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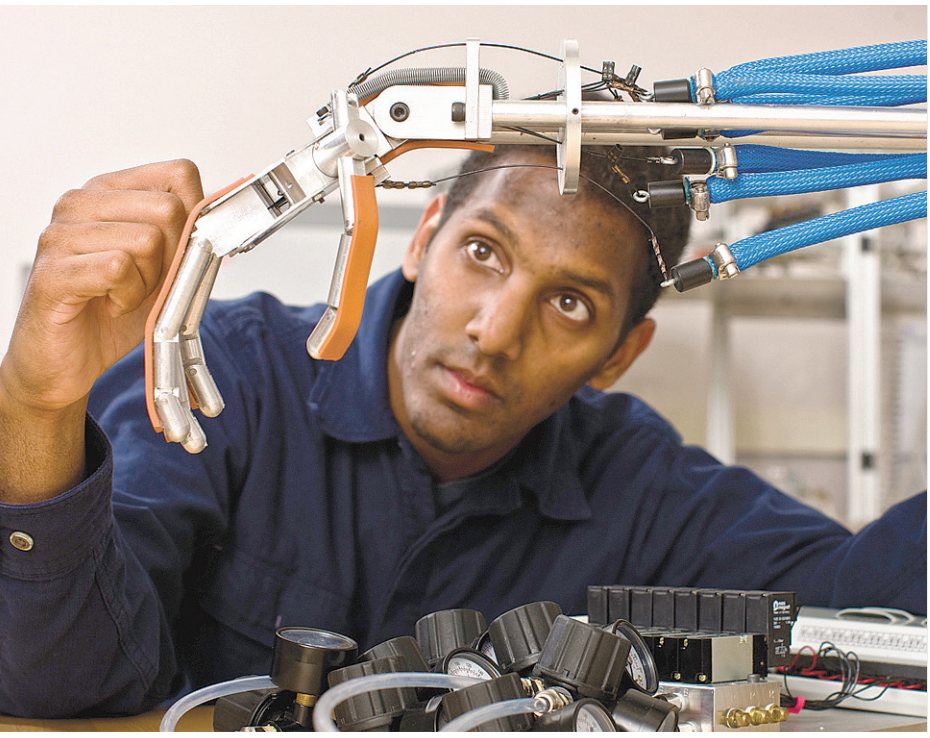

2017–2018

UNDERGRADUATE BULLETIN

Rochester Institute of Technology
2017–18 Academic Calendar

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

* *Friday of the 11th week of classes*

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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Fall Semester (2171)

August 22 - 27
New Student Orientation

August 28
Day, evening, and online classes begin
First day of 7-day Add/Drop period†

September 2
Saturday classes begin

September 4
Labor Day (no classes);
University offices closed

September 5
Last day of Add/Drop period†

September 6
First day to drop from classes with a grade of W

October 9-10
October Break (no classes);
University offices open

November 10
Last day to drop from classes with a grade of W*

November 22
No classes;
University closes at 2pm

November 23 - 24
Thanksgiving Holiday (no classes);
University offices closed

November 25
No Saturday classes

November 27
Day, evening, and online classes resume

December 2
Saturday classes resume

December 9
Last Saturday classes

December 11
Last day, evening, and online classes

December 12
Reading Day

December 13, 14, 15, 16, 17, 18
Final exams

December 20
Residence halls close

December 20 - January 15
Break between fall and spring semesters

Spring Semester (2175)

January 8
Residence halls open

January 15
Martin Luther King Day (no classes);
University offices open

January 16
Day, evening, and online classes begin
First day of 6-day Add/Drop period†

January 20
Saturday classes begin

January 23
Last day of Add/Drop period†

January 24
First day to drop from classes with a grade of W

March 11 - 16
Spring Break; University offices open

March 17
No Saturday classes

March 19
Day, evening, and online classes resume

April 6
Last day to drop from classes with a grade of W*

April 28
Last Saturday classes

April 30
Last day, evening, and online classes

May 1
Reading Day

May 2, 3, 4, 7, 8
Final exams

May 10
Final grades due

May 11
Convocation and
Commencement ceremonies

May 12
Commencement ceremonies

May 13 - 16
Break between spring semester and summer term

Summer Sessions

12-week Summer Session (2178)

May 17
Day, evening, and online classes begin
First day of Add/Drop period†

May 19
Saturday classes begin

May 24
Last day to Add/Drop classes†

May 25
First day to drop from classes with a grade of W

May 28
Memorial Day; University closed

July 4
Independence Day (no classes);
University closed

July 25
Last day to drop from classes with a grade of W

August 4
Last Saturday classes

August 9
Reading Day

August 10, 13, 14
Final exams

August 16
Final grades due

August 15 - 24
Break between summer term and fall semester

6-week Summer Session I (2178)

May 17
Day, evening, and online classes begin
First day of Add/Drop period†

May 19
Saturday classes begin

May 21
Last day to Add/Drop classes†

May 22
First day to drop from classes with a grade of W

May 28
Memorial Day; University closed

June 19
Last day to drop from classes with a grade of W

June 23
Last Saturday classes

June 27
Last day of classes

June 28, 29
Final exams

July 2
Final grades due

6-week Summer Session II (2178)

July 2
Day, evening, and online classes begin
First day of Add/Drop period†

July 4
Independence Day (no classes);
University closed

July 5
Last day to Add/Drop classes†

July 6
First day to drop from classes with a grade of W

July 7
Saturday classes begin

August 2
Last day to drop from classes with a grade of W

August 8
Last day, evening, and online classes

August 9
Reading Day

August 11
Last Saturday classes

August 10, 13, 14
Final exams

August 16
Final grades due

August 15 - 24
Break between summer term and fall semester

Rochester Institute of Technology

About this Bulletin

The academic programs, course curricula, policies, and standards described in this *Undergraduate Bulletin* are in effect for students admitted to RIT during the 2017–2018 academic year. This bulletin provides students with a comprehensive source of information to use in planning their undergraduate education.

Descriptions of all undergraduate courses offered at RIT are available in the *Undergraduate Course Descriptions* book, which is available as a PDF at www.rit.edu/upub/archive.

The *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; modification of tuition, fees, dormitory, meal plan, or other charges; and unforeseen changes in other aspects of RIT sometimes occur after the bulletin has been printed, but before the changes can be incorporated in a later edition. Because of this, RIT 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.

RIT Undergraduate Bulletin 2017–2018
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Produced by University Creative
Division of Marketing and Communications

This material was produced, in part, through an agreement between Rochester Institute of Technology and the United States Department of Education.

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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 15,400 undergraduate students and 3,200 graduate students attend RIT. More than 118,000 alumni can be found around the globe.

Almost one-third of our undergraduates are transfer students from two-year colleges or other four-year institutions, and adult students make up a significant portion of the total enrollment. Our full-time undergraduate student body includes more than 1,200 deaf and hard-of-hearing students who share the same residence halls and classes on campus.

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.

RIT's colleges and degree-granting entities

The College of **Applied Science and Technology** houses its programs in two schools. The School of Engineering Technology offers bachelor of science degrees in civil engineering technology; computer engineering technology; electrical engineering technology; electrical mechanical engineering technology; environmental sustainability, health and safety; manufacturing engineering technology, mechanical engineering technology; and packaging science. The School of International Hospitality and Service Innovation offers a BS degree in international hospitality and service management. A wide variety of courses are offered during the day and evening, and via online learning. Many of the college's programs are also offered as master's degrees. Certificates are offered in several areas and are especially appropriate for part-time adult students looking for convenience, quality, and practicality. All of the college's engineering technology programs have received accreditation by the Engineering Technology Accreditation Commission (ETAC) of (ABET).

Saunders College of **Business** offers seven majors accounting, finance, international business, management, management information systems, marketing, and new media marketing. With an emphasis on innovation, the commercialization of technology, and a global focus, these programs combine specialized courses in a major, along with courses in the liberal arts and sciences. All majors require cooperative education. The college is consistently ranked in *U.S. News & World Report's* Top Undergraduate Business Programs and also is accredited by the Association to Advance Collegiate Schools of Business (AACSB International). Saunders College also awards MBA and MS degrees. An accelerated BS/MBA option offers outstanding undergraduates the opportunity to complete both degrees in five years.

The B. Thomas Golisano College of **Computing and Information Sciences** is one of the largest and most comprehensive colleges in

the nation devoted to the study of computing and information sciences. Eight bachelor of science degree programs are available 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. In addition, the college offers a computing exploration option that enables students to explore different computing disciplines prior to selecting a major and without losing any time on their path toward graduation. The college awards BS and MS degrees in a variety of computer disciplines as well as a doctoral degree in computing and information sciences. All of the college's BS degrees require cooperative education.

The Kate Gleason College of **Engineering** offers BS degrees in biomedical, chemical, computer, electrical, industrial, mechanical, and microelectronic engineering. Students with a particular interest may choose to focus their technical electives in areas such as aerospace, automotive, bioengineering, clean and renewable energy, computer vision and signal processing, embedded systems and control, energy and the environment, ergonomics, Lean Six-Sigma, nanoscale circuit systems, networks and security, robotics, supply-chain management, and wireless communication. For those who need time to decide on a particular major, the college offers an engineering exploration option in the first year. Students in all engineering majors are required to participate in the cooperative education program. The college offers a number of accelerated dual degree options (combined BS/MS or BS/MEng degrees) and two doctorate degrees: the nation's only doctoral program in microsystems engineering and a doctorate program in engineering.

The College of **Health Sciences and Technology** was created to respond to the growing need for well-educated professionals in the health care field. The college provides a focused, interdisciplinary, and systems approach to innovative health care education with undergraduate degrees offered in the following majors: biomedical sciences, diagnostic medical sonography (ultrasound), exercise science, nutrition management, and physician assistant.

The College of **Imaging Arts and Sciences** includes the schools of American Crafts, Art, Design, Film and Animation, Media Sciences, and Photographic Arts and Sciences. Specialized labs and darkrooms, studios, computer facilities, photo and graphic design archives, and a broad range of high-tech equipment are provided for students. RIT is recognized as one of the nation's top-ranked universities for glass, design, media sciences, and the study of photography.

The College of **Liberal Arts** offers bachelor of science degrees in advertising and public relations, communication, criminal justice, digital humanities and social sciences, economics, international and global studies, journalism, museum studies, philosophy, political science, psychology, public policy, and sociology and anthropology. The college also offers five master of science degrees. Liberal Arts Exploration, a two-year undeclared option, is available for students who wish to pursue a liberal arts degree but are undecided about which major to pursue. All of the degree programs offer opportunities for students to gain career-oriented experience through cooperative education, internships, or study abroad. The college also contributes to RIT's general education requirements, a comprehensive curriculum of liberal arts and sciences education that is the foundation for all RIT students' educational experience.

The **National Technical Institute for the Deaf** provides technical and professional programs for approximately 570 deaf and hard-of-hearing students enrolled in associate degree programs. The college also provides extensive educational access services for approximately 550 deaf students who are pursuing bachelor's or master's degrees or taking courses in RIT's eight mainstream colleges.

Within NTID, students may pursue either career-focused associate degree programs leading directly to employment or associate degree programs designed to facilitate seamless transition to RIT's baccalaureate programs. Students choose from a variety of associate degree options/concentrations in 3D graphics technology, accounting technology, administrative support technology, applied computer technology, applied liberal arts, applied mechanical technology, business, business technology, computer aided drafting technology, computer integrated machining technology, civil technology, design ands imaging technology, hospitality and service management, laboratory science technology, and mobile application development. The college also enrolls hearing students in its ASL-English interpretation programs.

The College of **Science** emphasizes the practical aspects of science and mathematics along with applied research opportunities for undergraduate and graduate students. The college offers a variety of degree programs in the sciences; mathematics and statistics; imaging science; biotechnology and molecular bioscience; bioinformatics; and other unique programs. A science exploration option is popular with students who want more time to decide on their major. The college's bachelor of science degree programs encourage cooperative education and the bioinformatics major requires one semester of co-op. The college awards bachelor of science, accelerated dual degree (BS/MS) options, and master of science degrees. Doctoral degrees are awarded in astrophysical sciences and technology, color science, and imaging science.

The Division of **Academic Affairs** includes four units: the Innovative Learning Institute (which includes RIT Online and the Teaching and Learning Studio), the School of Individualized Study, the University Studies program, and the University Writing program.

The *Innovative Learning Institute* encourages innovative teaching and learning projects in all RIT colleges and advances online learning at RIT. The *School of Individualized Study* offers degree programs, including a bachelor of science degree in applied arts and sciences, which allows students to customize their curriculum around specific career goals and objectives. The *University Studies Program* allows students up to one year to explore RIT's undergraduate degree programs before selecting a major.

Undergraduate Programs of Study		Degree and HEGIS Code							
		Cert.	Diploma	AOS	AS	AAS	BFA	BS	Page #
Art, Crafts, Design, and Visual Communications									
3D Digital Design	Imaging Arts and Sciences						1009		100
3D Graphics Technology	National Technical Institute for the Deaf					5012			152
Advertising and Public Relations	Liberal Arts							0604	118
Ceramics	Imaging Arts and Sciences						1009		96
Design and Imaging Technology	National Technical Institute for the Deaf			5012		5012			164
Digital Humanities and Social Sciences	Liberal Arts							5649.00	122
Film and Animation	Imaging Arts and Sciences						1010		104
Fine Arts Studio	Imaging Arts and Sciences						1002		99
Furniture Design	Imaging Arts and Sciences			5317			1009		96
Glass	Imaging Arts and Sciences						1009		97
Graphic Design	Imaging Arts and Sciences						1009		101
Illustration	Imaging Arts and Sciences						1002		98
Industrial Design	Imaging Arts and Sciences						1009		102
Interior Design	Imaging Arts and Sciences						1009		102
Media Arts and Technology	Imaging Arts and Sciences							0605	107
Medical Illustration	Imaging Arts and Sciences						1299		99
Metals and Jewelry Design	Imaging Arts and Sciences						1009		98
Motion Picture Science	Imaging Arts and Sciences							1010	106
New Media Design	Imaging Arts and Sciences						0605		103
New Media Interactive Development	Computing and Information Sciences							0699	47
New Media Marketing	Business							0509	35
Photographic and Imaging Arts (options in Advertising Photography, Fine Art Photography, Photojournalism, Visual Media)	Imaging Arts and Sciences						1011		108
Photographic Sciences (options in Biomedical Photographic Communications, Imaging and Photographic Technology)	Imaging Arts and Sciences							1217	111
Business, Management, and Communication									
Accounting Technology	National Technical Institute for the Deaf					5002			153
Administrative Support Technology	National Technical Institute for the Deaf					5005			154
Applied Technical Leadership	Applied Science and Technology							0599	9
Business	National Technical Institute for the Deaf				5001				160
Business Administration: Accounting	Business							0502	31
Business Administration: Finance	Business							0504	31
Business Administration: International Business	Business							0513	32
Business Administration: Management	Business							0506	33
Business Administration: Marketing	Business							0509	34
Business Technology	National Technical Institute for the Deaf			5004					160
Communication	Liberal Arts							0601	119
Digital Humanities and Social Sciences	Liberal Arts							5649.00	122
Economics	Liberal Arts							2204	123
Health Systems Administration	Health Sciences and Technology	5299							86
Hospitality and Service Management	National Technical Institute for the Deaf				5011				167
Hospitality and Tourism Management	Applied Science and Technology							0510.10	22
Management Information Systems	Business							0599	34
New Media Marketing	Business							0509	35
Nutrition Management	Health Sciences and Technology							1306	89
Organizational Change and Leadership	School of Individualized Study	5004							200
Quality Management	School of Individualized Study	5004							200
Computing and Information Sciences									
3D Digital Design	Imaging Arts and Sciences						1009		100
Applied Computer Technology	National Technical Institute for the Deaf			5101	0799	5101			154
Bioinformatics	Science							0499	182
Computational Mathematics	Science							1703	189
Computer Science	Computing and Information Sciences							0701	40
Computing and Information Technologies	Computing and Information Sciences							0702	42
Computing Security	Computing and Information Sciences							0799	43
Game Design and Development	Computing and Information Sciences							0799	44
Human-Centered Computing	Computing and Information Sciences							4605.00	46
Management Information Systems	Business							0599	34
Mobile Application Development	National Technical Institute for the Deaf					5101			169
New Media Interactive Development	Computing and Information Sciences							0699	47
Software Engineering	Computing and Information Sciences							0999	48
Web and Mobile Computing	Computing and Information Sciences							0699	51
Engineering and Engineering Technology									
Applied Computer Technology	National Technical Institute for the Deaf			5101	0799	5101			154
Applied Mechanical Technology	National Technical Institute for the Deaf					5315			158
Biomedical Engineering	Engineering							0905	58
Chemical Engineering	Engineering							0906	60

