to one Federal Financial Aid Warning and one Federal Financial Aid Probation, lasting no longer than one semester in length.

Example 1: Student is in a four-year or five year undergraduate program of study and has previously used the one-time Federal Financial Aid Warning.

Table 6

Start of Semester:	Initial SAP Status	Outcome	Final SAP Status
Fall 2019	Not eligible for federal financial aid due to not making SAP	Appeals, approved for Federal Financial Aid Probation for two consecutive semesters	1st Federal Financial Aid Probation for Fall 2017. Eligible to receive federal aid.
Spring 2020	1st Federal Financial Aid Probation	Federal SAP Action Plan is reviewed; meeting plan.	1st Federal Financial Aid Probation (continued) for Spring 2020. Eligible to receive federal aid.
Fall 2020	Making SAP	Since making SAP, no action required.	Making SAP for Fall 2020. Eligible to receive federal aid.
Spring 2021	Not eligible for federal financial aid due to not making SAP	Appeals, placed on Federal Financial Aid Probation for one semester	2nd Federal Financial Aid Probation for Spring 2021. Eligible to receive federal aid.
Fall 2021	Not eligible for federal financial due to not making SAP	Cannot appeal because student was granted 2 previous Federal Financial Aid Probations.	Not eligible to receive federal aid for Fall 2020 and beyond until attaining SAP.

Example 2: Student is pursuing an associate or certificate undergraduate program of study and has previously used the one-time Federal Financial Aid Warning.

Table 7

Start of Semester:	Initial SAP Status	Outcome	Final SAP Status
Fall 2019	Not eligible for federal financial aid due to not making SAP	Appeals, approved for Federal Financial Aid Probation for one semester	1st Federal Financial Aid Probation for Fall 2019. Eligible to receive federal aid.
Spring 2020	Not eligible for federal financial aid due to not making SAP/not meeting Federal SAP Action Plan	Since the student used one allowable Federal Financial Aid Probation, cannot appeal.	Not eligible to receive federal aid for Spring 2018 and beyond until attaining SAP.

Federal Financial Aid Probations are counted cumulatively. For example, if you begin an associate degree program, use a *Federal Financial Aid Probation*, and then transfer into a baccalaureate program, the *Federal Financial Aid Probation* used in the associate degree program will count toward the two allowable *Federal Financial Aid Probations* in the baccalaureate program. Conversely, if you began in a baccalaureate program used one *Federal Financial Aid Probation*, and transferred into a certificate program, you would not be eligible for a *Federal Financial Aid Probation* since a certificate program only provides for one *Federal Financial Aid Probation*.

2. How to submit a Request for Federal Financial Aid Probation

For consideration of *Federal Financial Aid Probation* you MUST have a Federal SAP Action Plan provided by the appropriate individual within your primary academic unit that will outline what is needed to be accomplished academically in order to regain SAP. This process is initiated by you completing the Request for Federal Financial Aid Probation form. The request must articulate the reason(s) why you were unable to meet the SAP requirements and provide complete documentation as appropriate (i.e. medical reasons must have appropriate medical documentation to support the claim). Be sure to attach your Federal SAP Action Plan to your Request for Federal Financial Aid Probation form available on the Office of Financial Aid and Scholarships website. (www.rit.edu/sap).

Incomplete appeals will automatically result in a denial of the appeal. All appeals are reviewed by the Federal SAP Committee within the Office of Financial Aid and Scholarships. If your appeal is denied it means you cannot receive federal aid until you regain SAP.

3. When to Submit a SAP Appeal for Federal Financial Aid Probation

You should **not** submit a request for *Federal Financial Aid Probation* if you are on a *Federal Financial Aid Warning* status. These pre-emptive appeals are unnecessary and will be withdrawn. Rather, you should wait until you have been notified by the Office of Financial Aid & Scholarships that you are ineligible for financial aid because of a federal SAP deficiency. **If you have no intention of using federal aid, you should not request Federal Financial Aid Probation.**

Appeals for *Federal Financial Aid Probation* should be submitted as soon as possible after you have been notified of the loss of eligibility for federal aid, but not later than three weeks after your next semester of enrollment. Financial aid cannot be reinstated retroactively for a past semester.

If you are appealing your federal SAP status, you must meet all financial aid application deadlines and other eligibility requirements. As with any type of financial aid appeal, federal SAP appeals are granted on a funds-available basis.

4. If you change a pass/fail grade to a letter grade or have an Incomplete (I) grade change, the change will be considered in your next semester of attendance. For example, a grade change occurs in the fall 2020 semester, the change for federal SAP would be considered in the spring 2021 semester. It is not necessary for you to notify us, since we capture the changed grade the next semester we review your SAP.

You may, as an option, notify us of a change in your academic record in writing. Email is acceptable, but you must use your RIT email account. The change in your academic record must occur prior to the start of your next semester of attendance.

5. Notification of Federal SAP Appeal Decisions

Appeals for Federal Financial Aid Probation will be evaluated by the Office of Financial Aid and Scholarships who will notify you of the decision via email to your RIT email address.

VI. Miscellaneous

To accommodate the change in RIT federal SAP rules due to regulations, the following shall apply:

A. A student on *Financial Aid Probation (also referred to as Financial Aid Contract)* prior to the end of the spring 2017 semester and is not making federal SAP may appeal as any other student.

B. *Financial Aid Probation (also referred to as Financial Aid Contract)* granted to a student prior to August 1, 2017 will NOT count towards determining whether a student has received the maximum allowable number of Federal Financial Aid Probation statuses depending on the program of study.

C. A student who was granted *Financial Aid Probation (also referred to as Financial Aid Contract)* prior to August 1, 2017 will not be eligible to receive the one-time *Federal Financial Aid Warning* status.

VII. QUICK REFERENCE CHART FOR FEDERAL SAP

Table 8

MEASUREMENT	REQUIREMENT
Semester GPA	2.0
Cumulative GPA	2.0
Pace (total completed credits divided by total attempted credits)	67%
Maximum Allowable credits	Standard number of credits required to attain degree x 150%

SAP STATUS	ALLOWANCES
Federal Financial Aid Warning	1 per entire undergraduate study at RIT. May not be granted if placed on Financial Aid Satisfactory Academic Progress Contract or Federal Financial Aid Probation previously.
Federal Financial Aid Probation based on degree program. These are treated cumulatively.	**Baccalaureate** – Maximum of 2, each lasting no longer than 3 consecutive semesters. **Associate** – Maximum of 1, lasting no longer than two semesters. **Certificate** – Maximum of 1, lasting no longer than one semester.

Questions regarding the SAP policies outlined in this document or how to apply for *Federal Financial Aid Probation* should be directed to the Office of Financial Aid and Scholarships at 585-475-2186 or via email at ritaid@rit.edu.

Questions regarding your academic record please contact the Registrar's Office at 585-475-2821 or via email at registrar@rit.edu.

Questions regarding what you need to accomplish in order regain SAP should be directed to your primary academic unit.

Academic progress requirements for RIT grants and scholarships

RIT Grants and Scholarships are renewed as long as the student is enrolled full-time, making progress toward degree requirements, and meets all other eligibility criteria. Extending RIT Grants and Scholarships more than two semesters beyond the normal program completion requirements for credit eligible coursework are reviewed to determine continuation of aid eligibility. Academic requirements and award duration for merit or special-purpose scholarship programs sponsored by RIT may differ from those used in RIT's need-based programs. Recipients are advised of merit scholarship terms and conditions at the time awards are made.

Note that RIT has removed the 2.8 cumulative GPA requirement for renewal of merit-based scholarships. Contact the office if you have questions about renewal of merit based awards.

Student responsibilities

Recipients of financial aid are responsible for reporting any significant changes in their financial situation during the year to the Office of Financial Aid and Scholarships for review. These changes may require a revision to the applicant's financial aid.

Financial aid refund policy

Return of federal funds

In accordance with federal regulations, the Office of Financial Aid and Scholarships recalculates federal aid eligibility for students who withdraw, drop out, are suspended, or take a leave of absence prior to completing more than 60 percent of a term.

"Withdrawal date" is defined as the actual date the student initiated the withdrawal process, the student's last date of recorded attendance, or the midpoint of the semester for a student who leaves without notifying the university. Recalculation is based on the percent of earned aid using the following formula: number of days completed up to the withdrawal date/total days in the semester. Aid returned to federal programs is then equal to 100 percent minus the percentage earned multiplied by the amount of federal aid disbursed.

Funds are returned to the federal government in the following sequence: Federal Direct Unsubsidized Loans, Federal Direct Subsidized Loans, Federal Graduate PLUS, Federal Parent PLUS Loans, Federal Pell Grants, Federal SEOG, other federal grants.

Late disbursement

If the student is otherwise eligible, the first disbursement of Federal Direct Subsidized Loan or Federal Direct Unsubsidized Loan proceeds is allowed up to 180 days after the student has ceased to be enrolled. Subsequent disbursements are not allowed.

State scholarships

Regulations vary. Any adjustments are done in accordance with the specific requirements of the sponsoring state.

Privately funded grants and scholarships

In the absence of specific instructions from the sponsor, 100 percent of the semester award will be credited to the student's account.

RIT grants and scholarships

Institutional funding such as RIT grants and scholarships are prorated based on the tuition refund schedule for withdrawal during a semester. For more information, please contact the Office of Financial Aid and Scholarships or visit their website at www.rit.edu/financialaid.

Financial aid rights and responsibilities

Each RIT student is assigned a financial aid counselor based on his or her academic major. Counselors are committed to working with students to make RIT affordable. Also, as a financial aid recipient, you have certain rights and responsibilities, including the following:

- You have a right to privacy. All records and data submitted with your application for financial aid will be treated as confidential information.
- You have a right to a complete explanation of the award process. If you do not understand your financial aid award or feel your application has not been evaluated fairly, please contact us.
- You have the right to be notified of cancellation or withdrawal of aid. As part of this notification you have the right to be told why this action is being taken.
- You have the right to appeal. An administrative appeal process has been established to review student requests for reconsideration. If you wish to appeal your financial aid award, submit your request in writing with any supporting documentation to the Office of Financial Aid and Scholarships.
- You have the responsibility to immediately report any change in your student status. If you move, change your name, drop below full-time status, withdraw from school, or do anything else that affects your status, you must report it to the Office of Financial Aid and Scholarships, and to any student loan lender.
- You have the responsibility to report any additional funds or benefits to the Office of Financial Aid and Scholarships. These funds may include private scholarships, tuition waivers, Vocational Rehabilitation, and Veterans Benefits. The Office of Financial Aid and Scholarships is required by law to make adjustments to a student's award if additional funds or benefits create an overaward after the original offer of aid has been made.
- You have the responsibility to use financial aid for education expenses. These expenses may include tuition, fees, room, board, books, supplies, and living expenses.
- You have the responsibility to respond to any inquiries from federal, state, or college auditors.
- You have the responsibility to repay student loans on time. Acceptance of any loan carries a serious obligation to repay. Students who do not meet this repayment obligation may affect the availability of loans for future students. Before you accept student loans, you should consider the repayment obligation.

- You have the responsibility to keep copies of all correspondence regarding your financial aid, whether it is with the Office of Financial Aid and Scholarships, governmental agencies or outside lenders.

Restricted and Endowed Scholarships

Each year the university awards restricted and endowed scholarships, made possible through the generosity of hundreds of individuals and organizations. Awards are made by RIT's Office of Financial Aid and Scholarship or RIT academic departments in accordance with the special criteria of each scholarship. All applicants for financial aid are automatically considered for scholarships for which they meet the established criteria and are notified if selected Recipients are encouraged to write a note of appreciation to the donor..

2020–2021 Undergraduate Scholarships and Financial Aid

All admitted freshmen are reviewed by the Scholarship Selection Committee to determine each student's eligibility for RIT merit-based scholarships. Unless otherwise noted, no separate application is required.

Merit-based scholarships are competitive and are awarded in recognition of exceptional or outstanding academic achievement. Consideration may also be given to outstanding leadership, service, entrepreneurship, citizenship, or creativity. Portfolio evaluations or other evidence of creative excellence will also be considered for applicants to art, crafts, design, film, and photography programs.

To receive full consideration, applicants for fall entry must apply by November 1 (Early Decision 1), January 1 (Early Decision 2), or January 15 (Regular Decision). Students who meet the eligibility requirements for more than one RIT merit-based scholarship will be awarded only the highest valued scholarship. Unless otherwise noted, merit-based scholarships require a 2.8 cumulative grade-point average for renewal.

RIT Presidential Scholarships
Awarded to a select number of entering freshmen. Recipients demonstrate exceptional academic performance; receive exemplary letters of recommendation as well as strong entrance exam scores. Amounts vary. Renewable

RIT Founders Scholarships
Named to recognize the founders of RIT and its forerunners, Founders Scholarships are awarded to admitted freshmen who are outstaning academically, are active and involved in their schools or community, or demonstrate special talents or abilities. Consideration may also be given to outstanding leadership, service, entrepreneurship, citizenship, or creativity. Portfolio evaluations or other evidence of creative excellence will also be considered for applicants to art, crafts, design, film, and photography programs. Amounts vary. Renewable

RIT Founders Scholarships for International Students
The Founders Scholarship for International Students is awarded to highly qualified admitted international students. Amounts vary. Renewable.

Performing Arts Scholarships
Recognizes individual achievement and talent in the performing arts. Regardless of major, all full-time admitted freshman undergraduates are eligible for consideration. A separate application and a digital audition are required. Amounts vary. Renewable based on continued participation in the performing arts at RIT. For more information, see www.rit.edu/financialaid.

RIT Recognition Scholarships
Provided to a select number of students who demonstrate meritorious academics, community involvement, leadership, or other characteristics that the university deems of value. Amounts vary. Renewable.

RIT Tiger Pride Awards
A limited number of admitted undergraduate students are selected that show promise of success at RIT. Amounts vary. Good academic standing required for renewal.

Merit-Based Scholarship General Guidelines

Additional Merit-Based Scholarships	Eligibility	Amount	Additional Information/ Where to Apply
RIT National Merit Scholarship	Awarded to admitted freshmen who are National Merit Scholar finalists and name RIT as their 1st choice school for NMSC..	$2,000 per year. Renewable as long as student meets NMSC guidelines.	RIT will receive finalist rosters from NMSC. Combination of the two awards equals $2,000. Recipients of these awards automatically qualify for our highest Presidential Scholarships s
RIT National Hispanic Scholar Award	Awarded to admitted freshmen who are recognized by the College Board as National Hispanic Recognition Scholars.	$2,000 per year. Renewable.	RIT will receive an official roster from the College Board NHRS program.
RIT National Co-op Scholarships	Awarded to outstanding admitted freshman students who, through their essay, reflect a clear enthusiasm for experiential learning.	$8,000 per year. Renewable. Up to 10 awarded each year.	Submit scholarship application online at: waceinc.org.
RIT/FIRST Robotics Scholarships	Awarded to outstanding admitted freshman applicants who have participated on a high school FIRST team.	$8,000 per year. Renewable. Up to 20 awarded each year.	Download scholarship application at: firstinspires.org.
RIT Project Lead The Way Scholarships	Awarded to outstanding admitted freshmen who have completed two or more PLTW courses.	$8,000 per year. Renewable. Up to 20 awarded each year.	Submit a letter of recommendation from a PLTW teacher along with RIT admission application and school transcripts by January 15.
RIT Hillside Scholarships	Awarded to admitted freshman students to recognize outstanding graduates of the Hillside Work-Scholarship Connection program.	$12,000 per year. Renewable.	Recipients are identified based on involvement in the Hillside WorkScholarship Connection program.
RIT Computing Medal Scholarships **RIT Innovation & Creativity Award Scholarships**	Award recipients nominated by their high schools who are admitted and enroll at RIT in the fall immediately following graduation from high school.	$8,000 per year. Renewable.	Eligible students must be nominated by their high schools in the junior year for consideration
ROTC Scholarships	Students enrolling in ROTC who are academically qualified.	Amounts vary.	Air Force: 585-475-5197 Army: 585-475-2881 Navy: 585-275-4275