* 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	Page #
Civil Engineering Technology	Applied Science and Technology							0925	10
Civil Technology	National Technical Institute for the Deaf					5309			161
Computer Aided Drafting Technology	National Technical Institute for the Deaf			5303		5303			162
Computer Engineering	Engineering							0999	62
Computer Engineering Technology	Applied Science and Technology							0925	11
Computer Integrated Machining Technology	National Technical Institute for the Deaf			5312					163
Electrical Engineering	Engineering							0909	64
Electrical Engineering Technology	Applied Science and Technology							0925	13
Electrical Mechanical Engineering Technology	Applied Science and Technology							0925	14
Industrial Engineering	Engineering							0913	66
Integrated Electronics	Engineering	5311							72
Manufacturing Engineering Technology	Applied Science and Technology							0925	18
Mechanical Engineering	Engineering							0910	72
Mechanical Engineering Technology	Applied Science and Technology							0925	20
Mechatronics Engineering	Engineering	5311							75
Microelectronic Engineering	Engineering							0999	76
Packaging Science	Applied Science and Technology							4999	21
Software Engineering	Computing and Information Sciences							0999	48
Health Sciences									
Biomedical Sciences	Health Sciences and Technology							0499	83
Diagnostic Medical Sonography (Ultrasound)	Health Sciences and Technology							1299	84
Echocardiography (Cardiac Ultrasound)	Health Sciences and Technology	5217							86
Exercise Science	Health Sciences and Technology	5299.30						1299.30	89
Health Systems Administration	Health Sciences and Technology	5299							86
Medical Illustration	Imaging Arts and Sciences						1299		99
Nutrition Management	Health Sciences and Technology							1306	89
Physician Assistant	Health Sciences and Technology							1299.10	87
Multidisciplinary									
Applied Arts and Sciences	School of Individualized Study					5699		4999	199
Science, Mathematics, and Imaging Science									
Applied Mathematics	Science							1703	187
Applied Statistics and Actuarial Science	Science							1702	188
Biochemistry	Science							0414	178
Bioinformatics	Science							0499	182
Biology	Science							0401	183
Biomedical Engineering	Engineering							0905	58
Biomedical Sciences	Health Sciences and Technology							0499	83
Biotechnology and Molecular Bioscience	Science							0499	184
Chemical Engineering	Engineering							0906	60
Chemistry	Science							1905	179
Computational Mathematics	Science							1703	189
Diagnostic Medical Sonography (Ultrasound)	Health Sciences and Technology							1299	84
Environmental Science	Science							0420	185
Exercise Science	Health Sciences and Technology	5299.30						1299.30	88
Imaging Science	Science							1999.20	181
Laboratory Science Technology	National Technical Institute for the Deaf			5407		5407			168
Photographic Sciences (options in Biomedical Photographic Communications, Imaging and Photographic Technology)	Imaging Arts and Sciences							1217	111
Physician Assistant	Health Sciences and Technology							1299.10	87
Physics	Science							1902	190
Social Sciences, Humanities, and Education									
Applied Arts and Sciences	School of Individualized Study					5699		4999	199
Applied Liberal Arts	National Technical Institute for the Deaf				5699				157
ASL-English Interpretation	National Technical Institute for the Deaf					5506		1199	158
Communication	Liberal Arts							0601	119
Criminal Justice	Liberal Arts							2105	121
Deaf Cultural Studies-American Sign Language	National Technical Institute for the Deaf	5506							164
Environmental Science	Science							0420	185
Environmental Sustainability, Health and Safety	Applied Science and Technology							0420	16
International and Global Studies	Liberal Arts							2210	124
Journalism	Liberal Arts							0604	127
Museum Studies	Liberal Arts							1099	128
Performing Arts	National Technical Institute for the Deaf	5610							170
Philosophy	Liberal Arts							1509	129
Political Science	Liberal Arts							2207	131
Psychology	Liberal Arts							2001	132
Public Policy	Liberal Arts							2102	133
Sociology and Anthropology	Liberal Arts							2214	135

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

Colleges of RIT

Students will choose one college as their home, where they will concentrate on an in-depth degree program (major), but their course work could draw from the strengths and interactions of all 10 of RIT's colleges and degree-granting entities.

RIT's colleges and degree-granting entities

- College of Applied Science and Technology
- Saunders College of Business
- B. Thomas Golisano College of Computing and Information Sciences
- Kate Gleason College of Engineering
- College of Health Sciences and Technology
- College of Imaging Arts and Sciences
- College of Liberal Arts
- National Technical Institute for the Deaf
- College of Science
- Academic Affairs

College of Applied Science and Technology

S. Manian Ramkumar, Interim Dean
rit.edu/cast

Programs of study

	Bachelor of Science in:	Page
	Applied Technical Leadership	9
	Civil Engineering Technology *Options available in construction management, structural design, and water resources.*	10
#	Computer Engineering Technology *Options available in audio and telecommunications.*	11
	Electrical Engineering Technology *Options available in audio and telecommunications.*	13
#	Electrical Mechanical Engineering Technology	14
#	Environmental Sustainability, Health and Safety *Options available in alternative energy, ecological principles and conservation, environmental microbiology, and occupational health and safety.*	16
	Hospitality and Tourism Management	22
#	Manufacturing Engineering Technology	18
#	Mechanical Engineering Technology	20
	Packaging Science	21

	Reserve Officer's Training Corps (ROTC):	
	Army	23
	Air Force	24

Accelerated BS/MS option available.

The College of Applied Science and Technology, comprised of two schools–the School of Engineering Technology and the School of International Hospitality and Service Innovation–provides programs that stress technology in a variety of environments, enhance customer satisfaction in the service sector, 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).

Admission requirements

For 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.

Faculty

Faculty members in the college have considerable experience in their respective industrial fields, teaching experience from two- and four-year colleges, and have completed graduate programs in their various specialties. While teaching is a primary concern, they are also researchers who maintain current knowledge in their fields. They are committed to student growth and development.

Facilities and resources

- The College of Applied Science and Technology building supports RIT's commitment to environmentally sustainable design. It is LEED (Leadership in Energy and Environmental Design) certified and houses the department of civil engineering technology, environmental management and safety (CETEMS); the department of electrical, computer, and telecommunications engineering technology; the CETEMS Environmental Laboratory; the CETEMS Digital Design Laboratory; the CETEMS Soils Laboratory; the William G. McGowan Student Commons; the American Packaging Corporation Center for Packaging Innovation; Center for Sustainable Packaging; the William G. McGowan Center for Telecommunications, Innovation, and Collaborative Research; and the REDCOM Telecommunications Systems Laboratory.
- Another building houses the department of manufacturing and mechanical engineering technology/packaging science; administrative, advising, and faculty offices; a student project area; and mechanical systems, materials, and product innovation laboratories.

- Additional laboratories include state-of-the-art labs in CAD/CAM systems, electronics manufacturing, instrumentation, packaging testing, and sustainability.
- Henry's, the college's student-run kitchen and restaurant, which is part of the School of International Hospitality and Service Innovation, showcases some of the most sophisticated service equipment and computing resources in the country.

Cooperative education

All full-time engineering technology majors and the BS programs in environmental sustainability, health and safety; packaging science; and international hospitality and service management require students to complete cooperative education before they can be awarded a bachelor of science degree. All part-time programs also require either cooperative education or its equivalent. Students who work full time and are enrolled part time in an engineering technology program may be able to apply a portion of their full-time employment toward cooperative education. Professional responsibilities and how they pertain to each degree program must be reviewed to determine if co-op credit may be awarded.

Programs require an official approval and registration for co-op, with cooperative education listed on the student's transcript. Part-time students in the electrical and computer engineering technology programs have the same cooperative education requirements as full-time students. As part of the graduation requirement for a BS in mechanical engineering technology, electrical/mechanical engineering technology, and manufacturing engineering technology, the department requires that the work experience of all part-time and distance students must total at least 48 weeks of documented full-time work experience relevant to their major.

Co-op provides an opportunity for students to apply techniques, skills, and the latest developments in their fields in a professional environment. Students learn the day-to-day operations of an industry environment while they gain valuable experience that hones their skills and makes them more marketable upon graduation. Co-op also can provide an income that may help defray a portion of the student's educational expenses.

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.

Advising

The college provides advising services to support students throughout their academic careers. A faculty adviser, co-op adviser, professional adviser, and staff in the departmental offices all participate in the student's academic experience. A faculty adviser is uniquely prepared to offer career counseling in each student's major field of study. The Office of Career Services and Cooperative Education assigns each co-op student a co-op adviser who assists in the placement process. In the departmental offices, all students are assured of administrative support to effectively deal with registration, records, and scheduling. Professional advisers assist in academic planning and problem solving. Each of these advisers will also help identify appropriate support services for specific student needs.

Academic enrichment

The Honors Program: Students who demonstrate a high level of achievement at the high school level may be invited to join the Honors program. These students will participate in Honors course work throughout their program of study and experiential learning activities under the guidance of a faculty mentor. Honors students will be selected during the admissions process.

Minors: Students may choose from more than 90 minors to enhance their academic program or further develop a personal area of interest. For a detailed list of minors, including courses, please refer to the Minors section of this bulletin.

Study abroad: RIT encourages all students to consider a study abroad program to enhance their understanding of globalization and other cultures. Students may study full time at a variety of host schools and are able to select both major and liberal arts classes. The Study Abroad Office has information about foreign study options and opportunities. Academic advisers will work with students to schedule study abroad experiences into planning and course selection.

Professional student organizations: The college maintains memberships in the following professional organizations: American Society of Civil Engineers; Women in Technology; Institute of Electrical and Electronics Engineers; Students Innovating Technology; Institute of Packaging Professionals; Society for Manufacturing Engineers; BAJA SAE Team; American Society of Heating, Refrigerating and Air-Conditioning Engineers; and the Student Environmental Action League.

Special opportunities

Accelerated dual degree programs: Some programs offer accelerated, five-year dual BS/MS degree options. These degrees offer students the opportunity to earn a bachelor's degree and a master's degree in less time than pursuing each degree individually. Please refer to individual programs for information on BS/MS options.

Graduate study: The College of Applied Science and Technology offers graduate programs and advanced certificates in a number of areas related to technology, the environment, service leadership and innovation, hospitality, human resource management, and manufacturing. For a complete list of programs and their curricula please refer to the *Graduate Bulletin*.

Part-time/Evening/Online options: Several of the college's programs and courses are available on a part-time, evening, or online basis. Please refer to the Office of Part-time and Graduate Enrollment or the college's website for more information.

Engineering Technology, Undeclared

https://www.rit.edu/cast/mmet/undergraduate-programs/undeclared-engineering-technology-option

Robert Garrick, Undeclared Program Coordinator
(585) 475-4288, rdgmet@rit.edu

Program overview

Students interested in the fields of engineering technology or packaging science but undecided about selecting a specific major should consider the undeclared engineering technology 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 and mechanical disciplines. They also participate in Undeclared Engineering Technology Seminar (ENGT-110), a course that explores the unique characteristics of each engineering technology 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 undeclared 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

Undeclared engineering technology, typical course sequence

COURSE		SEMESTER CREDIT HOURS
Fall Semester		
ENGT-110	Undeclared Engineering Technology 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 Seminar	3
	LAS Perspective	3
ACSC-010	Year One: College Experience	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 Wellness courses.

School of Engineering Technology

Applied Technical Leadership, BS

Linda Underhill, Service Systems Department Chair
(585) 475-7359, lmuism@rit.edu

Program overview

The applied technical leadership major is aimed at experienced, working adult learners who have completed a technical associate degree and have work experience in their field of study. The major is focused on enhancing career advancement options for those working in a variety of fields including, but not limited to, technical/technology, public service (law enforcement, engineering technologies, fire service, etc.), and medical (CPA, LPN). This major is only available online, enabling students to balance the demands of work and family while they complete a bachelor's degree.

Plan of study

The major is an online upper-level degree, with students entering the program after having already completed an associate degree. The curriculum includes required courses in service systems and environmental management and safety. Additional courses in business and liberal arts are provided by Saunders College of Business, the School of Individualized Study, and the College of Liberal Arts. Students complete general education requirements as part of the bachelor of science degree and, depending on the amount of transfer credit accepted, may complete addition professional electives as needed.

Curriculum

Applied technical leadership*, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year†		
Second Year†		
Third Year		
HRDE-350	Leadership Development	3
HRDE-355	Contemporary Problems in Applied Technical Leadership	3
COMM-203	Effective Technical Communication	3
ACCT-110	Financial Accounting	3
HRDE-386	Human Resource Development	3
PUBL-101	Foundations of Public Policy	3
	Free Elective	3
	LAS Elective	3
	LAS Immersion 1, 2	6
Fourth Year		
HRDE-400	Crisis Intervention in Applied Technical Leadership	3
BUSI-409	Core Concepts of Project Management	3
SERQ-420	Service Quality	3
ESHS-480	Environmental Health and Safety Law	3
HRDE-490	Senior Project (WI)	3
	LAS Immersion 3	3
	Free Elective	3
	LAS Electives	9
Total Semester Credit Hours		**120**

Please see General Education Curriculum–Liberal Arts and Sciences (LAS) for more information.
(WI) Refers to a writing intensive course within the major.
* The applied technical leadership major is an upper-level program in which students enter after completing an associate degree. This chart represents the typical sequence of courses for the final two years. Students, upon acceptance and review of their transfer credit, should meet with an academic adviser to create a plan of study that fulfills all program requirements.
† Students are required to complete an associate degree before applying for admission to the applied technical leadership major. The associate degree takes the place of the first two years of the program.

Additional information

Admission requirements

To be considered for admission to the BS degree in applied technical leadership, candidates must fulfill the following requirements:

- Hold an associate degree from an accredited college or university.
- Have a GPA of 2.5 or higher in a technical/technology, public services, medical, or related career field. (The major is not open to students who have an earned associate degree in business and the content of any electives in the program must be non-business content.)
- Have completed required prerequisite course work (e.g., at least one lab science course, a course in mathematics and/or statistics and related liberal arts courses) before admission. Students missing required prerequisite courses must complete prerequisite course work prior to admission. This may be accomplished (with appropriate advising approvals) at any accredited community college or university, or at RIT on a non-matriculated basis. Grades must be at the C level or higher and an overall GPA of at least 2.5 is expected for these pre-requisite courses.
- Submit a current resume.
- Participate in a faculty interview (as needed).
- Applicants must currently be employed in a technical/technology, public services, medical or related career field for at least three years, or have a minimum of three years' experience in their career field within the last five years.

International applicants

This major is conducted entirely online and all instruction is in English. No courses are offered in a traditional classroom format on the RIT campus and therefore the major does not meet the typical visa and course registration requirements for international students studying in the United States.

International students outside the United States:

- All admission requirements must be met.
- As per RIT policy D2, 'The U.S. Government expects international students to prove competency in the English language prior to their acceptance to an American college or university. In keeping with this expectation, students whose native language is not English and who's secondary or higher education was completed in a non-native English speaking country must take a test of English language proficiency. Students must achieve the following minimum scores prior to consideration for admission: 570 paper-based or 88 internet-based on the Test of English as a Foreign Language (TOEFL), or 6.5 on the International English Language Testing System (IELTS) or 62 on the Pearson Test of English-Academic.'
- Note that TOEFL, IELTS, or Pearson provide an overall score. The academic department will review individual scores received in the test sections to determine if your language skills in each area are strong enough for admission.

Transfer credit

Entering students are required to have earned an associate degree in technology, public services, medical or other similar associates degree (such as criminal justice, police, or fire science). Transfer credit in general education, math, lab science(s), and technical studies from the associate degree is evaluated on a course-by-course basis. It is anticipated that most students will enter with third-year status depending on grades and courses taken in their associate degree. Once transfer credit has been applied, remaining course work is completed online via RIT. A bachelor of science degree requires 120 semester hours. In the applied technical leadership major, for example, a student who transfers with 60 semester hours from their associate degree would need to complete 60 semester credit hours at RIT to earn their degree.

Civil Engineering Technology, BS

https://www.rit.edu/cast/cetems/bs-civil-engineering-technology
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Program overview

The civil engineering technology major prepares students for employment in the fields of civil engineering, construction management, and other closely related professions. Students learn civil engineering technology fundamentals from faculty members who have years of practical, professional, on-the-job experience. The major stresses applied engineering, where students work in various laboratory settings to learn about theory, how design parameters are determined, and how to best utilize state-of-the-art equipment and engineering software. In addition, students learn the skills necessary to pursue additional education, certification, or professional licensure. Course work and extracurricular activities are designed to broaden students' involvement in organizations within and outside their profession. These objectives are achieved through a broad-based curriculum that offers students a choice of numerous elective paths in the discipline that meets specific career interests.

Program goal

The civil engineering technology major provides an academically demanding education to meet the needs of students and employers by properly preparing them for a successful career after graduation.