Additional Merit-Based Scholarships	Eligibility	Amount	Additional Information/ Where to Apply
RIT ROTC Room and Board Scholarships	Awarded to Army, Air Force, or Navy ROTC cadets awarded three- or four-åyear scholarships prior to enrollment	Up to the amount of a standard default room and board plan, minus other financial aid and benefits.	Contact the Office of Financial Aid and Scholarships.
NYS STEM Incentive Program	For qualified NYS residents matriculated in an approved undergraduate program in Science, Technology, Engineering or Mathematics in New York state.	$6,800	Full eligibility requirements and applicant guidelines can be found at: hesc.ny.gov/stem.
Veterans Benefits (GI Bill, Vocational Rehab., Yellow Ribbon)	Eligibility depends on veteran benefit being sought.	Can cover up to full cost of attendance depending on program and other aid sources.	Contact the Veterans and Military Services Office at 585-475-6641 or visit our Military & Veterans website: rit.edu/admissions/veterans
Need-Based Grants			
RIT Grants	Students demonstrating financial need.	Amounts vary depending on need.	File the Free Application for Federal Student Aid (FAFSA) after October 1.
RIT RCSD Scholarships	Awarded to qualified freshmen who are graduates of the Rochester City School District who have both lived in the city and attended an approved high school within the RCSD for the last three years of high school.	Full tuition through a combination of RIT scholarships and state and federal need-based grants.	Must apply for admission to RIT by January 15 and be certified by the high school guidance office to be considered
Say Yes to Education Scholarships	In partnership with Say Yes to Education, awarded to participants in the Say Yes to Education program.	Full tuition through a combination of RIT scholarships and state and federal need-based grants.	Must apply for admission to RIT by January 15 and be certified by Say Yes to be considered
Tuition Assistance Program (New York State)	Full-time students who are New York state residents and meet state income guidelines.	$500 to $5,165 per year for entering freshmen	File New York State TAP Application and the Free Application for Federal Student Aid (FAFSA).
Federal Pell Grant	Students who are pursuing their first bachelor's degree and meet need criteria	$657 to $6,195 per year. Prorated for part-time study	File the Free Application for Federal Student Aid (FAFSA).
Federal Supplemental Educational Opportunity Grant	Students with high financial need (normally those who qualify for Federal Pell Grant).	$$100 to $4,000 per year. Average award is $500.	File the Free Application for Federal Student Aid (FAFSA).
NYS Higher Education Opportunity Program (HEOP)	Economically and academically disadvantaged residents of New York state.	Varies according to need and New York state funding.	Contact HEOP Office at RIT (585-475-2506) for eligibility guidelines
Other State Grants	Varies.	Amounts vary.	State education department in state of residency.
Loans			
Federal Direct Loans	All students enrolled at least half time in a degree program.	Maximum amount: 1st year: $3,500; 2nd year: $4,500; 3rd, 4th, 5th years: $5,500. Additional maximum $2,000 Unsubsidized Federal Direct Loan—all years	File the Free Application for Federal Student Aid (FAFSA).
Federal Direct Loans—Independent Students	All independent undergraduates enrolled at least half time in a degree program.	Maximum amount (including unsubsidized): 1st year: $9,500; 2nd year: $10,500; 3rd, 4th, 5th years: $12,500	File the Free Application for Federal Student Aid (FAFSA).
Federal Direct PLUS Loans	Parent of a dependent student who is enrolled at least half time in a degree program.	Total cost of education minus all other financial aid awarded.	File the FAFSA and apply online at studentloans.gov.
Employment			
Federal Work-Study Program	Students with financial need. Most jobs provided on campus. Some community service positions are available.	Varies, depending on hours and wage rate. RIT wage rates start at $11.80 per hour.	File the Free Application for Federal Student Aid (FAFSA).
RIT Employment Program	No financial need requirement. May be on campus or off.	Varies, depending on hours and wage rate. RIT wage rates start at $11.80 per hour.	RIT Student Employment Office.

Notes

- This chart covers the most commonly awarded financial aid programs available to full-time undergraduate students at RIT. Information is correct as of 6/17.
- Most programs require satisfactory progress toward degree completion to maintain eligibility (see *RIT Undergraduate Bulletin*).
- Federal student aid programs are subject to government appropriations.
- *Filing the FAFSA by the priority filing date will ensure priority consideration for all programs. Applications filed after this date will receive consideration as long as funds remain available.*
- *Scholarships provided by RIT will be prorated for NTID-sponsored students to reflect lower NTID tuition rates. Please see NTID version of this publication if you are a deaf or hard-of-hearing applicant.*

University Policies and Procedures

Academic Policies and Procedures

At RIT, we shape the future and improve the world through creativity and innovation. As an engaged, intellectually curious, and socially conscious community, we leverage the power of technology, the arts, and design for the greater good. Moreover, RIT sets high standards that challenge students to develop values that will enhance their lives professionally and enable them to contribute constructively to society.

Graduation requirements

To earn an academic credential from RIT, students must satisfy a number of graduation requirements, which may vary significantly from program to program. All students should seek out and use the academic advising resources within their colleges to assist them in planning their academic program of study. In general, students should expect to satisfy the following requirements before they can graduate from RIT:

A. Completion of academic curricula

I. Students must satisfactorily complete all of the courses in their academic program. General education requirements and specific course requirements for each program are identified in the following pages. This bulletin, and careful consultation with an academic advisor, provide the best resources for planning and completing all of the requirements necessary for graduation.

II. Program curricula may include several types of courses, including cooperative education, field experience, practicum, thesis, research, and wellness. Most students will need to satisfy a wellness requirement, and many academic programs require one or more semesters of experiential learning, including cooperative education or internships.

III. The curriculum in effect at the time of admission into a program will normally be the curriculum one must complete in order to graduate. Occasionally, with departmental approval, course substitutions and other minor curricular modifications may occur. Although there is no time limit within which students must complete their course requirements, the curriculum under which a student is certified to graduate must be no more than seven years old.

B. Grade-point average standard

I. Successful candidates for an undergraduate degree, diploma, or certificate must have a cumulative grade-point average of at least 2.0. The physician assistant program requires a cumulative grade-point average of 2.8 or higher.

II. Graduation honors are conferred on associate and bachelor's degree recipients who achieve a 3.40 or higher cumulative program GPA.

C. Residency and minimum earned hours

A minimum of 25 percent of the total semester credit hours required for the degree shall consist of successfully completed RIT courses. The degree-granting program shall decide which specific courses shall count to satisfy this requirement. Credit earned through transfer, credit by exam/experience, College-Level Examination Program (CLEP), Advanced Placement (AP), International Baccalaureate (IB), or audit is excluded from these residency calculations. RIT academic programs vary as to the total number of credit hours required; however, under no circumstances will a student be allowed to graduate with a bachelor's degree with fewer than 120 cumulative earned hours (60 hours for associate degrees). Cumulative earned hours include RIT courses, transfer credit, credit by exam/experience, CLEP, AP, and IB credits.

D. Developing writing excellence

Following university policy, all students are required to complete three writing intensive (WI) courses before they graduate:

- one First Year Writing course, to be taken in the first year;
- one Programmatic WI course, year taken as required by the particular degree program; and
- a third WI course, preferably within General Education but may be a second program WI course, to be taken in the second or third year is recommended.

First Year Writing is a General Education Foundations course that plays an essential role in students' academic transition to the university. In FYW, students learn about the social and intellectual aspects of university writing, and develop critical literacy practices required for academic success. There are currently three FYW courses that fulfill this requirement:

- FYW: Writing Seminar (UWRT-150)
- FYW: The Future of Writing (ENGL-150)
- FYW: Ethics in Computing (ISTE-110)

General Education Writing Intensive (WI) courses reinforce the knowledge and practices introduced in FYW. These courses are located throughout the perspective, immersion, and elective course categories on the General Education curriculum and use writing to engage students in course content.

Program Writing Intensive courses (identified on the typical course sequence charts with the designation "WI") are located in disciplinary contexts and apprentice students in specific forms of writing. These courses reinforce the knowledge and practices introduced in FYW, and students gain mastery of written forms specific to the student's major area of study.

E. Fulfillment of financial obligations

Students must fulfill all financial obligations to RIT before they can be certified to graduate.

General Education Curriculum–Liberal Arts and Sciences

RIT's framework for general education provides students with courses that meet specific university approved general education learning outcomes and New York State Education Department liberal arts and sciences requirements. Students in all bachelor of science degree programs are required to complete a minimum of 60 credit hours in General Education; students in all bachelor of fine arts degree programs are required to complete a minimum of 30 credit hours in General Education. The general education framework intentionally moves through three educational phases designed to give students a strong foundation, an introduction to fundamentals of liberal arts and sciences disciplines, and the opportunity for deeper study and integrative learning through immersion in a cluster of related courses.

The general education curriculum consists of the following requirements:

1. First Year Writing—this course provides a focus on writing and communication skills, which prepares students for course work and career expectations. This course, which is typically taken in the first year, plays an essential role in students' transition from secondary to post-secondary education.

2. Perspectives—courses are designed to introduce students to seven key areas of inquiry that develop ways of knowing the world. The perspective courses introduce students to fundamentals of a liberal arts and sciences discipline (methods, concepts, and theories) while addressing specific general education learning outcomes. Number required and selection of perspectives courses varies by degree type (e.g., BS, BFA, AS, or AAS) and degree program. See individual degree program requirements for details.

a. Perspective 1 (ethical): Courses focus on ethical aspects of decision-making and argument, whether at the individual, group, national, or international level. These courses provide students with an understanding of how ethical problems and questions can be conceived and resolved, and how ethical forms of reasoning emerge and are applied to such challenges.

b. Perspective 2 (artistic): Courses focus on the analysis of forms of artistic expression in the context of the societies and cultures that produced and sustained them. These courses provide insight into the creative process, the nature of aesthetic experience, the fundamentals of criticism and aesthetic discrimination, and the ways in which societies and cultures express their values through their art.

c. Perspective 3 (global): Courses in this category encourage students to see life from a perspective wider than their own and to understand the diversity of human cultures within an interconnected global society. Courses explore the interconnectedness of the local and the global in today's world or in historical examples, and encourage students to see how global forces reverberate at the local level.

d. Perspective 4 (social): Courses focus on the analysis of human behavior within the context of social systems and institutions. Because RIT recognizes that student success depends on the ability to understand how social groups function and operate, these courses provide insight into the workings of social institutions' processes.

e. Perspective 5 (natural science inquiry): Science is more than a collection of facts and theories, so students are expected to understand and participate in the process of science inquiry. Courses focus on the basic principles and concepts of one of the natural sciences. In these classes, students apply methods of scientific inquiry and problem solving in a laboratory or field experience.

f. Perspective 6 (scientific principles): Courses focus on the foundational principles of a natural science or provide an opportunity to apply methods of scientific inquiry in the natural or social sciences. Courses may or may not include a laboratory experience.

g. Perspective 7A, 7B (mathematical): Courses focus on identifying and understanding the role that mathematics plays in the world. In these courses, students comprehend and evaluate mathematical or statistical information and perform college level mathematical operations on quantitative data.

3. Immersion—a series of three related general education courses that further broaden a student's judgment and understanding within a specific area through deeper learning.

4. General Education electives—The remaining general education elective credits may be specified by the academic programs in order for students to fulfill supporting requirements (e.g. math or science, foreign languages, etc.). Some of these credits may be general education electives that can be chosen by the students themselves. Credits in the perspectives category that exceed the minimum requirement will be applied toward the elective credits.

Wellness Education Requirement

RIT recognizes the need for wellness education in today's society and offers specifically designed courses to help students develop and maintain a well-balanced healthy lifestyle. The wellness education requirement is designed to assist students in making healthy decisions to support their academic and social interactions in college and beyond. The wellness curriculum provides learning experiences that are an integral part of the educational experience at RIT.

Students seeking a bachelor's degree: Students seeking a bachelor's degree must successfully complete two different wellness activity courses. *(Important note: Different courses would include different levels of and/or forms of a course that may have the same course number (e.g., pilates and advanced pilates would count as two different activity courses).*

Students seeking an associate degree: Students seeking an associate degree must successfully complete one wellness activity course.

Transfer students: Transfer students may apply course work successfully completed at a previous institution. The student's home department will determine and make decisions regarding transfer of health, wellness, or activity courses. The Center for Intercollegiate Athletics and Recreation is available for consultation.

Exemption Scenarios

Age: Students who are 25 or older *at the date of matriculation* are exempt from the wellness education requirement but may enroll in any course on a space-available basis.

Club sports participation: Students participating in an RIT-recognized club sport may be granted one activity course credit for the year of participation. Participation on the same club team for multiple seasons (e.g., four seasons) can be counted only one time for activity course credit toward the graduation requirement. Students must see the club sports advisor before the end of the spring quarter add/drop period to facilitate the credit process.

Credit by experience: Retroactive credit *may* be granted for certain independent activities if completed within one year before matriculation at RIT. A formal written request must be submitted that clearly outlines the activity that is being considered for wellness education credit along with all documentation of the experience (e.g., signatures of instructors, copy of certificates, receipt from a course or seminar completion). A minimum of 16 hours of a previous activity is required. Formal requests should be submitted to the director of the Wellness Instructional Program.

Intercollegiate athletics: Students participating in the university's intercollegiate athletic program will be granted wellness activity course credit for the season(s) of participation.

Intramural participation: No credit is granted for intramural sports participation.

Medical excuse: A medical excuse may exempt students from participation in the activity segment of the graduation requirement, but they must still enroll in First-Year Enrichment (during their freshman year). The exemption will be granted only by a college dean with input from the associate director of wellness for the Center for Intercollegiate Athletics and Recreation. One copy of the medical excuse (signed physician's memo) should be filed with the Center for Intercollegiate Athletics and Recreation and the other copy taken to students' academic department.

Military duty: Students who have completed six months or more of active military duty are not required to complete the wellness education program but are encouraged to enroll in any wellness course on a space-available basis.

Nonmatriculated status: Nonmatriculated students are exempt from the wellness education requirement but are encouraged to enroll in any wellness course on a space-available basis.

Prior bachelor's degree: Students who have acquired a bachelor's degree are exempt from the wellness education requirement.

Academic advising

All undergraduate students are assigned to an academic advisor. Most students also have a faculty advisor. Advisors help students transition into RIT, navigate their curriculum, connect to RIT resources, explore career choices, evaluate progress toward degree completion, and integrate into the RIT community. Students new to the university (freshman and transfers) are required to meet with their academic advisor during their first year. Second and third year students also are expected to meet with their advisor during the academic year. These advising sessions allow students and advisors time to build their advising relationship and plan for success. Students can find their advisors listed on SIS and Tiger Center.

The University Advising Office is an excellent starting point for any questions related to academic advising and student success at RIT. This office coordinates undergraduate advising and targeted student success initiatives. Contact the University Advising Office at 585-475-7128 or advising@rit.edu.

Academic policies

www.rit.edu/academicaffairs/policiesmanual/

For the most up-to-date information on academic policies, please visit the Student Policy Library–**www.rit.edu/academicaffairs/policiesmanual/policies/student.**

Confidentiality of student records

In accordance with the Family Education Rights and Privacy Act of 1974 (commonly known as the Buckley Amendment), RIT students have the right to inspect, review, and challenge the accuracy of their official educational records. Students are also accorded the right to receive a formal hearing if dissatisfied with responses to questions regarding the content of the record.

RIT policy ensures that only proper use is made of such records. Therefore, with the exception of copies made for internal use (those provided to faculty and staff who have a legitimate need to know their contents), in most cases no copy of a student's academic record (transcript) or other nonpublic information from student records will be released to anyone without the student's written authorization. The determination of those who have a "legitimate need to know" (e.g., academic advisors, government officials with lawful subpoenas, etc.) will be made by the person responsible for the maintenance of the record. This determination will be made carefully, in order to respect the student whose record is involved. If an employer, for example, requests a transcript, he or she will have to obtain a written request from the student or former student.

The **Buckley Amendment** allows RIT to declare certain pieces of information as "directory" and therefore releasable without the specific permission of a student. Such "directory information" could include a student's name, date and place of birth, major field of study, participation records in official RIT activities and sports, weight and height of a member of an athletic team, dates of attendance at RIT, and degrees and awards received. Students may make written request of the Office of the Registrar that such directory information not be released. Because requests for nondisclosure will be honored by RIT for only one year, requests to withhold such information must be submitted to the Office of the Registrar annually.

Copies of the full act and RIT's written policies relating to compliance with the law are on file in the Office of the Registrar. Also available is information regarding a student's right to file a complaint with the U.S. Department of Education concerning the alleged failure of RIT to comply with the requirements for this act.

Transcripts

A student's official academic record is maintained by the RIT Office of the Registrar and is normally reflected through a transcript. All requests for transcripts must be made online through the official RIT transcript service. Details can be found on the Office of the Registrar's website. Requests should include the student's full name (or name used while at RIT), student identification number, and dates of attendance to assure proper identification of the record requested.

Under no circumstances will a partial transcript be issued, nor will a transcript be issued to a student who is indebted to RIT. Transcripts from high schools and universities that have been received in support of admission applications and/or transfer credit evaluation will not be reissued by RIT.

Transfer credit

Transfer credit at the undergraduate level will usually be granted for those courses completed with a grade of C or better in other regionally accredited colleges or universities and specific armed services course work that parallels courses in the program (including options, if any) for which the student is applying or is currently enrolled. However, if the program (or option) that the student finally chooses to pursue does not include any or all of the courses evaluated, they will not be credited toward requirements for a degree. RIT students who wish to take courses at other accredited institutions and receive transfer credit toward their RIT degree need to secure the prior written approval of the advisor(s) of the RIT college(s) concerned in order to assure appropriateness of the course content and course level for those courses.