Plan of study

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. Options are not required, but students may choose to complete an option in construction management, structural design, or water resources to gain a deep understanding of these particular topics and how they impact civil engineering.

Professional options

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

The construction management option is ideal for students who have an interest in courses related to the business, management, and technical aspects related to construction.

Structural design

The structural design option provides a focus in structural design and the use of different types of structures and materials. It also introduces related design codes.

Water resources

The water resources option is for students who have an interest in courses related to water treatment, wastewater treatment, hydrology, and the environment.

Accreditation

The civil engineering technology major is accredited by the Engineering Technology Accreditation Commission of ABET, http://www.abet.org.

Curriculum

Civil engineering technology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CVET-140, 141	Materials of Construction and Lab	3
MATH-111	LAS Perspective 7A: Pre-Calculus	3
PHYS-111, 112	LAS Perspective 6: Physics I with Lab, II	8
	LAS Perspective 1	3
CVET-180, 181	Civil Engineering Graphics and Lab	3
CVET-210	Statics	3
CVET-150	Computer Aided Design and Drafting	2
MATH-171	LAS Perspective 7B: Calculus A	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
CVET-160, 161	Surveying and Lab	4
CVET-220	Strength of Materials	4
	LAS Perspective 2, 3	6
MATH-172	Calculus B	3
CVET-170	Elements of Building Construction	3
CVET-230	Elementary Structures	3
CVET-240, 241	Elementary Soil Mechanics and Lab	4
MATH-211	Elements of Multivariable Calculus and Differential Equations	3
CHMG-141, 145	LAS Perspective 5: General and Analytical Chemistry I and Lab	4
Third Year		
CVET-250, 251	Hydraulics and Lab	4
CVET-300	Land Development Computer Applications	2
CVET-332	Structural Analysis with STAAD	4
	LAS Perspective 4	3
COMM-203	Effective Technical Communication	3
ENGT-299	Cooperative Education Preparation	0
CVET-499	Cooperative Education	Co-op
Fourth Year		
CVET-440	Foundation Engineering	3
Choose one of the following:		6
	Structural Design Elective (CVET-431) or Technical Elective	
	Structural Design Elective (CVET-432) or Technical Elective	
	Free Elective	3
CHMG-122	Chemistry of Water and Wastewater	3
	LAS Immersion 1, 2	6
CVET-450	Principles of Water and Wastewater Treatment	3
CVET-400, 401	Transportation Engineering and Lab	3
	LAS Elective	3
CVET-437	Dynamics in Civil Engineering Technology	2
CVET-499	Cooperative Education	Co-op
Fifth Year		
CVET-499	Cooperative Education	Co-op
CVET-500	Civil Engineering Technology Capstone (WI)	3
	Technical Elective	3
	Free Elective	3
	LAS Math or Science Elective	3
	LAS Immersion 3	3
Total Semester Credit Hours		**128**

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 Wellness courses.

Professional options

Construction management

Choose three of the following:	
CVET-424	Building Information Modeling with Revit
CVET-461	Construction Cost Estimating I
CVET-462	Construction Project Management
CVET-464	Construction Planning, Scheduling and Control
CVET-465	Contracts and Specifications
CVET-505	Sustainable Building Design and Construction
ESHS-225	Construction Safety

Structural design

Required course	
CVET-431, 432	Structural Design Elective
Choose two of the following:	
CVET-433	Structural Timber Design
CVET-434	Design of Highway Bridges
CVET-435	Pre-stressed Concrete
CVET-436	Masonry Structures

Water resources

Choose three of the following:	
CVET-423	Geospatial Information Systems for CETEMS
CVET-451	Design of Water and Wastewater Treatment
CVET-452	Groundwater Hydraulics
CVET-453	Stormwater Management

Additional information

Graduates

Our graduates can be found working in consulting engineering firms; construction and construction management companies; and government agencies at the local, regional, and national level. Initial job titles may include junior engineer, project manager, project engineer, estimator, junior structural engineer, construction inspector, project coordinator, or superintendent. 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.

Computer Engineering Technology, BS

http://www.rit.edu/cast/ectet/bs-in-computer-engineering-technology.php
James Lee, Acting Department Chair
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Program overview

Computer engineers design embedded systems for medical diagnostic equipment, digital cameras, missile guidance systems, anti-lock braking systems, scanners, copiers, switches, routers, and smart phones. The embedded systems designer must be proficient with both computer hardware and software skills.

The computer engineering technology major is designed to meet industry's ever-increasing need for engineers with an in-depth knowledge of hardware and software design and development. The curriculum bridges the gap between these two disciplines by providing a solid foundation in each and integrating them with intensive classroom and laboratory experiences.

From a software perspective, students gain a strong background in cutting-edge development with programming languages currently used in industry. Students learn industry standard approaches to application software development as well as state-of-the-art problem solving techniques. Students learn techniques for developing both applications code and firmware, and they understand and appreciate the differences between them. Students will 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

and current bus standards, 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, microprocessor systems, and state-of-the-art computer technology. Students perform schematic entry timing analysis, design verification and FPGA development in a hardware description language using industry standard computer-aided engineering tools.

A capstone experience in the fifth year enables students to integrate their hardware and software expertise in a semester-long project course.

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 work force as design engineers or to pursue advanced degrees. Computer engineering technology majors will gain an in depth of 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 interested in pursuing a personal interest, may elect to use electives to complete an option in audio or telecommunications. Each option consists of four courses as described in the curriculum section below.

Cooperative education

The major requires students to complete approximately 12 months of cooperative education. Students may begin their co-op experience in the spring of their third year. Co-ops may be completed during the academic year or during the summer. Each student is assigned a co-op adviser to assist in identifying and applying to opportunities.

Accreditation

The computer engineering technology major is accredited by the Engineering Technology Accreditation Commission of ABET, http://www.abet.org.

Curriculum

Computer engineering technology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-171	LAS Perspective 7A: Calculus A	3
EEET-111, 112	DC Circuits and Lab	4
CPET-141, 142	Digital Fundamentals and Lab	3
	LAS Perspective 1, 2	6
	First Year LAS Elective	3
MATH-172	LAS Perspective 7B: Calculus B	3
EEET-121, 122	AC Circuits and Lab	4
CPET-121	Computational Problem Solving I	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-173	Calculus C	3
EEET-211, 212	Electronics I and Lab	4
	LAS Perspective 3, 4	6
CHMG-141, 145	LAS Perspective 5: General and Analytical Chemistry I and Lab	4
MATH-211	Elements of Multivariable Calculus and Differential Equations	3
EEET-221, 222	Electronics II and Lab	3
CPET-231, 232	Digital Systems Design and Lab	3
CPET-251, 252	Microcontroller Systems and Lab	34
STAT-145	Introduction to Statistics I	3
Third Year		
PHYS-111	LAS Perspective 6: College Physics I	4
EEET-331, 332	Signals Systems and Transforms and Lab	4
CPET-341, 342	Hardware Description Language and Lab	3
CPET-321	Computational Problem Solving II	3
	LAS Immersion 1	3
EEET-299	Career Orientation	1
CPET-499	Cooperative Education	Co-op
Fourth Year		
CPET-481	Networking Technologies	3
EEET-425	Digital Signal Processing (WI)	4
EEET-421, 422	Design Innovation and Lab	3
	LAS Immersion 2, 3	6
	Technical Electives	6
MFET-436	Engineering Economics	3
CPET-561	Embedded Systems Design I	4
Choose one of the following:		3
SWEN-563	Real Time and Embedded Systems	
CPET-461	Real Time Operating Systems	
CPET-499	Cooperative Education	Co-op
Fifth Year		
CPET-499	Cooperative Education	Co-op
CPET-563	Embedded Systems Design II	3
	General Education Elective	4
	Free Electives	6
Total Semester Credit Hours		**128**

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 Wellness courses.

Options

Audio

EEET-261	Fundamentals of Audio Engineering
EEET-361	Modern Audio Production
Choose two of the following:	
CPET-421	Applied Audio Programming
CPET-435	3D Audio Theory and Practice
EEET-461	Introduction to Acoustics
EEET-531	Audio Power Amplifier

Telecommunications

CPET-481	Network Technologies (required)
EEET-311, 312	Communications Elective with Lab
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 adviser for more information.

Computer engineering technology, BS degree/Computer science, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-171	LAS Perspective 7A: Calculus A	3
EEET-111, 112	DC Circuits and Lab	4
CPET-141, 142	Digital Fundamentals and Lab	3
	LAS Perspective 1, 2	6
	First Year LAS Elective	3
MATH-172	LAS Perspective 7B: Calculus B	3
EEET-121, 122	AC Circuits and Lab	4
CPET-121	Computational Problem Solving I	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0

COURSE		SEMESTER CREDIT HOURS
Second Year		
MATH-173	Calculus C	3
EEET-211, 212	Electronics I and Lab	4
CPET-201, 202	Microcontroller Systems and Lab	3
	LAS Perspective 3, 4	6
CHMG-141, 145	LAS Perspective 5: General and Analytical Chemistry I and Lab	4
MATH-211	Calculus and DEQ	3
EEET-221, 222	Electronics II and Lab	3
CPET-241, 242	Digital Systems Design and Lab	4
STAT-251	Probability and Statistics I	3
Third Year		
MATH-190	Discrete Math for Computing	3
EEET-321	Signals Systems and Transforms	4
CPET-341, 342	Hardware Description Language and Lab	3
CPET-321	Computational Problem Solving II	3
	LAS Immersion 1	3
EEET-299	Career Orientation	1
CPET-499	Cooperative Education	Co-op
Fourth Year		
CSCI-262	Introduction to Computer Science Theory	3
PHYS-111	LAS Perspective 6: College Physics I	4
EEET-421	Design Innovation (WI)	3
	LAS Immersion 2	3
MFET-436	Engineering Economics	3
CPET-561	Embedded Systems Design I	4
CPET-461	Real Time Operating Systems	3
CSCI-605	Advanced Java Programming	3
CPET-499	Cooperative Education	Co-op
Fifth Year		
CSCI-620	Data Exploration and Management	3
CPET-481	Networking Technologies	3
EEET-425	Digital Signal Processing	4
CSCI-665	Foundations of Algorithms	3
CPET-563	Embedded Systems Design II	3
CSCI-720	Data Mining	3
CSCI-622	Secure Data Management	3
	LAS Immersion 3	3
Sixth Year		
CSCI-687	Graduate Research Seminar	3
CSCI-631	Foundations of Computer Vision	3
Choose one of the following:		3
CSCI-663	Computability	
CSCI-664	Computational Complexity	
CSCI-799	Computer Science Graduate Independent Study	3
CSCI-790	Computer Science Thesis	6
Total Semester Credit Hours		**151**

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 Wellness courses.

Electrical Engineering Technology, BS

http://www.rit.edu/cast/ectet/bs-in-electrical-engineering-technology.php
James Lee, Acting Department Chair
(585) 475-2899, jhleme@rit.edu

Program overview

The electrical engineering technology major is designed to meet industry's ever-increasing need for engineers with an in-depth understanding of electrical and electronics theory. The major provides students with the ability to specialize in specific areas of the discipline. Graduates work in engineering roles in a variety of industries including automotive, medical devices, power and energy, audio, telecommunications, and more.

Core courses are introduced in the first year of study to provide students with a solid foundation in circuits, analog and digital electronics, calculus, computer programming and the liberal arts. The curriculum expands in later years to feature advanced study in applied differential equations, advanced circuits and electronics, transform methods, control systems, analog and digital electronics, mechanical engineering technology, and additional liberal arts courses. Elective courses enable students to choose from a wide range of course options to further enhance their program of study and prepare them for career goals and objectives. The upper division of the major provides a viable option for students who have completed their associate degree and wish to continue their education.

Options

Students who wish to specialize in a particular area of industry, or those interested in pursuing a personal interest, may elect to use electives to complete an option in audio or telecommunications. Each option consists of four courses as described in the curriculum section below.

Cooperative education

The major requires students to complete approximately 12 months of cooperative education. Students may begin their co-op experiences in spring of the third year. Co-ops may be completed during the academic year and during the summer. A co-op adviser is assigned to each student to assist them in identifying and applying to opportunities.

Accreditation

The electrical engineering technology major is accredited by the Engineering Technology Accreditation Commission of ABET, http://www.abet.org.

Curriculum

Electrical engineering technology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-171	LAS Perspective 7A: Calculus A	3
EEET-111, 112	DC Circuits and Lab	4
CPET-141, 142	Digital Fundamentals and Lab	3
	LAS Perspective 1, 2	6
	First Year LAS Elective	3
MATH-172	LAS Perspective 7B: Calculus B	3
EEET-121, 122	AC Circuits and Lab	4
CPET-121	Computational Problem Solving I	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0

COURSE		SEMESTER CREDIT HOURS
Second Year		
MATH-173	Calculus C	3
EEET-211, 212	Electronics I and Lab	4
CPET-231, 232	Digital Systems Design and Lab	4
	LAS Perspective 3, 4	6
CHMG-141, 145	LAS Perspective 5: General and Analytical Chemistry I and Lab	4
MATH-211	Elements of Multivariable Calculus and Differential Equations	3
EEET-221, 222	Electronics II and Lab	3
CPET-251, 252	Microcontroller Systems and Lab	4
EEET-241, 242	Electrical Machines and Transformers and Lab	3
Third Year		
PHYS-111	LAS Perspective 6: College Physics I	4
EEET-331, 332	Signals, Systems and Transforms and Lab	4
EEET-311, 312	Communications Electronics and Lab	3
STAT-145	Introduction to Statistics I	3
	LAS Immersion 1	3
EEET-299	Career Orientation	1
EEET-499	Cooperative Education	Co-op
Fourth Year		
EEET-425	Digital Signal Processing (WI)	4
EEET-421, 422	Design and Innovation and Lab	3
	LAS Immersion 2, 3	6
	Technical Electives	6
	LAS Elective	3
MFET-436	Engineering Economics	3
EEET-427	Control Systems	4
	Mechanical/Manufacturing Engineering Technology Elective	3
EEET-499	Cooperative Education	Co-op
Fifth Year		
EEET-499	Cooperative Education	Co-op
EEET-431, 432	Transmission Lines and Lab	3
	Free Electives	6
	Technical Elective or Program Option	4
Total Semester Credit Hours		**128**

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 Wellness courses.

Options

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-531	Audio Power Amplifier

Telecommunications

CPET-481	Network Technologies
EEET-311, 312	Communications Elective with Lab
EEET-525	Wireless RF Systems
EEET-531	Fiber Optics Technology

Additional information

Careers

Students are well-prepared to pursue careers in a number of fields related to electrical engineering technology. They may enter positions in not only design and development but related disciplines, including manufacturing, research, sales and marketing, applications engineering, and education. Many of our students also choose to pursue graduate degrees.

Electrical Mechanical Engineering Technology, BS

https://www.rit.edu/cast/mmet/undergraduate-programs/bs-in-electrical-mechanical-engineering-technology

Martin Gordon, Director of Undergraduate Studies
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Program overview

With the increased complexity of products and production design, which includes the integration of electronics with mechanical and electrical components, there is a growing need for professionals who have a strong foundation in the electrical, mechanical, and manufacturing disciplines. The electrical mechanical engineering technology major prepares students for professional careers in the broad field of engineering technology, where an integration of mechanical, electrical, and manufacturing disciplines is important. Core courses cover electricity, electronics, microprocessors, mechanics, materials, thermal science, solid modeling, and manufacturing processes. In addition, students take general education courses in mathematics, physics, chemistry, communications, programming, and the liberal arts. The major provides the maximum amount of flexibility in transfer from a variety of two-year programs and from majors within RIT, including programs in engineering science and engineering technology.

Plan of 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.

A substantial amount of laboratory and product work is required. Teamwork, technical writing, and computer use are emphasized throughout the curriculum, which includes the presentation of team projects that are relevant to industry.

Goals

The major will develop well-rounded electrical mechanical engineers as lifelong learners with the ability to adapt, grow, and succeed in a mechatronics, electromechanical engineering environment, or similar highly competitive workplace. The cooperative education experience prepares students to step into professional positions after graduation and be immediately productive in jobs that include mechatronics development, electromechanical system design and analysis, alternative energy, or system engineering.

Cooperative education

The major requires students to complete approximately 12 months of cooperative education. Students may begin their co-op experience in the spring of their third year. Co-ops may be completed during the academic year or during the summer. Each student is assigned a co-op adviser to assist in identifying and applying to opportunities.

Accreditation

The electrical mechanical engineering technology major is accredited by the Engineering Technology Accreditation Commission of ABET, http://www.abet.org.

Curriculum

Electrical mechanical engineering technology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MCET-101	Fundamentals of Engineering	3
MFET-105	Machine Tools Lab	1
MATH-171	LAS Perspective 7A: Calculus A	3
	First Year LAS Elective	3
	First Year Writing Seminar	3
MCET-110, 111	Foundations of Metals and Characterization of Metals and Lab	3
EEET-111, 112	DC Circuits and Lab	4
MCET-150	Engineering Communications and Tolerancing	3
COMM-203	Effective Technical Communications	3
PHYS-111	LAS Perspective 5: College Physics	4
MATH-172	LAS Perspective 7B: Calculus B	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MCET-220	Principles of Statics	3
MFET-120	Manufacturing Processes	3
MATH-211	Elements of Multivariable Calculus and Differential Equations	3
PHYS-112	College Physics II	4
EEET-121, 122	AC Circuits and Lab	4
EMET-290	Mechanics for Electrical Mechanical Engineering Technology	3
EEET-225, 226	Electronic Amplifiers and Lab	3
STAT-145	Introduction to Statistics I	3
CPET-121	Computational Problem Solving I	3
	LAS Perspective 1	3
Third Year		
STAT-146	Introduction to Statistics II	4
MFET-340, 341	Automation Control Systems and Lab	3
MCET-210, 211	Foundations of Non-Metallic Materials and Characterization of Non-Metallic Materials Lab	3
EEET-247, 248	Microprocessors and Digital Systems and Lab	3
	LAS Perspective 2	3
ENGT-299	Career Seminar	0
EMET-499	Cooperative Education	Co-op
Fourth Year		
EEET-241, 242	Electric Machines and Transformers and Lab	3
MCET-430, 530	Thermal Fluid Systems I, II	6
	LAS Immersion 1, 2	6
MFET-436	Engineering Economics	3
CHMG-131	LAS Perspective 6: General Chemistry for Engineers	3
EMET-419	Experimental Methods for Electrical Mechanical Engineering Technology (WI)	3
EEET-427	Control Systems	4
	LAS Perspective 3	3
EMET-499	Cooperative Education	Co-op
Fifth Year		
EMET-499	Cooperative Education	Co-op
	LAS Perspective 4	3
	LAS Immersion 3	3
	Free Electives	6
	Technical Elective	3
Total Semester Credit Hours		**127**

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 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		
MCET-101	Fundamentals of Engineering	3
MFET-105	Machine Tools Lab	1
MFET-120	Manufacturing Processes	3
MATH-171	LAS Perspective 7A: Calculus A	3
	First Year LAS Elective	3
	First Year Writing Seminar	3
MCET-110, 111	Foundations of Metals and Characterization of Metals Lab	3
EEET-111, 112	DC Circuits and Lab	4
MCET-150	Engineering Communications and Tolerancing	3
PHYS-111	LAS Perspective 5: College Physics	4
MATH-172	LAS Perspective 7B: Calculus B	3
COMM-203	Effective Technical Communication	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MCET-220	Principles of Statics	3
MFET-120	Manufacturing Processes	3
MATH-211	Elements of Multivariable Calculus and Differential Equations	3
PHYS-112	College Physics II	4
EEET-121, 122	AC Circuits and Lab	4
EMET-290	Mechanics for Electrical Mechanical Engineering Technology	3
EEET-225, 226	Electronic Amplifiers and Lab	3
STAT-145	Introduction to Statistics I	3
CPET-121	Computational Problem Solving I	3
	LAS Perspective 1	3
EMET-299	Career Seminar	0
EMET-499	Cooperative Education	Co-op
Third Year		
STAT-146	Introduction to Statistics II	4
MCET-430, 530	Thermal Fluid Systems I, II	6
MCET-210, 211	Foundations of Non-Metallic Materials and Characterization of Non-Metallic Materials Lab	3
EEET-247, 248	Microprocessors and Digital Systems and Lab	3
MFET-650	Manufacturing and Mechanical Systems Fundamentals	3
EMET-419	Experimental Methods (WI)	3
	LAS Perspective 2	3
MFET-730	Six Sigma for Design and Manufacturing	3
	MMET Concentration Course	3
EMET-499	Cooperative Education	Co-op
Fourth Year		
MFET-340, 341	Automation Control Systems and Lab	3
EEET-241, 242	Electric Machines and Transformers and Lab	3
MFET-436	Engineering Economics	3
CHMG-131	LAS Perspective 6: General Chemistry for Engineers	3
STAT-670	Design of Experiments for Engineering and Sciences	3
EEET-427	Control Systems	4
	LAS Perspective 3	3
	LAS Immersion 1	3
	MMET Concentration Course	3
GRCS-701	Research Methods	3
EMET-499	Cooperative Education	Co-op
Fifth Year		
	MMET Elective	3
DECS-744	Project Management	3
	MMET Concentration Course	3
Choose one of the following:		3
ACCT-603	Accounting for Decision Makers	
ACCT-794	Cost Management in Technical Organizations	
Choose one of the following:		3
MFET-788	Thesis Prep	
	Elective	
Choose one of the following:		3
	Capstone Project	
	Thesis	
	Elective and Comprehensive Exam	
	LAS Immersion 2, 3	6
	LAS Perspective 4	3
Total Semester Credit Hours		**154**

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 Wellness courses.

Additional information

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 (IEEE), the American Society of Mechanical Engineers (ASME), 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).

Part-time study

Students who are employed full time may pursue the major on a part-time basis by taking the upper-division portion of the curriculum during day or evening hours. It is recommended that students take one to two courses per semester. Students also may elect certain courses from other engineering technology majors, with department approval.

Environmental Sustainability, Health and Safety, BS

https://www.rit.edu/cast/cetems/environmental-sustainability-health-and-safety

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Program overview

The environmental sustainability, health and safety major prepares students to be champions of environmental sustainability as well as health and safety. Graduates help organizations produce goods and services without contaminating the environment, without subjecting the workers to hazardous conditions and chemicals, while also using less energy and fewer precious resources.

The major is focused on social responsibility for corporate activities and on organizations becoming good stewards of the products and services they make and provide. Students are prepared to work as environmental sustainability, health, and safety professionals in both industry and government. Students gain a strong foundation in science; applied environmental, health and safety science, and technology; environmental sustainability; and social responsibility.

Students are 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. The major emphasizes globally sustainable and socially responsible approaches and prepares professionals to lead various industries toward a more sustainable and socially responsible future.

Cooperative education

One year of cooperative education is required. Students may begin their first co-op in the spring of their third year. Co-op provides students with the opportunity to apply their skills in multiple, real-world situations before they graduate. Co-op students are especially valuable to organizations because they are well-qualified and well-prepared to take on the many interesting environmental projects organizations have difficulty completing without additional staff. Co-ops range from field research to office work, and employers range from government to industry.

Options

Several options are available to students that provide further study in various areas of environmental sustainability, health and safety. Options are not required, however, students may choose to use elective courses to pursue one of four options to gain an expertise in a particular area.

Alternative energy

Alternative energy resources are important components of a more environmentally sustainable future. A group of three courses and corresponding labs provide a strong background in the most promising forms of alternative energy systems.

Occupational health and safety

Although the Environmental Protection Agency regulates the environment and the Occupational Safety & Health Administration regulates workplaces, roughly one-third of EPA and OSHA regulations have an overlap of responsibility. Many corporations now have a strong commitment to both the environment and to worker safety, and have combined their environmental, health and safety functions into a single unit. This option provides students with an opportunity to learn more about keeping workers safe from chemical and physical hazards.

Curriculum

Environmental sustainability, health and safety, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ESHS-100	Environmental Sustainability Health and Safety Seminar	3
	First Year LAS Elective	3
MATH-161	LAS Perspective 7A: Applied Calculus	4
CHMG-141, 145	LAS Perspective 5: General and Analytical Chemistry I and Lab	4
CHMG-142, 146	General and Analytical Chemistry II and Lab	4
	LAS Perspective 1, 2	6
ESHS-150	Principles of Environmental Sustainability Health and Safety	3
PHYS-111	LAS Perspective 6: College Physics I and Lab	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
ESHS-200	Environmental Geology	3
ESHS-201, 251	Environmental Monitoring and Measurement I, II	4
PHYS-112	College Physics II and Lab	4
BIOL-101, 103	General Biology I and Lab	4
TCOM-327	Environmental Health and Safety Communication	3
ESHS-250	Introduction to Hydrology	3
ESHS-310	Solid and Hazardous Waste Management	3
BIOL-102, 104	General Biology II and Lab	4
ESHS-320	Occupational Safety	3
Third Year		
ESHS-330	Industrial Wastewater Management	3
	LAS Perspective 3	3
ESHS-511, 512	Occupational Health and Lab	4
	LAS Immersion 1	3
STAT-145	LAS Perspective 7B: Introduction to Statistics I	3
ENGT-299	Career Seminar	0
ESHS-499	Cooperative Education	Co-op
Fourth Year		
ESHS-460	Environmental Health and Safety Accident Causation and Prevention	3
ESHS-500	Social Responsibility and Environmental Sustainability (WI)	3
	Professional Electives	9
	Free Elective	3
	LAS Immersion 2, 3	6
ESHS-480	Environmental Health and Safety Law	3
ESHS-525	Air Emissions Management	3
ESHS-499	Cooperative Education	Co-op

COURSE		SEMESTER CREDIT HOURS
Fifth Year		
ESHS-499	Cooperative Education	Co-op
ESHS-515	Corporate Environmental Health and Safety Management	3
ESHS-590	Capstone Project	3
	Professional Elective	3
	LAS Perspective 4	3
	Free Elective	3
Total Semester Credit Hours		**126**

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 Wellness courses.

Options

Alternative energy

EEET-251	Clean Energy Power Systems
EEET-252	Clean Energy Power Systems Lab
EEET-351	Solar Photovoltaic Applications
EEET-352	Solar Photovoltaic Applications Lab
EEET-353	Fuel Cell Systems
EEET-354	Fuel Cell Systems Lab

Occupational health and safety

ESHS-225	Construction Safety
ESHS-465	Product Stewardship
ESHS-501	Fire Protection
ESHS-530	Mechanical and Electrical I Safeguarding
ESHS-550	Project Management
ESHS-570	EHS Risk Assessment, Management and Communication

Surveying and geospatial analysis

CVET-160	Surveying
CVET-161	Surveying Lab
CVET-423	GIS for CETEMS
ISTE-382	Introduction to 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 health and safety management (project option), BS/MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ESHS-100	ESHS Seminar	3
	First Year LAS Elective	3
MATH-161	LAS Perspective 7A: Applied Calculus	4
CHMG-141, 145	LAS Perspective 5: General and Analytical Chemistry I and Lab	4
CHMG-142, 146	General and Analytical Chemistry II and Lab	4
	LAS Perspective 1, 2	6
ESHS-150	Principles of ESHS	3
PHYS-111	LAS Perspective 6: College Physics I w/ lab	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
ESHS-200	Environmental Geology	3
ESHS-201, 251	Environmental Monitoring and Measurement I, II	4
PHYS-112	College Physics II w/lab	4
BIOL-101, 103	General Biology I and Lab	4
TCOM-327	EHS Communication	3
ESHS-250	Introduction to Hydrology	3
ESHS-310	Solid and Hazardous Waste Management	3
BIOL-102, 104	General Biology II and Lab	4
ESHS-320	Occupational Safety	3
ENGT-299	Career Seminar	0
ESHS-499	Cooperative Education	0
Third Year		
ESHS-330	Industrial Wastewater Management	3
	LAS Perspective 3	3
ESHS-511, 512	Occupational Health and Lab	4
	LAS Immersion 1, 3	6
STAT-145	LAS Perspective 7B: Introduction to Statistics I	3
	Professional Electives	6
ESHS-480	EHS Law	3
ESHS-525	Air Emissions Management	3
ESHS-499	Cooperative Education	0
Fourth Year		
ESHS-460	EHS Accident Causation and Prevention	3
ESHS-720	EHS Management	3
	Professional Elective	3
GRCS-701	Research Methods	3
	LAS Immersion 2	3
ESHS-515	Corporate EHS Management	3
ESHS-500	Responsibility and Environmental Sustainability (WI)	3
	LAS Perspective 4	3
	Free Electives	6
ESHS-499	Cooperative Education	0
Fifth Year		
ESHS-780	EHS Systems Review and Auditing	3
	Professional Electives (Graduate)	9
ESHS-755	Corporate Social Responsibility	3
ESHS-760	Integrating EHS Management	3
ESHS-740	EHS Management Systems Design	3
ESHS-797	Graduate Project	3
Total Semester Credit Hours		**150**

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 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		
ESHS-100	ESHS Seminar	3
	First Year LAS Elective	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
MATH-161	LAS Perspective 7A: Applied Calculus	4
CHMG-141, 145	LAS Perspective 5: General and Analytical Chemistry I and Lab	4
CHMG-142, 146	General and Analytical Chemistry II and Lab	4
ESHS-150	Principles of ESHS	3
PHYS-111	LAS Perspective 6: College Physics I with Lab	4
	LAS Perspective 1, 2	6
Second Year		
ESHS-200	Environmental Geology	3
ESHS-201	Environmental Monitoring and Measurements I	2
PHYS-112	College Physics II with Lab	4
BIOL-101, 103	General Biology I and Lab	4
TCOM-327	EHS Communication	3
ESHS-250	Introduction to Hydrology	3
ESHS-251	Environmental Monitoring and Measurements II	2
ESHS-310	Solid and Hazardous Waste Management	3
BIOL-102, 104	General Biology II and Lab	4
ESHS-320	Occupational Safety	3
ENGT-299	Career Seminar	0
	Cooperative Education	Co-op
Third Year		
ESHS-330	Industrial Wastewater Management	3
ESHS-511, 512	Occupational Health and Lab	4
STAT-145	LAS Perspective 7B: Introduction to Statistics I	3
ESHS-480	EHS Law	3
ESHS-525	Air Emissions Management	3
	LAS Immersion 1, 3	6
	Professional Electives	6

COURSE		SEMESTER CREDIT HOURS
Fourth Year		
ESHS-460	EHS Accident Causation and Prevention	3
GRCS-701	Research Methods	3
GRCS-702	Principles of Research Communication	3
ESHS-720	EHS Management	3
ESHS-515	Corporate EHS Management	3
ESHS-500	Responsibility and Environmental Sustainability (WI)	3
	LAS Perspective 4	3
	LAS Immersion 2	3
	Professional Elective	3
	Free Electives	6
Fifth Year		
ESHS-780	EHS Internal Auditing	3
ESHS-755	Corporate Social Responsibility	3
ESHS-760	Integrating EHS Management	3
ESHS-740	EHS Management Systems Design	3
	Graduate Professional Electives	6
ESHS-788	Thesis Planning	3
ESHS-790	Thesis	3
Total Semester Credit Hours		**150**

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 Wellness courses.

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		
ESHS-100	ESHS Seminar	3
	First Year LAS Elective	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
MATH-161	LAS Perspective 7A: Applied Calculus	4
CHMG-111	LAS Perspective 5: General Organic Biochemistry I w/ Lab	4
ESHS-150	LAS Perspective 6: Principles of ESHS	3
PHYS-111	College Physics I with Lab	4
CHMG-112	General Organic Biochemistry II w/ Lab	4
	LAS Perspective 1, 2	6
Second Year		
ESHS-200	Environmental Geology	3
ESHS-201	Environmental Monitoring and Measurements I	2
PHYS-112	College Physics II with Lab	4
BIOL-101, 103	General Biology I and Lab	4
TCOM-327	EHS Communication	3
ESHS-250	Introduction to Hydrology	3
ESHS-251	Environmental Monitoring and Measurements II	2
ESHS-310	Solid and Hazardous Waste Management	3
BIOL-102, 104	General Biology II and Lab	4
ESHS-320	Occupational Safety	3
ESHS-299	ESHS Co-op Preparation	0
	Cooperative Education	Co-op
Third Year		
ESHS-330	Industrial Wastewater Management	3
ESHS-511	Occupational Health	3
ESHS-512	Occupational Health Lab	1
STAT-145	LAS Perspective 7B: Introduction to Statistics I	3
ESHS-480	EHS Law	3
ESHS-525	Air Emissions Management	3
	LAS Immersion 1, 3	6
	Professional Electives	6
Fourth Year		
ESHS-460	EHS Accident Causation and Prevention	3
GRCS-701	Research Methods	3
GRCS-702	Principles of Research Communication	3
ESHS-720	EHS Management	3
ESHS-515	Corporate EHS Management	3
	LAS Immersion 2	3
	Professional Elective	3
	Free Electives	6
Fifth Year		
ESHS-780	EHS Systems Review and Auditing	3
ESHS-755	Corporate Social Responsibility (WI)	3
ESHS-760	Integrating EHS Management	3
ESHS-740	EHS Systems Design	3
	Graduate Professional Electives	9
ESHS-797	Graduate Project	3
Total Semester Credit Hours		**150**

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 Wellness courses.