Deaf and hard-of-hearing students may transfer into an NTID program, or they may qualify for transfer directly into a program in another RIT college with NTID sponsorship. The transfer credit of deaf students accepted to NTID's Summer Vestibule Program will be evaluated in the fall when they are accepted into a specific program.

Credit by exam: RIT grants credit for satisfactory scores on examinations covering objectives and contents parallel to the RIT courses for which students seek credit. Usually these are Advanced Placement (AP), International Baccalaureate (IB), College-Level Examination Program (CLEP), New York state proficiency examinations, or RIT-prepared examinations.

Advanced placement: Many students earn advanced standing through Advanced Placement (AP) examinations. **The minimum required score and the manner in which credits are applied depend upon a student's exam score and choice of academic program.** No credit is awarded for scores of 1 or 2 on AP exams. Advanced Placement credits may be applied in fulfillment of general education, program requirements, and/or minor requirements. Students may need to complete additional course work in order to fulfill all specific program requirements. Students should consult with their advisor for additional details. The policy covering the awarding of credit for Advanced Placement examinations is reviewed annually and may be subject to change.

International baccalaureate: Many students earn advanced standing through International Baccalaureate (IB) examinations. **The minimum required score and the manner in which credits are applied depend upon a student's exam score and choice of academic program**. International Baccalaureate credits may be applied in fulfillment of general education, program requirements, and/or minor requirements. Students may need to complete additional course work in order to fulfill all specific program requirements. Students should consult with their advisor for additional details. The policy covering the awarding of credit for International Baccalaureate examinations is reviewed annually and may be subject to change.

College Level Examination Program: The College Level Examination Program (CLEP) is a nationwide system of credit by examination offered by the College Board. Any person entering college, presently attending college, or out of college may take CLEP examinations and seek credit by submitting the test results to RIT for evaluation. Credit recommendations for CLEP vary depending on the subject and examination results. CLEP examinations are offered through the RIT Counseling Center.

The grading system

RIT uses a plus/minus grading system. All grades are determined and issued by the faculty in accordance with the RIT Institute Policies and Procedures Manual and the particular standards of the attempted courses. Individual instructors have an obligation to carefully describe the standards and grading practices of each course. The accepted RIT letter grades are as follows:

GRADE	DESCRIPTION
A	Excellent
A-	
B+	
B	Above Average
B-	
C+	
C	Satisfactory
C-	
D	Minimum Passing Grade
F	Failure
AU	Audit (Indicates a student has officially registered for the course for no credit.)

Additional grades and notations that may be found on a student term record or transcript are shown below:

- I grades are considered temporary and will revert to a grade F unless changed by the faculty within a prescribed period of time.
- R, S, U, WV, and X grades are restricted to specific types of courses.

For more specific descriptions and procedures concerning the above, see Section D5.0and D2.0, Institute Policies and Procedures Manual. The manual is available online at rit.edu/policies.

Course registration

To be officially registered at RIT, a student must be academically eligible, have been properly enrolled in a course, and have made the appropriate financial commitment. Typically, students start selecting courses six to eight weeks before the academic term begins and can register online. The registration period ends on the seventh calendar day (excluding Sundays and holidays) of the full fall, spring and summer terms. These first seven days (excluding Sundays and holidays) of the term are typically known as the Add/Drop period. Specific dates and procedures can be found in the academic calendar. RIT reserves the right to alter any of its courses at any time.

Students at RIT are free to choose their own courses and course loads. Colleges offering the courses are equally free to restrict enrollment to particular groups of students (for example, students in specific year groups or students who have already satisfied course prerequisites). Most courses also are restricted in class size. Students are strongly encouraged to seek out academic advice and plan their academic careers carefully.

Failure to make appropriate financial commitment, satisfy New York state health immunization requirements, or fulfill course prerequisites can result in the loss of courses for which a student has registered and/or prohibition of future registrations.

Auditing courses

Courses that are taken on an audit basis will not count toward a student's residency requirement. They may not be used to repeat a course taken previously and do not satisfy degree requirements. Permission to audit a course is granted only by the college offering that course. Any changes in registration between credit and audit must be completed prior to the end of the add/drop period.

Withdrawal from courses

A student may withdraw from a course up to the end of the eleventh week of the fall and spring semesters. A grade of W will be assigned and the course retained on the student's permanent academic record. After the eleventh week and up to the last official class day of fall or spring term, a "W" will be assigned only with the approval and written signatures of the student, course instructor, the home program or department head, and the dean from the student's home college. For a student whose program is housed outside the college structure, the approval of the director or director's designee of the student's academic unit is required. In all other academic sessions and for courses offered in time frames different from the standard semesters, course withdrawal is available upon the student's request until 80 percent of the session or course, as determined by the Registrar's Office, has been completed.

In unusual situations, a "W" may be granted after the last official class day. Such an extraordinary request is administered through the Provost's Office, in consultation with (if possible) the student, course instructor, home program or department head, and dean from the student's home college. For a student whose program is housed outside the college structure, the approval of the director or director's designee of the student's academic unit is required. For policies pertaining to withdrawal from the university and tuition refund please refer to the Costs section of this bulletin.

Dean's List eligibility

Degree-seeking students who earn at least 12 credit hours in an academic term, have a grade-point average of 3.40 or better, have not been placed on probation due to a low cumulative grade-point average, and do not have any grades of I, D, or F in that term are eligible for selection to the Dean's List of their college. Students who are pursuing their degree on a part-time basis are assessed for Dean's List consideration based on course work completed throughout the academic year (fall, spring, summer). Criteria for part-time students are essentially the same as those for full-time students. However, at least 9 credit hours must be earned during the academic year.

Class attendance

Students are expected to fulfill the attendance requirements of their individual classes. Absences, for whatever reason, do not relieve students from responsibility for the normal requirements of the course. In particular, it is the student's responsibility to make individual arrangements prior to missing class. Attendance at class meetings on Saturdays or at times other than those regularly scheduled may be required.

Academic probation and suspension

An undergraduate student must maintain a cumulative GPA of 2.00 or above at RIT in order to remain in good academic standing. To help students maintain satisfactory academic performance, RIT has set academic standards that serve to identify, warn, and provide timely intervention to a student who is experiencing academic difficulty.

In addition to the university requirements outlined below, individual colleges and/or programs may define more rigorous requirements for maintaining good academic standing. This information must be approved by the dean, clearly defined within published college policy, communicated in the university bulletin, and communicated to the Provost's Office. For programs housed outside the college structure, the approval of the director of the academic unit is required.

All probation and academic suspension actions are taken at the end of the fall, spring, and summer terms.

Probation refers to the academic action taken when a student is not in good academic standing. A student placed on probation is expected to sufficiently raise his/her GPA in the succeeding term so that the probationary status can be removed. In some circumstances, a student will also be required to satisfy specific conditions required by the home department in the form of an academic contract in order to be removed from probation. Failure to meet the terms of probation may result in suspension.

Suspension refers to the academic action taken when a student is not permitted to enroll in courses at the university for a period of one calendar year.

1. Any degree-seeking undergraduate student whose term or cumulative grade point average (see D5.0-Grades, section G) falls below a 2.00 (C average) will be placed on probation.
2. Any student who is on probation according to A.1. above and who is not removed from probation in the two succeeding terms (including summer session) in which credit is attempted will be suspended from RIT for a period of one calendar year.
3. Any student who has been placed on probation after having been removed from probation and whose cumulative grade point average is below 2.00 will be suspended.
4. Any student who has been placed on probation after having been removed from probation and whose cumulative grade point average is 2.00 or above will be granted one term to be removed from probation before suspension from RIT.
5. Any student whose term grade point average falls below 1.00 will be suspended from RIT for a period of one calendar year.
6. Students who have been readmitted to their original program after having been suspended and then qualify for probation will be suspended from RIT.
7. A suspended student cannot enroll in any credit or non-credit course at the university while on suspension.
8. A suspended student may appeal a suspension decision. Individual colleges and/or programs may set limitations on the number of appeals a student can submit.
9. A suspension may be waived upon written appeal to the student's home program. Final suspension waiver requires dean (or designee) approval. For programs housed outside the college structure, the approval of the director of the academic unit in which the enrollment is requested is required.
10. A suspended student may be required to satisfy specific academic conditions imposed by the home department in order to be considered for readmission to his/her program.
11. A suspended student may be admitted to another program if it is approved by the dean (or designee) of the college in which enrollment is requested. For programs housed outside the college structure, the approval of the director of the academic program in which the enrollment is requested is required.
12. Students must apply through undergraduate admissions for re-admission at the end of their suspension. Such re-admission must be approved by the dean (or his/her designee) of the college for which they are requesting enrollment (this may be the original college or another). For programs housed outside the college structure, the re-admission must be approved by the director (or designee) of the academic unit for which they are requesting enrollment.
13. Academic Suspension refers to the academic action taken that immediately removes the student's affiliation with the university for a period of one calendar year. A student on academic suspension will be excluded from classes, university housing, and all other university activities during the period of suspension. A suspended student may attend university events open to the general public. The student's participation at university events will be limited to the participation of the general audience.