Manufacturing Engineering Technology, BS

https://www.rit.edu/cast/mmet/undergraduate-programs/bs-in-manufacturing-engineering-technology

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Program overview

The present shortage of qualified manufacturing engineers is between 50,000 and 100,000. Combined with innovations in industrial productivity and technology, the demand for well-prepared manufacturing engineers is only increasing. Manufacturing engineers are retiring faster than graduates are produced, resulting in outstanding employment opportunities. The manufacturing engineering technology major prepares students to meet the demand for personnel well-versed in advanced manufacturing technologies, which include robotics, computer-aided design (CAD), computer numerical control (CNC), microprocessor controls, computer-aided manufacturing (CAM), flexible manufacturing systems, assembly automation, and electronics manufacturing.

Plan of study

The 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 nontraditional 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.

Goals

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. Cooperative education enhances these skills by allowing students to gain valuable experience working in the manufacturing industry.

Cooperative education

The major requires students to complete approximately 12 months of cooperative education. Students may begin their co-op experience in the spring of their third year. Co-ops may be completed during the academic year or during the summer. Each student is assigned a co-op adviser to assist in identifying and applying to opportunities.

Accreditation

The manufacturing engineering technology major is accredited by the Engineering Technology Accreditation Commission of ABET, http://www.abet.org.

Curriculum

Manufacturing engineering technology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MCET-101	Fundamentals of Engineering	3
MFET-105	Machine Tools Lab	1
MFET-120	Manufacturing Processes	3
	LAS Perspective 1	3
MATH-171, 172	LAS Perspective 7A, 7B: Calculus A, B	6
	First Year LAS Elective	3
MCET-110, 111	Foundations of Metals and Characterization of Metals Lab	3
MCET-150	Engineering Communications and Tolerancing	3
PHYS-111	LAS Perspective 5: College Physics 1	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MCET-220	Principles of Statics	3
	LAS Perspective 2, 3	6
MATH-211	Multivariable Calculus and Differential Equations	3
PHYS-112	College Physics II	4
MCET-210, 211	Foundations of Non-Metallic Materials and Characterization of Non-Metallic Materials Lab	3
MCET-221	Strength of Materials	4
EEET-215, 216	Circuits and Electronics and Lab	3
STAT-145	Introduction to Statistics I	3
COMM-203	Effective Technical Communication	3
Third Year		
STAT-146	Introduction to Statistics II	4
MFET-340, 341	Automation Control Systems and Lab	3
MFET-345, 346	Electronics Manufacturing and Lab	3
	LAS Immersion 1	3
	Free Elective	3
ENGT-299	Career Seminar	0
MFET-499	Cooperative Education	Co-op
Fourth Year		
MFET-420	Quality Engineering Principles	3
MFET-445, 446	Robotics and Automation (WI) and Lab	3
MFET-436	Engineering Economics	3
CHMG-131	LAS Perspective 6: General Chemistry for Engineers	3
	LAS Immersion 2, 3	6
MFET-450	Lean Production and Supply Chain Operations	3
MFET-460	Integrated Design for Manufacture and Assembly	3
	Technical Elective	3
	LAS Perspective 4	3
MFET-499	Cooperative Education	Co-op
Fifth Year		
MFET-499	Cooperative Education	Co-op
MFET-580	Production Systems Design	3
MFET-590	Production Systems Development	3
	Free Elective	3
	LAS Elective	3
	Technical Elective	3
Total Semester Credit Hours		**125**

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 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		
MCET-101	Fundamentals of Engineering	3
MFET-105	Machine Tools Lab	1
MFET-120	Manufacturing Processes	3
	LAS Perspective 1	3
MATH-171	LAS Perspective 7A: Calculus A	3
	First Year LAS Elective	3
MCET-110	Foundations of Metals	2
MCET-111	Characterization of Metals Lab	1
MCET-150	Engineering Communication and Tolerancing	3
PHYS-111	LAS Perspective 5: College Physics 1	4
MATH-172	LAS Perspective 7B: Calculus B	3
UWRT-150	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MCET-220	Principles of Statics	3
MATH-211	Multivariable Calculus and Differential Equations	3
PHYS-112	College Physics II	4
MCET-210	Foundations of Non-Metallic Materials	2
MCET-211	Characterization of Non-Metallic Materials Lab	1
MCET-221	Strength of Materials	4
EEET-215, 216	Circuits and Electronics and Lab	3
STAT-145	Introduction to Statistics I	3
COMM-203	Effective Technical Communication	3
	LAS Perspective 2, 3	6
ENGT-299	Career Seminar	0
MFET-499	Cooperative Education	Co-op
Third Year		
STAT-146	Introduction to Statistics II	4
MFET-340, 341	Automation Control Systems and Lab	3
MFET-345, 346	Electronics Manufacturing and Lab	3
MFET-650	Manufacturing and Mechanical Systems Integration	3
MFET-450	Lean Production and Supply Chain Operations	3
MFET-460	Integrated Design for Manufacture and Assembly	3
	LAS Immersion 3	3
	MMET Concentration Course	3
MFET-730	Six Sigma for Design and Manufacturing	3
MFET-499	Cooperative Education	Co-op
Fourth Year		
CHMG-131	LAS Perspective 6: General Chemistry for Engineers	3
MFET-420	Quality Engineering Principles	3
MFET-445, 446	Robotics and Automation (WI) and Lab	4
MFET-436	Engineering Economics	3
STAT-670	Designing Experiments for Engineers and Scientists	3
MFET-580	Production Systems Design	3
MFET-590	Production Systems Development	3
	LAS Elective	3
	MMET Concentration Course	3
GRCS-701	Research Methods	3
MFET-499	Cooperative Education	Co-op
Fifth Year		
	Open Elective	3
	LAS Immersion 2	3
	MMET Elective	3
	MMET Concentration Course	3
DECS-744	Project Management	3
	LAS Perspective 4	3
Choose one of the following:		3
ACCT-603	Accounting for Decision Makers	
ACCT-794	Cost Management in a Technical Organization	
Choose one of the following:		3
MFET-788	Thesis Preparation	
	MMET Elective	
Choose one of the following:		3
	Capstone Project or Thesis	
	MMET Elective and Comprehensive Exam	
Total Semester Credit Hours		**152**

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 Wellness courses.

Additional information

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).

Part-time study

Students who are employed full time may pursue the major on a part-time basis by taking the upper-division portion of the curriculum during day or evening hours. It is recommended that students take one to two courses per semester. Students also may elect certain courses from other engineering technology majors, with department approval.

Mechanical Engineering Technology, BS

https://www.rit.edu/cast/mmet/undergraduate-programs/bs-in-mechanical-engineering-technology

Martin Gordon, Director of Undergraduate Studies
(585) 475-7712, megite@rit.edu

Program overview

Understanding how products and machinery work and how to design, manufacture, or use them is the focus of the mechanical engineering technology major. From consumer products to high-performance automobiles, aerospace systems, bioengineered devices, and energy technologies, mechanical engineering technology has an enormous influence on our society.

Students study the foundations of mechanics, materials, and energy; acquire technical skills such as computer-aided design and computer-aided engineering; and learn how to test materials and design; and measure and manufacture components, assemblies, and systems. Through lab work and design projects students apply these principles and skills to the various fields (product and machine design, power generation, energy conservation, and manufacturing) of mechanical engineering technology. The required cooperative education requirement gives students valuable, applied industrial experience.

Plan of study

Students develop skills in courses that explore the fundamentals of mechanics, mathematics, materials technology, and computer-aided engineering and design. Later, course work focuses on both mechanical design and applied thermofluid engineering. The major includes four technical electives and two free electives. These courses can be used to create a specialization in such areas as product design, machine design, alternative energy, advanced materials, thermal power, plastics processing, or manufacturing.

A substantial amount of laboratory and product work is required. Teamwork, technical writing, and computer use are emphasized throughout the curriculum, which includes the presentation of team projects that are relevant to industry.

Goals

The major develops well rounded engineers as lifelong learners with the ability to adapt, grow, and succeed in a highly competitive workplace. The 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.

Cooperative education

The major requires students to complete approximately 12 months of cooperative education. Students may begin their co-op experience in the spring of their third year. Co-ops may be completed during the academic year or during the summer. Each student is assigned a co-op adviser to assist in identifying and applying to opportunities.

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.

Accreditation

The mechanical engineering technology major is accredited by the Engineering Technology Accreditation Commission of ABET, http://www.abet.org.

Curriculum

Mechanical engineering technology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MCET-101	Fundamentals of Engineering	3
MFET-105	Machine Tools Lab	1
MFET-120	Manufacturing Processes	3
	LAS Perspective 1	3
MATH-171	LAS Perspective 7A: Calculus A	3
	First Year LAS Elective	3
MCET-110	Foundations of Metals	2
MCET-111	Characterizations of Metals Lab	1
MCET-150	Engineering Communications and Tolerancing	3
PHYS-111	LAS Perspective 5: College Physics I	4
MATH-172	LAS Perspective 7B: Calculus B	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MCET-220	Principles of Statics	3
	LAS Perspective 2, 3	6
MATH-211	Multivariable Calculus and Differential Equations	3
PHYS-112	College Physics II	4
MCET-210	Foundations of Non-Metallic Materials	2
MCET-211	Characterizations of Non-Metallic Materials Lab	1
MCET-221	Strength of Materials	4
EEET-215	Circuits and Electronics	2
EEET-216	Circuits and Electronics Lab	1
STAT-145	Introduction to Statistics I	3
COMM-203	Effective Technical Communications	3
Third Year		
STAT-146	Introduction to Statistics II	4
MCET-320	Mechanical Dynamics w/Applications	3
CHEM-131	LAS Perspective 5: General Chemistry for Engineers	3
	LAS Perspective 4	3
MCET-330	Fluid Mechanics and Fluid Power	3
ENGT-299	Career Seminar	0
MCET-499	Cooperative Education	0

COURSE		SEMESTER CREDIT HOURS
Fourth Year		
MCET-450	Mechanical Analysis and Design I	3
MCET-400	Experimental Methods	3
MCET-430	Thermal Fluid Systems I	3
	LAS Immersion 1, 2	6
	Technical Electives	6
MCET-550	Mechanical Analysis and Design II	3
MCET-551	Mechanical Analysis and Design II Lab	1
MCET-530	Thermal Fluid Systems II	3
	LAS Perspective 6	3
MCET-499	Cooperative Education	Co-op
Fifth Year		
MCET-499	Cooperative Education	Co-op
	Technical Electives	6
	Free Electives	6
	LAS Immersion 3	3
MCET-535	Thermal Fluid Systems Lab	2
Total Semester Credit Hours		**128**

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 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.

Mechanical engineering technology, BS degree/Manufacturing and mechanical systems integration, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MCET-101	Fundamentals of Engineering	3
MFET-105	Machine Tools Lab	1
MFET-120	Manufacturing Processes	3
	LAS Perspective 1	3
MATH-171	LAS Perspective 7A: Calculus A	3
	First Year LAS Elective	3
MCET-110	Foundations of Metals	2
MCET-111	Characterization of Metals Lab	1
MCET-150	Engineering Communication and Tolerancing	3
PHYS-111	College Physics I	4
MATH-172	LAS Perspective 7B: Calculus B	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MCET-220	Principles of Statics	3
	LAS Perspective 2, 3	6
MATH-211	Multivariable Calculus and Differential Equations	3
PHYS-112	College Physics II	4
MCET-210	Foundations of Non-Metallic Materials	2
MCET-211	Characterization of Non-Metallic Materials Lab	1
MCET-221	Strength of Materials	4
EEET-215	Circuits and Electronics	2
EEET-216	Circuits and Electronics Lab	1
STAT-145	Introduction to Statistics I	3
COMM-203	Effective Technical Communications	3
ENGT-299	Career Seminar	0
MCET-499	Cooperative Education	Co-op
Third Year		
STAT-146	Introduction to Statistics II	4
MCET-320	Mechanical Dynamics w/Applications	3
	LAS Perspective 4	3
MCET-430, 530	Thermal Fluid Systems I, II	6
MFET-730	Six Sigma for Design and Manufacturing	3
	MMET Concentration Course	3
	Free Elective	3
	LAS Immersion 1	3
MCET-499	Cooperative Education	Co-op
Fourth Year		
CHEM-131	LAS Perspective 5: General Chemistry and Engineers	3
MCET-330	Fluid Mechanics and Fluid Power	3
MCET-450	Mechanical Analysis and Design I	3
MCET-400	Experimental Methods	3
STAT-670	Design of Experiments for Engineers and Scientists	3
MCET-550, 551	Mechanical Analysis and Design II and Lab	4
MCET-535	Thermal Fluid Systems Lab	2
	LAS Immersion 2	3
	MMET Concentration Course	3
GRCS-701	Research Methods	3
MCET-499	Cooperative Education	Co-op
Fifth Year		
DECS-744	Project Management	3
	Concentration Course	3
	Technical Elective	3
	Free Electives	6
	MMET Elective	3
	LAS Immersion 3	3
Choose one of the following:		3
ACCT-603	Accounting for Decision Makers	
ACCT-794	Cost Management in Technical Organizations	
Choose one of the following:		3
	Program Elective	
MFET-788	Thesis Preparation	
Choose one of the following:		3
MFET-797	Capstone	
MFET-790	Thesis	
	Program Elective and Comprehensive Exam	
Total Semester Credit Hours		**155**

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 Wellness courses.

Additional information

Part-time study

Students who are employed full time may pursue the major on a part-time basis by taking the upper-division portion of the curriculum during day or evening hours. It is recommended that students take one to two courses per semester. Students also may elect certain courses from other engineering technology majors, with department approval.

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 (ASME), 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).

Packaging Science, BS

http://www.rit.edu/cast/packaging/undergraduate-programs
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Program overview

Packaging is increasingly related to total marketing concepts. It has 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 major 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.

Cooperative education

The packaging science major requires two blocks of cooperative education in addition to course work.

Curriculum

Packaging science, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	First Year Writing Seminar	3
MATH-171	LAS Perspective 7A: Calculus A	3
CHMG-131	Chemistry for Engineers	3
PACK-101	Introduction to Packaging	1
PACK-151	Packaging Design I	3
	First Year LAS Elective	3
MATH-172	LAS Perspective 7B: Calculus B	3
CHMG-123	Chemistry of Materials	3
	LAS Perspective 1	3
PACK-152	Packaging Design II	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
	LAS Perspective 2, 3	6
CHMG-201	Introduction to Organic Polymer Technology	3
PHYS-111	LAS Perspective 5: College Physics I	4
PACK-211	Packaging Metals and Plastics	3
PACK-212	Packaging Paper and Glass	3
STAT-145	Introduction to Statistics I	3
PHYS-112	College Physics II	4
PACK-311, 312	Containers I, II	6
	Cooperative Education	Co-op
Third Year		
	LAS Perspective 4	3
MEDG-106	LAS Perspective 6: Microbiology in Health and Disease	3
STAT-146	Introduction to Statistics II	4
MKTG-230	Principles of Marketing	3
PACK-421	Packaging for Distribution	3
	LAS Immersion 1	3
PACK-430	Packaging Regulations	3
PACK-422	Dynamics and Protective Packaging	3
PACK-420	Technical Communications	3
	Packaging Elective	3
	Cooperative Education	Co-op
Fourth Year		
	LAS Immersion 2, 3	6
	Free Electives	6
PACK-470	Food Packaging	3
Choose one of the following:		3
MAAT-563	Building Profit into Media Projects	
MAAT-541	Digital Print Processes	
MAAT-558	Package Printing	
	Packaging Electives	6
PACK-481	Packaging for Marketing and End Use	3
Choose one of the following:		3
DECS-310	Operations Management	
PACK-471	Packaging Supply Chain	
Total Semester Credit Hours		**121**

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 Wellness courses.

Additional information

Industry Advisory Board

The Industry Advisory Board contributes professional and technical expertise to the packaging science major, which strengthens and develops the curriculum to reflect the dynamics and growth of the industry.