Health policies

New York state and RIT immunization requirements

New York State public health law requires that all students enrolled for more than 6 credit hours in a term and born after January 1, 1957, must provide proof of immunization against measles, mumps and rubella and to sign a meningitis awareness form. The law applies to all full time and part time students including RIT employees. Immunization requirements include:

- Two MMR vaccinations at least one month apart and after the first birthday.
- A Meningitis Awareness Form must be signed by all students regardless of age.
- RIT requires students age 21 and under to be immunized against meningitis.
- Failure to comply with the New York State immunization law may lead to exclusion from classes and the RIT campus, and a $200 fine.

Note: An email notification is sent to students' RIT email account with directions to complete the necessary health information through the Student Health Center portal. Please note that the immunization form is to be completed by the student online and then downloaded and taken to the student's health provider or school official for verification. The form must then be forwarded to the Student Health Center for approval (fax: 585-475-7530).

Health/Medical records

Medical records are confidential and separate from educational records. Information is not released without the written consent of the student. Exceptions to this rule are made only when required by the public health laws of New York State, a court-ordered subpoena or in a life-threatening situation.

Student Conduct Policies and Procedures

Expectations for community behavior

- RIT is a learning community where time, energy, and resources are directed toward learning and personal development.
- Members of the community live and work together to foster their own learning as well as the learning of others, both in and outside the classroom.
- Within the community, members hold themselves and each other to high standards of personal integrity and responsibility.

- Individual members continually strive to exceed their personal best in academic performance and the development of interpersonal and professional skills and attributes.
- As a member of the community, each person continually conducts himself/herself in a manner that reflects thoughtful, civil, sober, and considerate behavior.
- As a member of the community, each person respects the dignity of all people and acts to protect and safeguard the well-being and property of others.
- As a member of the community, each individual contributes to the continued advancement and support of the community, personally challenging behavior that is contrary to the welfare of others.
- Members of the community create a campus culture that values diversity and discourages bigotry while striving to learn from individual differences.

RIT honor code

Integrity and strong moral character are valued and expected within and outside of the RIT community. As members of the RIT campus community, including students, trustees, faculty, staff, and administrators, we will:

- Demonstrate civility, respect, decency and sensitivity towards our fellow members of the RIT community, and recognize that all individuals at this university are part of the larger RIT family, and as such are entitled to that support and mutual respect which they deserve.
- Conduct ourselves with the highest standards of moral and ethical behavior. Such behavior includes taking responsibility for our own personal choices, decisions and academic and professional work.
- Affirm through the daily demonstration of these ideals that RIT is a university devoted to the pursuit of knowledge and a free exchange of ideas in an open and respectful climate.

Summary of conduct policies

The following broad areas of conduct for students, although not all-inclusive, indicate, in general terms, the standards of student conduct that are important to the educational mission of RIT and the quality of campus life. The RIT conduct code and disciplinary processes are printed in their entirety in The Student Rights and Responsibilities Handbook. All policies and procedures relating to student and organization conduct are printed in this document and should be reviewed by all RIT students.

Human rights and dignity: Students are expected to follow RIT's policy prohibiting discrimination and harassment. All students should practice high regard for the rights and dignity of other people, preventing all types of discrimination. RIT attempts to resolve conflicts between individuals and groups with differing backgrounds and views through discussion and clarification of values and attitudes. Students should not physically or verbally abuse any person on RIT premises or at RIT-sponsored or supervised events.

Computer use: Students are expected to follow RIT's code of conduct for computer and network use. A variety of computing resources are available at RIT, ranging from application-specific microcomputers to central multiuser systems. Computer abuse is expensive and can have far-reaching consequences. Students should not intentionally disrupt the educational process through deletion of another's course assignment, dampen the creative process through theft of intellectual property, violate an individual's privacy or institutional confidentiality or infringe on copyright.

Off-campus conduct: The conduct of RIT students off campus will be held to the same standards and policies as on campus. Any off-campus action that interferes with the completion of the educational mission of RIT or any member of the RIT community is subject to disciplinary action.

Academic honesty: Students are expected to follow RIT's policy on academic dishonesty. Students should not engage, or allow others to engage, in any form of academic dishonesty. These acts include, but are not limited to, plagiarism in any form or using information and materials not authorized by the instructor during an examination. Dishonesty also includes furnishing false information to RIT and forgery. Alteration or use of RIT documents or instruments of identification with intent to defraud are prohibited.

Diversity statemment: RIT through its policies and practices is responsible for building an inclusive environment where membership in the community allows for faculty, staff and students to reach their fullest potential, both professionally and personally. RIT is committed to the development, administration and interpretation of policies and procedures in a way that is consistent with our commitment to diversity and is in compliance with federal, state and local laws. RIT's policies and procedures are administered in a way that supports fair treatment for all faculty, staff, students, and the RIT community at large.

Disruption of RIT activities: Students should refrain from unreasonable disruption or obstruction of teaching, research, administration, organizational activities, disciplinary proceedings, or any other RIT activities.

Parking and traffic: All drivers on campus should follow RIT's parking and traffic regulations. New York state motor vehicle and traffic laws are in effect on campus. RIT may enact supplemental parking and traffic regulations for RIT-owned properties. The regulations are intended to promote order and ease of movement of pedestrians and motorists and to safeguard people and property.

Regard for property: Students are expected to exercise appropriate care for RIT property and the property of others. Theft, damage, or unauthorized possession of either RIT property or the property of a member of the academic community on RIT premises is subject to disciplinary action.

Library materials and laboratory facilities are of utmost importance to the completion of RIT's academic mission. Consequently, students should show considerable care in the handling of these items.

RIT officials: Students must furnish proof of enrollment through a valid student identification card upon request from RIT officials. Students should comply with the directions or instructions of RIT officials acting in performance of their duties.

Safety: Safety is an issue all students should care about deeply—not only the safety of themselves, but the safety of others. Students should behave sensibly to protect the welfare of others and

minimize hazardous situations. Safety is of critical importance at all places on the campus, but particularly important in the apartments and residence halls, where the carelessness of one individual can affect the lives of hundreds. Willful violations of safety, such as causing false fire alarms, will result in immediate disciplinary action according to judicial procedures.

Sexual harassment/misconduct: RIT acknowledges that an individual student's sexual attitudes and values are a matter of choice. Nonetheless, responsible sexual behaviors must take into account the dignity, privacy, and rights of others. RIT's policy prohibiting discrimination and harassment and the RIT sexual assault policy should be observed at all times. Moreover, no individual should be subjected to exploitative actions.

Study environment: Students need a campus environment that is conducive to studying, especially in facilities designed primarily for study. Individuals should respect the rights of others to study and should be understanding of different study habits.

Student-sponsored events: In the planning and scheduling of events, students should consider the safety and overall welfare of members of the academic community. Students should not knowingly conduct events that might inhibit the completion of the academic mission of the university or any member thereof.

Alcohol and other drugs policy

RIT is a community that believes the best environment for learning occurs when the community promotes and supports healthy and responsible behavior among its members. Students make their own choices and are ultimately responsible for their behavior. The purpose of the Alcohol and Other Drugs Policy is to promote individual responsibility and advance the goals and expectations central to the university mission. The Alcohol and Other Drugs Policy applies to all Student members of the university community and their guests.

RIT follows all local, state, and federal laws. Students and Student organizations are subject to local, state and federal laws regarding alcohol and drug use, and the university will not protect individuals or groups from law enforcement with respect to drugs and alcohol use or abuse.

In order to avoid the dangerous and possibly fatal effects of alcohol poisoning or overdosing from other drugs, an individual who has passed out or shows other signs of serious effects from alcohol or other drug consumption should immediately be brought to the attention of Public Safety, RIT Ambulance, the Center for Residence Life staff, or some other person able to assist or to get assistance. Seeking such help is encouraged by the university and the Good Samaritan Protocol, listed below.