School of International Hospitality and Service Innovation

rit.edu/hsm

Hospitality and Tourism Management, BS

https://www.rit.edu/cast/htm/undergraduate-programs
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Program overview

The hospitality and tourism management major 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 competencies 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–that 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

The major requires student 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		
HSPT-125	Hospitality and Tourism Management Fundamentals	3
HSPT-121	Principles of Food Production	3
PSYC-101	Introduction to Psychology	3
	First Year LAS Elective	3
NUTR-215	Contemporary Nutrition	3
MATH-101	LAS Perspective 7A: College Algebra	3
CHMG-111	LAS Perspective 5: General Organic Biochemistry	4
HSPT-131	Lodging Operations Management	3
	LAS Perspective 1†, 2	6
	First Year Writing Seminar	3
	Wellness Education*	0
ACSC-010	Year One: College Experience	0
Second Year		
ACCT-110	Financial Accounting	3
ECON-101	Principles of Microeconomics	3
ECON-201	Principles of Macroeconomics	3
HSPT-223	Food and Beverage Management	3
PSYC-234	Industrial and Organizational Psychology	3
STAT-145	LAS Perspective 7B: Introduction to Statistics I	3
HSPT-284	Hospitality and Tourism Marketing, Sales and Public Relations	3
STAT-145	LAS Perspective 7B: Introduction to Statistics I	3
	LAS Perspective 4, 6	6
HSPT-360	Service Management and Quality Assurance	3
	Wellness Education*	0
HSPT-499	Cooperative Education	Co-op
Third Year		
MGMT-380	Human Resource Management	3
HSPT-336	Risk Assessment and Hospitality and Tourism Law	3
HSPT-345	Food and Beverage Operations	3
Choose one of the following:		3
COMM-302	Interpersonal Communication	
COMM-304	Intercultural Communication	
HSPT-384	Hospitality and Tourism Strategic Financial Analysis	3
HSPT-350	Event and Project Management	3
	HTM Electives	9
	LAS Perspective 3	3
HSPT-499	Cooperative Education	Co-op
Fourth Year		
HSPT-450	Strategic Planning and Decision Making	3
MGIS-381	Hospitality and Tourism Information Systems and Analytics	3
HSPT-490	Senior Capstone Project (WI)	3
	LAS Immersion 1, 2, 3	9
	Free Electives	6
	LAS Elective	3
	HTM Elective	3
Total Semester Credit Hours		**122**

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 Wellness courses.
† Students may choose one of the following to fulfill the LAS Perspective 1 requirement: Foundations of Moral Philosophy (PHIL-202), Professional Ethics (PHIL-306), Environmental Philosophy (PHIL-308), or Philosophy of Peace (PHIL-305).

Department of Military Science

Reserve Officers' Training Corps (ROTC)—ARMY

http://www.rit.edu/armyrotc
LTC Christopher Otero, Professor of Military Science
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The Army Reserve Officers' Training Corps prepares students for leadership in a civilian or military career. ROTC is a campus-based program that consists of classroom instruction, physical training, and practical-application laboratories designed to enhance organizational leadership, decision making, and problem-solving skills.

ROTC classes are open to all students with the approval of the professor of military science. No military obligation is required unless a student has received an ROTC scholarship or contract. Upon graduation, and the successful completion of Army ROTC, Cadets are commissioned as second lieutenants and may serve in the active Army, the Army Reserve, or the Army National Guard. Veterans and members of the Army Reserve or National Guard may be eligible for advanced placement in the program.

Those who enroll in Army ROTC become cadets in a dynamic and challenging program. Throughout the year, the program offers a variety of fun activities that reinforce leadership skills, teamwork, and confidence. Cadets are able to participate in events unique to the military such as Dining Out, a military dinner steeped in tradition. They also have the opportunity to participate in high-adventure training weekends on U.S. military installations, where they learn skills such as navigating with a map and compass, rappelling as part of mountaineering instruction, or completing a high ropes or confidence course. Students may join the Ranger Challenge Team, an ROTC Inter-collegiate competition that competes in military skills and physical stamina competitions with other colleges throughout the Northeast. Army ROTC has a marksmanship team and the Pershing Rifle organization. ROTC members also conduct community activities and provide color guard and drill teams to campus, community, and athletic events.

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. Army ROTC awards multi-year scholarships to assist in covering tuition, fees, books, and housing. A four-year ROTC scholarship currently covers tuition and fees, and room and board. Visit the Cadet Command website for additional information. High school students and enlisted soldiers may apply for Army ROTC scholarships by using the online application process on the Army ROTC website (armyrotc.com). Current college students can apply for campus-based scholarships through the ROTC department.

Basic course

The Army ROTC program is a four-year program divided into two components: the Basic Course and the Advanced Course. The Basic Course occurs during the first two years of the program (normally the freshman and sophomore years) and emphasizes the development of academic and life skills to increase students' potential as future army officers or leaders in tomorrow's dynamic business environment. During the Basic Course, students learn time management and study skills, basic military organization, military customs and courtesies, small-unit leadership, and problem solving. Students register for a class (and its lab requirement)

and Army Conditioning Drills, which fulfills the wellness education credit while meeting the ROTC physical fitness requirements. Students may enroll in Basic Course classes at any time during their first two years of college. Upon completion of the Basic Course, eligible students can progress to the Advanced Course. Eligible Basic Course cadets also can compete to attend off-campus army training opportunities such as Army Airborne School or Air Assault School.

Advanced course

The Advanced Course is for students entering their last two academic years of college (co-op excluded). The Advanced Course is similar to the Basic Course in organization and style, but its focus is more heavily on organizational leadership, decision-making, and professional skills. Although instruction in military tactics is an integral part of the Advanced Course, it is designed to serve as a vehicle for enabling cadets to apply the full range of leadership skills they are learning in the classroom. Planning, organizing, and leading others through various training activities is emphasized. Upon entering their last year in the program, Advanced Course cadets are ranked against their peers in academics, performance at the Cadet Leaders Course (the required summer program after year three), and general on-campus performance. Based on these factors, the Army makes duty placement and job selections for each cadet. Advanced Course cadets also have the opportunity to participate in a variety of off-campus Army training opportunities such as Army Airborne School, Air Assault School, Northern Warfare, and Mountain Warfare training courses. After completing Advanced Camp, cadets also may participate in the Cadet Troop Leadership Training Program, a paid, practical leadership experience where they are assigned for up to three weeks to serve as leaders in an active army unit in the United States or elsewhere around the world.

Cadet Initial Entry Training (CIET)

The Leader's Training Course is an option for students who are considering the Army ROTC program, but have not completed the Basic Course requirements and are entering their last two academic years (co-op excluded). CIET is a 28-day course held at Fort Knox, Kentucky, where students obtain the necessary skills and training to qualify for entry into the last two years of the Army ROTC program. Students learn basic military skills that emphasize leadership development. Those who successfully complete this course are offered the opportunity to formally contract into the Advanced Course for their last two years of college (co-op excluded). Interested students should contact the Army ROTC office as soon as possible, but no later than the beginning of spring semester.

Veterans

Qualified students with prior military service and members of the Army Reserve or National Guard who have attended Basic Training may enroll directly into the Advanced Course. However, they must have two years of academic work remaining. Those who have more than two years of academic work remaining, but wish to participate in the Army ROTC program, are encouraged to enroll in any of the Basic Course classes. Interested students should visit the department for more information.

Cadet Leaders Course (CLC)

The Advanced Course includes attendance at the ROTC Cadet Summer Training, at Fort Knox, Kentucky, which normally occurs in the summer between the third and fourth years of college. During this course, Army ROTC cadets from across the nation gather for five weeks to demonstrate their leadership skills and potential. They are repeatedly placed in leadership positions and face problem-solving challenges that bring together all of the classroom and practical instruction they received on campus. Participants might be assigned to lead a 120 person cadet company as they prepare for training or to plan and lead a 10 person squad on a tactical night patrol. Regardless of the task, participants have the opportunity to demonstrate their leadership potential to their army evaluators. Attendees' travel expenses are paid for and students earn a salary for participating in this challenging and greatly rewarding experience.

Army ROTC

COURSE		SEMESTER CREDIT HOURS
ARMY-101	Introduction to Leadership	2
ARMY-102	Introduction to Tactical Leadership	2
ARMY-201	Innovative Team Leadership	2
ARMY-202	Foundations of Tactical Leadership	2
ARMY-301	Adaptive Team Leadership	2
ARMY-302	Applied Team Leadership	2
ARMY-401	Adaptive Team Leadership II	2
ARMY-402	Leadership in a Complex World	2
ARMY-340	Army Leadership Lab	1
WMIL-018	Army Conditioning Drills	0

Please note: Army Leadership Lab (ARMY-340), which is conducted on a weekly basis for two hours, and Army Conditioning Drills (WMIL-018) are an integral part of each course listed in the course chart.

Department of Aerospace Studies—Air Force

Reserve Officer's Training Corps (ROTC)—Air Force

http://www.rit.edu/afrotc

Participation in Air Force Reserve Officers' Training Corps provides students a firsthand view of the Air Force while attending college. The program allows students to join the cadet corps and participate in varied activities, including classroom academics, leadership training, base visits, summer professional development, and physical fitness training.

Air Force ROTC classes are open to all students with the approval of the professor of aerospace studies. No military obligation is required unless a student has activated an AFROTC scholarship or contract. At graduation, with the successful completion of AFROTC, cadets are commissioned as second lieutenants and serve somewhere in the world, as full-time in the active Air Force. Veterans and members of the Air Force Reserve or Air National Guard may be eligible for advanced placement in the program.

Characteristics

The department of aerospace studies curriculum is compatible with both four- and five-year cooperative education plans offered by most of the university's academic programs. The curriculum will develop well-rounded individuals fully prepared to enter into their chosen career fields and become future leaders in the armed forces and society. ROTC classes are open to all students with the permission of the professor of aerospace studies.

Four-year program

The program has three distinct parts: the General Military Course, Summer Field Training, and the Professional Officer Course.

The General Military Course is for students entering the program directly from high school but not later than their sophomore, or second year of college. As freshmen and sophomores, students will study Air

Force Doctrine, Mission and Organization, the nature of conflict, and the development and evolution of air and space power.

Every cadet must complete a four-week Summer Field Training Course, offered during the summer between their sophomore and junior years. The field training curriculum includes leadership training, drill and ceremony (marching and parades), a confidence course, tactical skills and small-unit operations, and physical fitness training. Field training evaluates a student's leadership potential and qualifies the cadet for entry into the Professional Officer Course and a contract with the U.S. Air Force for a potential commission as a second lieutenant upon graduation.

The Professional Officer Course is an advanced aerospace studies curriculum conducted during their junior (third and or fourth) and senior (last) years. This curriculum prepares cadets for entry into the Air Force as second lieutenants by teaching them the fundamentals of leadership and management, ethics, staff planning and coordination, national security affairs, foreign policy and preparation for entry into active duty.

Leadership and management experience is gained through a series of leadership laboratories, conducted in both fall and spring semesters throughout their four- and or five-year college curricula. The lab is managed by the cadet corps staff with a detachment officer overseeing all activities. Practical command and staff leadership experience, drill and ceremonies, customs and courtesies, group leadership problem solving, and career decision making are all part of the curriculum.

Other programs

Several other programs are offered to cadets. During the academic year cadets have the opportunity to attend Air Force base visits and participate in extracurricular activities such as the drill team, honor guard, or become a member of the Arnold Air Society or Silver Wings (both are community service organizations). Throughout the summer, cadets may also volunteer to attend many professional development programs such as free-fall parachute school, Space Orientation, National Reconnaissance office internships, Advanced Cyber Experience, travel to foreign countries for language immersion with project Global Officer, or shadow agents with the Air Force Office of Special Investigations.

Wellness education requirement

The physical training course satisfies RIT's Wellness Education requirement. Students must be enrolled in AFROTC to participate in the program.

Qualification and selection procedure

To qualify for AFROTC, students must, complete a physical exam and a fitness test, as well as maintain a high moral and ethical standard (no drug use or excessive civil involvements). Cadets must pass the Air Force Officer Qualifying Test before the end of their third year. Please contact the AFROTC office at (585) 475-5197 for complete details.

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. AFROTC offers multi-year scholarships predominantly in technical fields with some limited opportunity for positions in non-technical areas. Competition is highly selective, and the needs of the Air Force dictate which scholarships are offered yearly to college students. High school students apply online at afrotc.com for scholarships through a national board process. Every scholarship cadet and all Professional Officer Course cadets receive a tax-free stipend between $250–$400 monthly as well as $600 annually for textbooks.

Minor in military studies and leadership

Students completing the entire four-year AFROTC program may earn a minor in military studies and leadership. Refer to the Minors section of this bulletin for more information.

Air Force ROTC, typical course sequence*

COURSE		SEMESTER CREDIT HOURS
First Year		
AERO-101, 102	Air Force Today I, II	1
WMIL-006	Air Force Leadership Lab†	0
WMIL-001	Air Force Physical Training‡	0
Second Year		
AERO-201, 202	History of Air Power I, II	1
WMIL-006	Air Force Leadership Lab†	0
WMIL-001	Air Force Physical Training‡	0
Third Year		
AERO-301, 302	Air Force Leadership and Management	3
WMIL-006	Air Force Leadership Lab†	0
WMIL-001	Air Force Physical Training‡	0
Fourth Year		
AERO-401, 402	National Security Affairs	3
WMIL-006	Air Force Leadership Lab†	0
WMIL-001	Air Force Physical Training‡	0
Total Semester Credit Hours		**8**

* NOTE: This course sequence chart is based on a typical four-year major, but junior- and senior-level academic courses can be taken in years three and five or years four and five. Five-year AFROTC students enrolled at RIT, but not taking Air Force junior- or senior-level courses, must be enrolled in Air Force Leadership Lab (WMIL-006) and Air Force Physical Training (WMIL-001).

† Air Force Leadership Lab (WMIL-006) is conducted on a weekly basis for two hours.

‡ Air Force Physical Training (WMIL-001) is an integral part of each year and must be completed to remain in the ROTC program.

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Rebecca L. Sumner, AB, Franklin and Marshall College; MA, Ph.D., University of Rochester—Assistant Dean for Research Development

School of Engineering Technology

Civil Engineering Technology

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Environmental Sustainability, Health and Safety

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Electrical, Computer, and Telecommunications Engineering Technology

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Manufacturing and Mechanical Engineering Technology

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School of International Hospitality and Service Innovation

Department of Hospitality and Tourism Management

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Linda Underhill, RD, BS, MS, Rochester Institute of Technology; Ph.D., State University of New York at Buffalo—Department Chair; Associate Professor

Reserve Officer's Training Corps

Army ROTC

Maj. Rodney Clark, BS, Texas State University; MA, American Military University—Assistant Professor

Capt. Marc Janvier, BA, St. Martin's University; MS, University of Texas El Paso—Assistant Professor

Master Sgt. Charles Nelson, Senior Military Science Instructor

Lt. Col. Christopher Otero, BS, Mercer University; MS, Central Michigan University—Professor

Donald C. Powell, BA, State University College at Geneseo; MA, State University College at Brockport—Recruiting Operations Officer; Assistant Professor

Air Force ROTC

Lt. Col. Dizzy B. Murphy, BS, Carnegie Mellon University; MS, University of Phoenix—Professor

SSgt Shalayne Dulan, BA, University of Central Oklahoma—Non-Commissioned Officer-in-Charge Administration Management

Capt. Zachariah D. Gonyea, BA, Niagara University; MA, American Military University—Assistant Professor

MSgt Veronica Williams, AA, Community College of the Air Force—Non-Commissioned Officer-in-Charge

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

Saunders College of Business

Jacqueline Reynolds Mozrall, Dean
saunders.rit.edu

Programs of study

Bachelor of Science in:	Page
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Business Administration–Finance	31
Business Administration–International Business	32
Business Administration–Management	33
Business Administration–Marketing	34
Management Information Systems	34
New Media Marketing	35

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.

All students in Saunders College must complete a set of required business core courses that provide a foundation for their program of study as well as an understanding of all facets of business. These courses serve as a platform for advanced study in a specific area of interest.

The required foundation courses are:
ACCT-110 Financial Accounting
ACCT-210 Management Accounting
COMM-253 Communication
DESC-310 Operations Management
ECON-101 Principles of Microeconomics
ECON-201 Principles of Macroeconomics
FINC-220 Financial Management
INTB-225 Global Business Environment
MATH-161 Applied Calculus
MGIS-101 Computer-based Analysis
MGIS-102 Business 2: Technology-enabled Launch
MGMT-101 Business 1: Ideas and Business Planning
MGMT-215 Organizational Behavior
MGMT-340 Business Ethics & Corporate Social Responsibility
MGMT-560 Strategy and Innovation
MKTG-230 Principles of Marketing
STAT-145 Introduction to Statistics I
STAT-146 Introduction to Statistics II
MGIS-130 Information Systems and Technology
MGMT-035 Careers in Business

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.

Faculty

The college's faculty members are actively involved in applied research and many are consultants to the business community, which enables them to bring real-world experience into the classroom. More than 45 full-time teaching professionals ensure that the educational experience is dynamic and relevant. In the classroom, faculty and students engage in case studies, problem set analyses, experiential exercises, lectures, group discussions, and team presentations.

Facilities and resources

RIT is a national leader when it comes to incorporating computer technology into the classroom. Saunders College students have access to extensive resources and utilize the same business software used by Fortune 100 companies worldwide. The college's classrooms and study areas feature the technology that has built RIT's reputation as among the most connected campuses in the country.

Cooperative education

Cooperative education is an integral part of the college's curriculum. Students obtain paid, practical work experience in an area related to their chosen field of interest. Co-op is part of each student's career exploration and helps relate their classroom studies to the world of business.