Responsible and Legal Use

Legal Use: Alcohol and other drugs may not be illegally used, possessed, manufactured or distributed. Distribution includes serving, selling, or providing either alcohol to persons who are under 21 years of age or drugs to persons of any age. Examples of illegal use includes:

Open Containers–Open containers of alcohol are not permitted outdoors on the university campus without prior authorization.

Fake IDs–Use of false or altered identification or other misrepresentation of one's age in order to possess or consume alcohol is explicitly forbidden.

Cover Charges–No alcohol may be sold or exchanged for money on university property or at university-sponsored events without a New York State liquor license.

Distribution of Legal Drugs–Sharing or distributing prescription medicine or other legal drugs, with or without the exchange of money, is prohibited.

Excessive Drinking–Behavior that is inappropriate or endangering which suggests excessive drinking regardless of age is prohibited.

Driving Under the Influence–Driving under the influence of alcohol or other drugs is forbidden.

University Housing

Residence Halls, Global Village, Greek Housing–The consumption or possession of alcoholic beverages is prohibited, regardless of age or circumstances.

University Apartments–The consumption or possession of alcoholic beverages is permitted in university operated apartments (Colony Manor, Perkins Green, RIT Inn, Racquet Club, Riverknoll, and University Commons) only by those residents of the apartment who are at least 21 years of age. Alcohol possession and consumption is not permitted in common or public areas within apartment complexes.

Occupancy–Parties in apartments are to be limited to invited guests of a number that is defined by building occupancy codes and that can be accommodated without disturbing the community. These numbers may be found in the RIT Housing Terms and Conditions.

Advertising–The guests at all privately hosted parties where alcohol is to be served must be invited by direct personal invitation only. General "come all" posters, flyers, or mass electronic invita-

tions are only permitted for events that are approved through the Center for Campus Life Event Registration process.

Drug Accessories–Drug accessories and other drug delivery systems used for illegal drugs, including, but not limited to, bongs, bowls, and pipes, are prohibited.

Bulk Containers–Bulk containers of alcohol, such as kegs, are prohibited in all university apartments.

Drinking Games/Rapid Consumption–Items/substances used to dispense alcohol in a rapid manner, (e.g., beer bongs, funnels, Jell-O shots, etc.) or drinking games (e.g., "Quarters," "Beer Pong," etc.) are prohibited.

Events

Student Events–All student events and parties where alcohol is served, possessed, or consumed must abide by all existing university policies and procedures regarding the use, possession, sale, and distribution of alcohol and may be further restricted by existing municipal and state ordinances. The authorization process for use of alcohol and securing authorization from the New York State Liquor Board in these situations is coordinated through the Center for Campus Life Event Registration process.

Good Samaritan Protocol

Student health and safety is a primary concern for the university community. Students are expected to contact Public Safety when it is believed an individual needs medical attention due to the abuse of alcohol or other drugs including prescription, over the counter, or other. The Good Samaritan Protocol is designed to provide education rather than discipline when a student voluntarily contacts university personnel (e.g., Public Safety, Resident Advisor/ Community Advocate) or outside emergency services for medical assistance related to alcohol or other drugs. Individuals covered by the Good Samaritan Protocol are the caller, the person in need of assistance, the host Student organization, and any witnesses named in the incident report.

Center for Student Conduct staff determine whether or not the Good Samaritan Protocol is applicable for each incident. Incidents involving sex discrimination, sexual harassment, sexual misconduct, sexual violence, dating violence, domestic violence, or stalking shall be covered by the Good Samaritan Protocol for those students reporting or intervening to prevent harm to a particular student. Incidents involving other violence or serious code violations, such as hazing, will not apply. A conduct officer will contact the Student or the Student organization involved in the incident to arrange for a meeting. There will be no official charges or conduct status from the university through the Good Samaritan Protocol. The person who made the call to university personnel may be invited to the meeting. At the meeting, the incident will be reviewed with the Student or Student organization to determine an appropriate educational response, which could include participation in an educational group or class, program presentations, counseling intake session, or substance abuse education and/or evaluation. A response may also include parental/ guardian notification of the incident.

If a Student or Student organization fails to attend the initial meeting with the conduct officer or complete the educational responses following the meeting, the incident will be referred to the Student Conduct Process.

Common Responses for Violations of the Alcohol and Other Drug Policy

The responses listed are intended to guide the process of determining the most reasonable outcome to potential violations of the Alcohol and Other Drug (AOD) Policy. Each reported incident will be reviewed individually and an appropriate response will be assigned given the specific circumstances. In some cases, despite it being a first time violation, there may be a more serious response. Student organizations can also be assigned the same responses listed below:

BEHAVIOR	CONSEQUENCES
Possession/consumption of alcohol by an underage student Possession/consumption of alcohol by any student in the residence halls, Global Village, and Greek Housing Open container Fake ID Possession of bulk containers	First Violation: Warning or Probation, Educational condition, Possible parental/ legal guardian notification* (as permitted by applicable law) Second Violation: Probation, Alcohol and Other Drug Assessment and/or educational condition, University housing probation, Parental/legal guardian notification Third Violation: Removal from housing, Possible suspension, Mandatory counseling intake, Parental/legal guardian notification
Excessive drinking/ rapid consumption Transport to the hospital due to alcohol Serving, purchasing, or sale of alcohol to minors Hosting an on campus party and serving to minors, charging cover fees, or exceeding occupancy	First Violation: Probation, Alcohol and Other Drug Assessment and/or educational condition, Possible university housing probation, Parental/legal guardian notification Second Violation: Removal from housing, Possible suspension, Mandatory counseling intake, Parental/legal guardian notification. Third Violation: Suspension or Expulsion, Parental/legal guardian notification
Driving while intoxicated/DWI on campus Hazing	First Violation: Suspension or Expulsion, Referral to local law enforcement agency, Parental/legal guardian notification:

Other Drug Violations

BEHAVIOR	CONSEQUENCES
Possession/use of marijuana or other illegal drugs Possession of drug accessories (e.g., bongs, bowls, scales, pipes)	First Violation: Warning or Probation, Educational condition, Parental/legal guardian notification Second Violation: Probation, Alcohol and Other Drug Assessment and/or educational condition, University housing probation, Parental/legal guardian notification. Third Violation: Removal from housing, Possible suspension, Mandatory counseling intake, Parental/legal guardian notification
Transport to the hospital due to drug overuse	First Violation: Probation, Alcohol and Other Drug Assessment and/or educational condition, Possible university housing probation, Parental/legal guardian notification Second Violation: Removal from housing, Possible suspension, Mandatory counseling intake, Parental/legal guardian notification Third Violation: Suspension, Parental/legal guardian notification
Driving while under the influence/ DWAI on campus Other serious behaviors such as selling or distributing drugs including prescription, over the counter, or illegal drugs	First Violation: Suspension or Expulsion, Removal from housing, Referral to local law enforcement agency, Parental/legal guardian notification

RIT process for student misconduct

RIT has established well-defined processes for handling student misconduct cases while protecting the civil and academic rights of all members of the RIT community. Student conduct and appeals processes are administered through the Center for Student Conduct and Conflict Management Services. Sanctions imposed upon those found responsible for violating the RIT conduct code may range from a written warning to restitution to disciplinary suspension, dismissal, and expulsion from the university. Students suspended from RIT may not enroll in any course until such time as the suspension is waived by the Center for Student Conduct and Conflict Management Services.

RIT Conflict Management Services

Students involved in a dispute may utilize RIT Conflict Management Services. Mediation is a process by which students, organizations, faculty, or staff voluntarily meet with trained mediators to discuss ways in which problems or differences can be resolved.

Consumer Information

www.rit.edu/fa/compliance/student-right-know

In compliance with the federal Student-Right-to-Know and Campus Security Act, and regulations of the U.S. Department of Education, RIT provides the following information to current and prospective students:

Outcomes Rate

Each year RIT gathers information about the career plans of its graduates in accordance with national standards established for the National Association of Colleges and Employers (NACE). These outcome summaries are provided by the university overall at both the undergraduate and graduate levels and reflect the career activities of graduates within six months of degree certification. Outcomes rates describe the percentage of graduates who have entered the workforce, enrolled for further full-time study, or are pursuing alternative plans. Alternative plans include military service, volunteer service, and those not seeking employment at this time.
The outcomes rate for the class of 2019 was 93.8% based on a 91.2% knowledge rate (the percent of graduates that RIT had verifiable information on.).