Students are required to successfully complete one semester (or two summers) of cooperative education. These work blocks take place during the junior or senior year. While RIT and Saunders College cannot guarantee cooperative education

placement, the Office of Career Services and Cooperative Education is a valuable resource in assisting students in their co-op and job search efforts, and offers each Saunders student a dedicated career and co-op adviser.

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.

Advising

The college's Student Services Office offers students dedicated academic advisers who provide administrative support to assist with course selection and registration, career guidance, student records, and course scheduling. In addition, the administrative staff provides students with information on additional support services within RIT. Students also are assigned an individual faculty adviser, who becomes an integral part of their advising network.

Academic enrichment

Honors Program: Students who demonstrate a high level of achievement at the high school level may be invited to join the Honors program. These students will participate in Honors course work throughout their program of study and experiential learning activities under the guidance of a mentor. Honors students will be selected during the admission process.

Study Abroad: RIT encourages all students to consider a study abroad program to enhance their understanding of global business and other cultures. Students may study full time at a variety of host schools and are able to select both business and liberal arts classes. The Study Abroad Office has information about foreign study options and opportunities. All business majors may request a study abroad experience to replace one of their required cooperative education work blocks.

Minors: Students may choose from more than 90 minors to enhance their academic program or further develop a personal area of interest. For a detailed list of minors, including courses, please refer to the Minors section of this bulletin.

Special opportunities

Accelerated dual degree option: Undergraduate business students may consider the 4+1 MBA program, an accelerated dual degree program that allows students to complete both the BS and MBA degrees in five years. Please refer to the *Graduate Bulletin* or the college's website for more information.

Graduate study: The college offers the following graduate degree programs: traditional MBA, MBA-accounting (which meets the New York state education requirements for CPA examination candidacy), executive MBA, online executive MBA, and MS degrees in entrepreneurship and innovative ventures, finance, and management. Please refer to the *Graduate Bulletin* or the college's website for more information.

Business Exploration, Undeclared

Program overview

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. Advisers provide guidance throughout the option and assist students in selecting a major.

Curriculum

Business exploration, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	First Year Writing Seminar	3
ACCT-110	Financial Accounting	3
MGMT-101	Business 1: Ideas and Business Planning	3
MGIS-101	Computer-based Analysis	1
MGIS-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, 146	Introduction to Statistics I, II	7
ACCT-210	Management Accounting	3
ACSC-010	Year One: College Experience	0
	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 Wellness courses.

Business Administration: Accounting, BS

saunders.rit.edu/undergraduate/accounting/

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Program overview

The business administration: accounting major 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.

Plan of study

The major includes four free electives. Students planning to pursue an MBA-accounting degree and a career in public accounting should consult an accounting professor or accounting academic adviser and take the following electives: Advanced Taxation (ACCT-440), Auditing (ACCT-490), Advanced Accounting (ACCT-540), and Business Law II (BLEG-300).

Curriculum

Business administration: accounting, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MGMT-101	Business I: Ideas and Business Planning	3
MGIS-101	Computer-based Analysis	1
ECON-101	LAS Perspective 3: Principles of Microeconomics	3
ACCT-210	Management Accounting	3
STAT-145, 146	LAS Perspective 7A, 7B: Introduction to Statistics I, II	7
MGIS-102	Business 2: Business Planning and Professional Development	3
	First Year Writing Seminar	3
ECON-201	Principles of Macroeconomics	3
ACCT-110	Financial Accounting	3
MGIS-130	Information Systems and Technology	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MKTG-230	Principles of Marketing	3
FINC-220	Financial Management	3
COMM-253	Communication	3
	LAS Perspective 2	3
ACCT-445	Accounting Information Systems	3
MGMT-215	Organizational Behavior	3
BLEG-200	Business Law I	3
INTB-225	Global Business Environment	3
MATH-161	Applied Calculus	4
ACCT-360	Intermediate Financial Accounting I	3
ACCT-305	Accounting Profession	1
Third Year		
ACCT-420	Personal and Small Business Taxation	3
MGMT-340	LAS Perspective 1: Business Ethics and Corporate Social Responsibility	3
	LAS Perspective 4, 5, 6	9
	LAS Immersion 1, 2	6
DECS-310	Operations Management	3
ACCT-365	Intermediate Financial Accounting II	3
	LAS Elective	3
	Cooperative Education	Co-op
Fourth Year		
	LAS Immersion 3	3
	Free Electives	9
	LAS Electives	9
ACCT-430	Cost Accounting (WI)	3
MGMT-560	Strategy and Innovation	3
ACCT-490	Auditing	3
Total Semester Credit Hours		**124**

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 Wellness courses.

Business Administration: Finance, BS

saunders.rit.edu/undergraduate/finance/

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Program overview

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 and build an understanding of the economic, legal, and financial environment in which they will operate. Career options exist in government, industry, service, and not-for-profit organizations. A new Business Analytics Lab, which features Bloomberg Terminals, provides the latest in finance-based technology, computing power, and software.

Cooperative education

All business administration: finance majors are required to complete six months of cooperative education during the last two years of study. Co-op is the best way for students to immerse themselves in the real world and apply what they have learned in the classroom to real-world situations.

Curriculum

Business administration: finance, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MGMT-101	Business I: Ideas and Business Planning	3
MGIS-101	Computer-based Analysis	1
ECON-101	LAS Perspective 3: Principles of Microeconomics	3
ACCT-110	Financial Accounting	3
STAT-145, 146	LAS Perspective 7A, 7B: Introduction to Statistics I, II	7
MGIS-102	Business 2: Business Planning and Professional Development	3
	First Year Writing Seminar	3
ECON-201	Principles of Macroeconomics	3
ACCT-210	Management Accounting	3
MGIS-130	Information Systems and Technology	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
COMM-253	Communication	3
MGMT-035	Careers in Business	0
MKTG-230	Principles of Marketing	3
FINC-220	Financial Management	3
	LAS Perspective 2, 4	6
FINC-352	Financial Management II	3
MGMT-215	Organizational Behavior	3
	Free Elective	3
INTB-225	Global Business Environment	3
MATH-161	Applied Calculus	4

COURSE		SEMESTER CREDIT HOURS
Third Year		
MGMT-340	LAS Perspective 1: Business Ethics and Corporate Social Responsibility	3
FINC-460	Financial Analysis and Modeling	3
FINC-362	Intermediate Investments	3
	LAS Immersion 1, 2	6
	LAS Perspective 5, 6	6
DECS-310	Operations Management	3
FINC-420	Finance in a Global Environment (WI)	3
	Finance Elective†	3
	Cooperative Education	Co-op
Fourth Year		
	Finance Elective	3
	Free Electives	9
	Immersion 3	3
	LAS Electives	12
MGMT-560	Strategy and Innovation	3
Total Semester Credit Hours		**123**

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 Wellness courses.
† Please see list of finance electives.

Finance electives

FINC-359	Financing New Ventures
FINC-361	Financial Institutions and Markets
FINC-425	Stock Market Algorithmic Trading
FINC-430	Advanced Corporate Financial Planning
FINC-470	Introduction to Options and Futures
FINC-489	Seminar in Finance

Business Administration: International Business, BS

saunders.rit.edu/undergraduate/international_business/

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Program overview

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, new media marketing, or marketing. 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

Fluency in a foreign language offered by RIT is a requirement of the major. Entering 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

Students are required to complete six months of cooperative education, one of which must 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 experience.

Curriculum

Business administration: international business, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MGMT-101	Business I: Ideas and Business Planning	3
MGIS-101	Computer-based Analysis	1
ECON-101	Principles of Microeconomics	3
ACCT-210	Management Accounting	3
STAT-145, 146	LAS Perspective 7A, 7B: Introduction to Statistics I, II	7
MGIS-102	Business 2: Business Planning and Development	3
	First Year Writing Seminar	3
ECON-201	Principles of Macroeconomics	3
ACCT-110	Financial Accounting	3
MGIS-130	Information Systems and Technology	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
COMM-253	Communication	3
MKTG-230	Principles of Marketing	3
FINC-220	Financial Management	3
MGMT-035	Careers in Business	0
	LAS Perspective 2, 4	6
INTB-315	Exporting and Global Sourcing	3
MGMT-215	Organizational Behavior	3
	Free Elective	3
INTB-225	Global Business Environment	3
MATH-161	Applied Calculus	4
Third Year		
MGMT-340	Business Ethics and Corporate Social Responsibility	3
	Co-major Courses	6
	LAS Perspective 5	3
	LAS Immersion 1, 2	6
	LAS Elective†	3
DECS-310	Operations Management	3
	International Business Electives	6
	Cooperative Education	Co-op
Fourth Year		
INTB-550	Global Entry and Competition Strategies (WI)	3
	Free Elective	3
	Co-major Courses	6
	LAS Perspective 6	3
	LAS Immersion 3	3
MGMT-560	Strategy and Innovation	3
	LAS Elective†	3
Total Semester Credit Hours		**123**

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 Wellness courses.
† See list of LAS electives that fulfill this requirement.

International business electives

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

LAS electives

ANTH-240	Muslim Youth Cultures
ANTH-275	Global Islam
ANTH-365	The Islamic Culture and the Middle East
HIST-170	20th 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

Business Administration: Management, BS

http://saunders.rit.edu/undergraduate/management/

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Program overview

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

Students are required to complete six months of cooperative education. This can occur over one semester or two summers. Co-op allows students to practice and expand their management skills in real-world settings. These paid, full-time positions provide students with the opportunity to gain valuable job-related experience while completing their degree.

Curriculum

Business administration: management, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MGMT-101	Business I: Ideas and Business Planning	3
MGIS-101	Computer-based Analysis	1
ECON-101	LAS Perspective 3: Principles of Microeconomics	3
ACCT-210	Management Accounting	3
STAT-145, 146	LAS Perspective 7A, 7B: Introduction to Statistics I, II	7
MGIS-102	Business 2: Business Planning and Professional Development	3
	First Year Writing Seminar	3
ECON-201	Principles of Macroeconomics	3
ACCT-110	Financial Accounting	3
MGIS-130	Information Systems and Technology	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
COMM-253	Communication	3
MGMT-035	Careers in Business	0
MKTG-230	Principles of Marketing	3
FINC-220	Financial Management	3
	LAS Perspective 2, 4	6
MGMT-215	Organizational Behavior	3
	Management Concentration Course	3
	Management Elective	3
INTB-225	Global Business Environment	3
MATH-161	Applied Calculus	4
Third Year		
MGMT-340	LAS Perspective 1: Business Ethics and Corporate Social Responsibility	3
	Management Concentration Course	
MGMT-310	Leadership in Organizations (WI)	3
	LAS Immersion 1, 2	6
	LAS Perspective 5, 6	6
MGMT-330	Design Thinking	3
DECS-310	Operations Management	3
MGMT-320	Managerial Skills	3
	Cooperative Education	Co-op
Fourth Year		
	Electives	9
	LAS Immersion 3	3
	Management Concentration Course	3
DECS-350	Project Management	3
MGMT-560	Strategy and Innovation	3
Total Semester Credit Hours		**123**

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 Wellness courses.

Concentrations

Entrepreneurship

Students who choose the entrepreneurship concentration complete one required concentration course, two concentration electives, and three institute electives.

MGMT-350	Entrepreneurship
Choose one of the following:	
MGMT-470	Applied Entrepreneurship and Commercialization
MGMT-550	Field Experience and Business Consulting
Choose one of the following:	
BLEG-300	Business Law II
FINC-359	Financing New Ventures
MGIS-360	Building a Web Business
MGMT-360	Digital Entrepreneurship
MGMT-420	Managing Innovation and Technology
MGMT-450	Negotiations

Leadership

Students who choose the leadership concentration complete one required concentration course, one concentration elective, and four institute electives.

MGMT-380	Human Resource Management
Choose one of the following:	
INTB-300	Cross-cultural Management
MGMT-350	Entrepreneurship
MGMT-420	Managing Innovation and Technology
MGMT-450	Negotiations
MGMT-489	Seminar in Management
MGMT-550	Field Experience in Business Consulting

Supply chain management

Students who choose the supply chain management concentration complete three required concentration courses, one concentration elective, and two institute electives.

DECS-435	Supply Chain Management
ISEE-582	Lean Sig Sigma Fundamentals
MGIS-450	Enterprise Systems
Choose one of the following:	
BLEG-300	Business Law II
DECS-445	Managing Supplier Relations
INTB-300	Cross-cultural Management
INTB-310	Regional Business Studies
INTB-315	Exporting and Global Sourcing
INTB-550	Global Markets and Competition
MGIS-320	Database Management Systems
MGIS-330	Systems Design and Analysis
MGMT-450	Negotiations

Business Administration: Marketing, BS

saunders.rit.edu/undergraduate/marketing/

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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. These marketing basics apply to governmental agencies, not-for-profit organizations, service organizations, and for-profit firms.

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.

Curriculum

Business administration: marketing, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MGMT-101	Business I: Ideas and Business Planning	3
MGIS-101	Computer-based Analysis	1
ECON-101	LAS Perspective 3: Principles of Microeconomics	3
ACCT-210	Management Accounting	3
STAT-145, 146	LAS Perspective 7A, 7B: Introduction to Statistics I, II	7
MGIS-102	Business 2: Business Planning and Professional Development	3
	First Year Writing Seminar	3
ECON-201	Principles of Macroeconomics	3
ACCT-110	Financial Accounting	3
MGIS-130	Information Systems and Technology	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
COMM-253	Communication	3
MKTG-230	Principles of Marketing	3
MGMT-035	Careers in Business	0
FINC-220	Financial Management	3
	LAS Perspective 2, 4	6
MKTG-320	Internet Marketing	3
MGMT-215	Organizational Behavior	3
	Free Elective	3
INTB-225	Global Business Environment	3
MATH-161	Applied Calculus	4
Third Year		
MGMT-340	LAS Perspective 1: Business Ethics and Corporate Social Responsibility	3
MKTG-350	Consumer Behavior	3
MKTG-365	Marketing Analytics	3
	LAS Immersion 1, 2	6
	LAS Perspective 5, 6	6
DECS-310	Operations Management	3
	Marketing Electives	6
	Cooperative Education	Co-op
Fourth Year		
MKTG-550	Marketing Strategy (WI)	3
	Free Electives	9
	LAS Immersion 3	3
	LAS Electives	12
MGMT-560	Strategy and Innovation	3
Total Semester Credit Hours		**123**

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 Wellness courses.

Management Information Systems, BS

saunders.rit.edu/undergraduate/mis/

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Program overview

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.

Curriculum

Management information systems, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MGMT-101	Business I: Ideas and Business Planning	3
MGIS-101	Computer-based Analysis	1
ECON-101	LAS Perspective 3: Principles of Microeconomics	3
ACCT-210	Management Accounting	3
STAT-145, 146	LAS Perspective 7A, 7B: Introduction to Statistics I, II	7
MGIS-102	Business 2: Business Planning and Professional Development	3
	First Year Writing Seminar	3
ECON-201	Principles of Macroeconomics	3
ACCT-110	Financial Accounting	3
MGIS-130	Information Systems and Technology	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
COMM-253	Communication	3
MKTG-230	Principles of Marketing	3
MGMT-035	Careers in Business	0
FINC-220	Financial Management	3
	LAS Perspective 2, 4	6
MGIS-320	Database Management Systems	3
MGMT-215	Organizational Behavior	3
	Free Elective	3
INTB-225	Global Business Environment	3
MATH-161	Applied Calculus	4

COURSE		SEMESTER CREDIT HOURS
Third Year		
MGMT-340	LAS Perspective 1: Business Ethics and Corporate Social Responsibility	3
MGIS-330	Systems Analysis and Design	3
MGIS-350	Developing Business Applications	3
	LAS Immersion 1, 2	6
	LAS Perspective 5, 6	6
DECS-310	Operations Management	3
	MIS Electives	6
	Cooperative Education	Co-op
Fourth Year		
MGIS-550	MIS Capstone (WI)	3
	Free Electives	9
	LAS Immersion 3	3
	LAS Electives	12
MGMT-560	Strategy and Innovation	3
Total Semester Credit Hours		**123**

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 Wellness courses.

Management information systems electives

MGIS-355	Business Intelligence
MGIS-360	Building a Web Business
MGIS-381	HTM Information Systems and Analytics
MGIS-415	Object-Oriented Business Programming
MGIS-425	Database Systems Development
MGIS-435	Advanced Systems Analysis and Design
MGIS-445	Web Systems Development
MGIS-450	Enterprise Systems
MGIS-489	Seminar in MIS
MGMT-360	Digital Entrepreneurship

New Media Marketing, BS

saunders.rit.edu/undergraduate/new_media_marketing/

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Program overview

New media marketing is an interdisciplinary major with a curriculum that covers marketing, imaging, graphic arts, information systems, and management. The major provides an overall assessment of the current and future state of the graphic communication industry and is designed to meet the need for broadly educated marketing, new media, and management professionals.