Student Persistence and Graduation

Of the cohort of full-time degree-seeking undergraduate students who first enrolled at RIT in fall 2013, 69 percent had earned their bachelor's degrees as of August 2019. While these beginning and end dates meet the act's requirements for determining a graduation rate (150 percent of the normal length of full-time study [4 years]), it is important to recognize that nearly two-thirds of entering freshmen enroll in programs with mandatory cooperative education requirements. These requirements range from three to 14 months depending upon the program, thus extending the reported program length to five years. The one-year persistence rate for the class that entered in 2018 was 88.5 percent.

Public Safety

The Public Safety Department is open 24-hours-a-day and is located in Grace Watson Hall. The department encourages the RIT community to take responsibility for their safety by staying informed of these services and reporting suspicious activity. Although each individual is ultimately responsible for their own personal safety, learning and practicing basic safety precautions can enhance one's well being. The department provides the following services:

Blue light call boxes: Identified by a blue light and located across campus, these call boxes are a direct line to Public Safety 24-hours-a-day. The location of the call is automatically recorded at the Public Safety Communications Center, making it possible for hard-of-hearing individuals to also use the call boxes. The call boxes are used to request a security escort, assist motorists, report suspicious individuals/activity, or request access to locked buildings or rooms.

Mobile escort service: Available to anyone, seven-days-a-week, on a timed schedule between 11 p.m. and 3 a.m.

Lost and found: All items lost and found are stored by the Public Safety Department. To report an item lost, visit rit.edu/publicsafety/safety/lostitems.html (requires RIT computer account).

Emergency notification: If a family member needs to make an emergency notification to a student, he or she should contact Public Safety at (585) 475-2853 or TEXT at (585) 205-8333. Public safety will locate the student and relay the message.

Awareness programs: Public safety hosts a variety of prevention awareness programs and services on various topics including crime prevention, personal safety, and alcohol awareness. A monthly newsletter, RIT Ready, is distributed to students, faculty, and staff to bolster emergency preparedness on campus.

Annual Safety and Security Report: Public safety's security report is available online: www.rit.edu/fa/publicsafety/sites/rit.edu.fa.publicsafety/files/2018AnnualSecurityReport.pdf.

Confidential tip line: This service obtains information that is unattainable through conventional methods and to alert public safety to endangering behavior that might go otherwise unreported. An online form is available at rit.edu/publicsafety/forms/tipline (requires RIT computer account).

Crime statistics: The Advisory Committee on Public Safety will provide, upon request, all campus crime statistics as reported to the Department of Education. RIT crime statistics can be found online (ope.ed.gov/security) or by contacting the Public Safety Department. A hard copy of reported crime statistics required to be ascertained under Title 20 of the U. S. Code Section 1092(f) will be mailed to you within 10 days of the request.

Sexual assault information and CARES: Confidential counseling services are available to anyone in need by calling (585) 546-2777 (voice/TTY). RIT's Campus Advocacy Response and Support (CARES) is located on campus and provides confidential and crisis intervention and support services for relationship concerns. Contact (585) 295-3533 at any time for assistance.

Emergency Preparedness: RIT regularly communicates, prepares, and practices emergency management with public safety personnel and campus managers from various departments. If necessary, we will provide updated information through broadcast email, mass notification system (RIT ALERT), voicemail, ALERTUS beacons, and the university's website at rit.edu.

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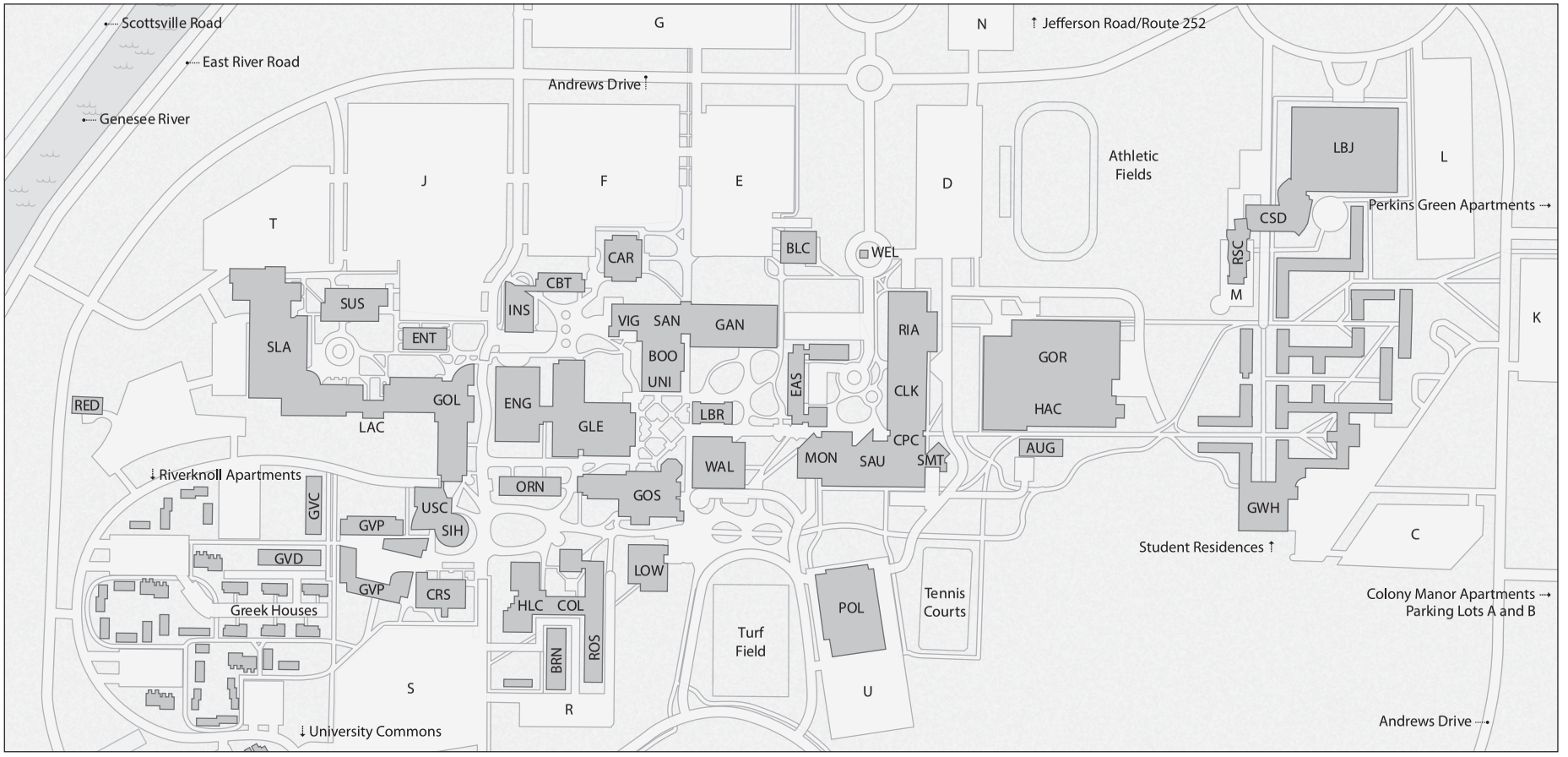

RIT CAMPUS MAP

AUG August Center
BLC Bausch & Lomb Center
BOO James E. Booth Hall
BRN Brown Hall
CAR Chester F. Carlson Center for Imaging Science
CBT Center for Bioscience Education & Technology
CLK George H. Clark Gymnasium
COL Color Science Hall
CPC Campus Center
CRS Crossroads
CSD CSD Student Development Center
EAS George Eastman Hall
ENG Engineering Hall
ENT Engineering Technology Hall
GAN Frank E. Gannett Hall
GLE James E. Gleason Hall
GOL Golisano Hall
GOR Gordon Field House and Activities Center
GOS Thomas Gosnell Hall
GVC Global Village Way C
GVD Global Village Way D
GVP Global Village Plaza
GWH Grace Watson Hall
HAC Hale-Andrews Student Life Center
HLC Hugh L. Carey Hall
INS Institute Hall
LAC Laboratory for Applied Computing
LBJ Lyndon Baines Johnson Hall
LBR Liberal Arts Hall
LOW Max Lowenthal Hall
MON Monroe Hall
ORN Orange Hall
POL Gene Polisseni Arena
RED Red Barn
RIA Frank Ritter Ice Arena
ROS Lewis P. Ross Hall
RSC Rosica Hall
SAN Sands Family Studios
SAU Student Alumni Union
SIH Student Innovation Hall
SLA Louise Slaughter Hall
SMT Schmitt Interfaith Center
SUS Golisano Institute for Sustainability
UNI University Gallery
USC University Services Center
VIG Vignelli Center for Design Studies
WAL Wallace Library
WEL Welcome Center