Curriculum

New media marketing, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MGMT-101	Business I: Ideas and Business Planning	3
MGIS-101	Computer-based Analysis	1
ECON-101	LAS Perspective 3: Principles of Microeconomics	3
ACCT-210	Management Accounting	3
STAT-145, 146	LAS Perspective 7A, 7B: Introduction to Statistics I, II	7
MGIS-102	Business 2: Business Planning and Professional Development	3
	First Year Writing Seminar	3
ECON-201	Principles of Macroeconomics	3
ACCT-110	Financial Accounting	3
MGIS-130	Information Systems and Technology	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0

COURSE		SEMESTER CREDIT HOURS
Second Year		
MGMT-035	Careers in Business	0
COMM-253	Communication	3
MKTG-230	Principles of Marketing	3
FINC-220	Financial Management	3
	LAS Perspective 2, 4	6
	LAS Immersion 1	3
MGMT-215	Organizational Behavior	3
	New Media Marketing Elective	3
INTB-225	Global Business Environment	3
MATH-161	Applied Calculus	4
Third Year		
MGMT-340	LAS Perspective 1: Business Ethics and Corporate Social Responsibility	3
MKTG-320	Internet Marketing (WI)	3
	Free Electives	6
	LAS Immersion 2, 3	6
	LAS Perspective 5, 6	6
DECS-310	Operations Management	3
MKTG-365	Marketing Analytics	3
	Cooperative Education	Co-op
Fourth Year		
	New Media Marketing Elective	3
MKTG-410	Search Engine Marketing and Analytics	3
	Free Electives	6
	LAS Electives	12
MGMT-560	Strategy and Innovation	3
MKTG-430	Social Media Marketing	3
Total Semester Credit Hours		**123**

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 Wellness courses.

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Decision Sciences

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Management and International Business

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

Richard DeMartino, BA, Roanoke College; MPA, Ph.D., University of Virginia—Simone Chair for Innovation and Entrepreneurship; Associate Professor

Clyde E. Hull, BA, Yale University; MB, MBA, Ph.D., Indiana University—Head of Accreditation and Curriculum Improvement; Associate Professor

Martin Lawlor, BA, State University of New York at Buffalo; MBA, Rochester Institute of Technology—Director, Online EMBA; Senior Lecturer

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

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Management Information Systems

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Marketing

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

Neil Hair, BS, University of Wales (United Kingdom); MS, Sheffield Hallam University (United Kingdom); Ph.D., Cranfield University (United Kingdom)—Associate Professor

V. Myles Landers, BS, Berry College; Ph.D., The University of Alabama—Assistant Professor

Joseph C. Miller, BA, Grand Valley State University; MBA, Wayne State University; Ph.D., Michigan State University—Assistant Professor

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

John D. Ward, BS, Georgia Institute of Technology; MS, Purdue University—Senior 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 Chair

Established: 2000

Donor: Madelon and Richard Rosett

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

Held by: John Ettlie, Ph.D.

Benjamin Forman Chair 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: Zhi Tang, 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, Teaching, or Collaboration

Held by: Ashok Robin, Ph.D.

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.

B. Thomas Golisano College of Computing and Information Sciences

Anne R. Haake, Dean
rit.edu/gccis

Programs of study

	Bachelor of Science in:	Page
#	Computer Science	40
	Computing and Information Technologies	42
#	Computing Security	43
#	Game Design and Development	44
	Human-Centered Computing	46
	New Media Interactive Development	47
#	Software Engineering	48
	Web and Mobile Computing	51

Accelerated BS/MS option available.

The B. Thomas Golisano College of Computing and Information Sciences is one of the most comprehensive computing colleges in the United States. The college offers 18 baccalaureate and master's degrees in a variety of computing disciplines, as well as a Ph.D. in computing and information sciences. 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.

Admission requirements

For more information on undergraduate admission, including freshman and transfer admission guidelines, please see 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.

Faculty

The college's faculty is a dedicated group of teacher-scholars performing use-inspired research with an emphasis on student involvement and career preparation. Faculty members provide leadership by implementing innovative teaching techniques while anticipating and meeting the needs of students and our industrial partners. Many have significant industrial experience in addition to outstanding academic credentials.

Facilities

The college features more than 2,000 workstations and more than 50 classrooms, labs, and studio labs offering access to the study of every major computing platform. Labs are available to students for 16 to 18 hours a day. The college's dedicated Security Lab is isolated from the rest of the campus's networks to allow the in-depth study of viruses, firewalls, and other computer vulnerabilities. Additional labs include an Entertainment Lab for 3D modeling, game, and interactive media development; a Mobile Computing and Robotics Lab for the research and development of portable devices; an Artificial Intelligence Lab dedicated to the understanding of human reactions and processing; and the Center for Accessibility and Inclusion Research, for research on computer accessibility and assistive technologies. Each academic program has extensive laboratories dedicated to undergraduate education. These labs contain powerful PCs and workstations as well as appropriate, up-to-date software. High-speed Internet access, along with a wireless network, is available to ensure our students have the tools necessary to complete their assignments and projects.

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.

Cooperative education

All programs in the Golisano College have a cooperative education requirement. Co-op generally starts after completing two years of the program and ends so that the last semester attended is in residence. Co-ops may be one or two semesters in length and at any company that satisfies the program's requirements. Please refer to each program for specific information regarding cooperative education requirements. Academic advisers also can provide students with information concerning the co-op experience.

Advising

As part of its commitment to student success, the Golisano College provides both academic advising and career counseling. Students have access to their program chairperson, a faculty adviser, a full-time academic adviser, the academic advising office in the College of Liberal Arts, and program coordinators from the Office of Career Services and Cooperative Education. In addition, office staff provides support for registration and help with records and scheduling. Part-time and evening students can arrange for these services at night by appointment.

Academic enrichment

Honors Program: Students who demonstrate a high level of achievement at the high school level may be invited to join the Honors program. These students will participate in Honors course work throughout their program of study and experiential learning activities under the guidance of a faculty mentor. Honors students will be selected during the admissions process.

Study Abroad: RIT encourages all students to consider a study abroad program. Students may study full time at a variety of host schools and are able to select courses that fulfill requirements in their academic field of study and/or liberal arts general education requirements. The Study Abroad Office has information about foreign study options and opportunities.

Minors: RIT offers students more than 90 minors to choose from to enhance their academic program or further develop a personal area of interest. For a detailed list of minors, including courses, please refer to the Minors section of this bulletin.

Special opportunities

Accelerated dual degree option: Some programs offer accelerated, five-year dual BS/MS degree options. These degrees offer students the opportunity to earn a bachelor's degree and a master's degree in less time than pursuing each degree individually. Please refer to individual programs, the *Graduate Bulletin,* or the college's website for more information.

Double majors: The college offers a number of double majors to assist students in obtaining two areas of expertise. Please refer to individual programs or the college's website for more information.

Graduate study: The college offers a doctorate program in computing and information sciences; master of science degrees in computer science, computing security, game design and development, human-computer interaction, information sciences and technologies, medical informatics, networking and systems administration, and software engineering; and advanced certificates in big data analytics, information assurance, network planning and design, and web development. Please refer to the Graduate Bulletin or the college's website for more information.

Computing Exploration, Undeclared

Michael Yacci, Senior Associate Dean and Computing Exploration Coordinator
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Program overview

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 bests fits their career goals and aspirations.

Students may stay in the exploration option for up to two semesters (one academic year). Each student has an assigned academic adviser 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 of the college's computing majors; all credits earned are applicable to a student's chosen major and maintain the student's track toward graduation.

Curriculum

Computing exploration, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181, 182	Project-based Calculus I, II	8
CSCI-141, 142	Computer Science I, II	8
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: College Experience	0
ENGL-150	Writing Seminar	3
Choose one of the following:		3
SWEN-250	Personal Software Engineering	
NSSA-241	Introduction to Routing and Switching	
	Wellness Education*	0
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 Wellness courses.

Computer Science, BS

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Mohan Kumar, Chair
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Program overview

The computer science major 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.

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 affect of computers on society via program electives, general education courses, and various free electives, which can be used to complete a minor.

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 are woven into the major. First, students are required to complete a minimum of three blocks of cooperative education. Co-op is full-time, paid professional experience where students work for a company or organization applying what they have earned in the classroom to real-world situations. 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.

Accreditation

The BS degree in computer science is accredited by the Computing Accreditation Commission of ABET, http://www.abet.org.

Curriculum

Computer science, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ACSC-010	Year One: College Experience	0
CSCI-141	Computer Science I	4
MATH-181, 182	LAS Perspective 7A, 7B: Project-based Calculus I, II	8
	First Year LAS Elective	3
	LAS Perspective 2, 3, 4	9
CSCI-142	Computer Science II	4
MATH-190	Discrete Mathematics for Computing	3
	First Year Writing Seminar	3
	Wellness Education*	0
Second Year		
CSCI-243	The Mechanics of Programming	3
Choose one of the following:		3
CSCI-262	Introduction to Computer Science Theory	
CSCI-263	Honors Introduction to Computer Science Theory	
MATH-251	Probability and Statistics I	3
	LAS Perspective 1, 5‡, 6‡	10
CSCI-250	Concepts of Computer Systems	3
SWEN-261	Introduction to Software Engineering	3
MATH-241	Linear Algebra	3
	LAS Elective‡	4
	Cooperative Education (summer)	Co-op
Third Year		
CSCI-251	Concepts of Parallel and Distributed Systems	3
CSCI-320	Principles of Data Management	3
	CS Elective§	3
	LAS Elective§	3
	LAS Immersion 1	3
	Cooperative Education (spring)	Co-op
Fourth Year		
Choose one of the following:		3
CSCI-261	Analysis of Algorithms	
CSCI-264	Honors Analysis of Algorithms	
	Free Electives	6
CSCI-471	Professional Communications (WI)	3
CSCI-331	Introduction to Intelligent Systems	3
CSCI-344	Programming Language Concepts	3
	CS Electives§	6
	LAS Elective‡	3
	LAS Immersion 2	3
Fifth Year		
	Cooperative Education (fall)	Co-op
	CS Elective§	3
	LAS Immersion 3	3
	LAS Elective	3
	Free Electives	6
Total Semester Credit Hours		**126**

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 Wellness courses.
‡ Students must complete one of the following lab science sequences: (a) University Physics I, II (PHYS-211, 212); (b) General and 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		
ACSC-010	Year One: College Experience	0
CSCI-141	Computer Science I	4
MATH-181, 182	LAS Perspective 7A, 7B: Project-based Calculus I, II	8
	First Year LAS Elective	3
	LAS Perspective 2, 3, 4	9
CSCI-142	Computer Science II	4
MATH-190	Discrete Mathematics for Computing	3
	First Year Writing Seminar	3
	Wellness Education*	0
Second Year		
CSCI-243	The Mechanics of Programming	3
Choose one of following:		3
CSCI-262	Introduction to Computer Science Theory	
CSCI-263	Honors Introduction to Computer Science Theory	
MATH-251	Probability and Statistics I	3
	LAS Perspective 5‡	4
	LAS Perspective 1	3
CSCI-250	Concepts of Computer Systems	3
SWEN-261	Introduction to Software Engineering	3
MATH-241	Linear Algebra	3
	LAS Elective‡	4
	LAS Perspective 6‡	3
	Cooperative Education (summer)	Co-op
Third Year		
CSCI-251	Concepts of Parallel and Distributed Systems	3
CSCI-320	Principles of Data Management	3
	CS Elective	3
	LAS Elective†	3
	LAS Immersion 1	3
	Cooperative Education (spring)	Co-op
Fourth Year		
Choose one of following:		3
CSCI-261	Analysis of Algorithms	
CSCI-264	Honors Analysis of Algorithms	
CSCI-471	Professional Communications (WI)	3
CSCI-331	Introduction to Intelligent Systems	3
	Graduate Electives§	6
	LAS Elective†	3
	LAS Immersion 2	3
Fifth Year		
	Cooperative Education (fall)	Co-op
	Graduate Elective	3
	LAS Immersion 3	3
	LAS Elective	3
	Free Electives	6
Sixth Year		
CSCI-665	Foundations of Algorithms	3
	Cluster Courses§	9
	Graduate Electives**	15 or 12
Choose one of the following:		3 or 6
CSCI-788	MS Project	
CSCI-790	MS Thesis	
Total Semester Credit Hours		**156††**

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 Wellness courses.
‡ Students must complete one of the following lab science sequences: (a) University Physics I, II (PHYS-211, 212); (b) General and 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, 142	Computer Science I, II	8
	First Year LAS Elective	3
MATH-181, 182	LAS Perspective 7A, 7B: Project-based Calculus I, II	8
	First Year Writing Seminar	3
	First Year LAS Elective	3
ACSC-010	Year One: College Experience	0
MATH-190	Discrete Mathematics for Computing	3
	LAS Perspective 3, 4	6
	Wellness Education*	0
Second Year		
CSCI-243	The Mechanics of Programming	3
Choose one of the following:		3
CSCI-262	Introduction to Computer Science	
CSCI-263	Honors Introduction to Computer Science	
MATH-251	Probability and Statistics I	3
CSCI-250	Concepts of Computer Systems	3
SWEN-261	Introduction to Software Engineering	3
MATH-241	Linear Algebra	3
	LAS Perspective 1, 5, 6	10
	Cooperative Education (summer)	Co-op
Third Year		
CSCI-251	Concepts of Parallel and Distributed Systems	3
CSCI-320	Principles of Data Management	3
	Computer Science Elective	3
	Science Elective ‡	3
	LAS Immersion I (WI)	3
	Cooperative Education (spring)	Co-op
Fourth Year		
CSCI-261	Analysis of Algorithms	3
	Computer Science Elective	3
CSCI-344	Programming Language Concepts	3
	Free Elective	3
CSCI-471	Professional Communications (WI)	3
CSCI-331	Introduction to Intelligent Systems	3
	Computer Science Elective	3
	Science Elective ‡	3
CSEC-731	Web Server and Application Security Audits	3
	LAS Immersion 2	3
Fifth Year		
	Computer Science Elective	3
	LAS Immersion 3	3
	LAS Elective	3
CSEC-733	Information Security Risk Management	3
CSEC-742	Computer System Security	3
Sixth Year		
	Graduate Electives	6
CSEC-601	Research Methods and Proposal Development	3
CSEC-603	Enterprise Security	3
CSEC-604	Cryptography and Authentication	3
	CSEC Thesis	6
Total Semester Credit Hours		**156**

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 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.

Additional information

Evening program

The computer science major may be completed on a part-time basis. Degree requirements are identical to those taken by full-time students. Students are encouraged to work with an academic adviser for planning and course selection.

Computing and Information Technologies, BS

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Program overview

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.

Cooperative education

The major requires students to complete two blocks of cooperative education. Students may pursue co-op placements after completing their second year of study.

Curriculum

Computing and information technologies, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ISTE-120	Computer Problem Solving: Information Domain I	4
NSSA-102	Computing System Concepts	3
	First Year Writing Seminar (WI)	3
MATH-131	LAS Perspective 7A: Discrete Mathematics	4
	LAS Perspective 1, 3	6
ISTE-121	Computer Problem Solving: Information Domain II	4
ISTE-190	Foundations of Modern Information Processing	3
MATH-161	LAS Perspective 7B: Applied Calculus	4
COMM-203	Effective Technical Communications	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
NSSA-241	Introduction to Routing and Switching	3
NSSA-220	Task Automation with Interpretive Languages	3
ISTE-230	Introduction to Database and Data Modeling	3
NSSA-221	System Administration I	3
	LAS Perspective 2, 5	7
STAT-145	Introduction to Statistics I	3
ISTE-140	Web and Mobile I	3
ISTE-240	Web and Mobile II	3
ISTE-099	Second Year Seminar	0
	LAS Elective (WI)	3
	Wellness Education*	0
	Cooperative Education (summer)	Co-op
Third Year		
ISTE-260	Designing the User Experience	3
ISTE-430	Information Requirements Modeling	3
	CIT Concentration Courses	9
	LAS Perspective 4, 6	7
	LAS Immersion 1	3
	Free Electives	6
Fourth Year		
ISTE-500, 501	Senior Development Project I, II (WI)	6
	CIT Concentration Courses	9
	LAS Immersion 2, 3	6
	Free Electives	9
Total Semester Credit Hours		**126**

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 Wellness courses.

Concentrations

Database applications

Choose three of the following:	
ISTE-330	Database Connectivity and Access
ISTE-422	Application Development Practices
ISTE-432	Database Application Development
ISTE-434	Data Warehousing
ISTE-436	Database Management and Access
ISTE-438	Contemporary Databases

Enterprise administration

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

Networking and communications

Required course	
NSSA-245	Network Services
Choose two of the following:	
NSSA-242	Wireless Networking
NSSA-341	VoIP and Unified Communication I
NSSA-342	VoIP and Unified Communication II
NSSA-441	Advanced Routing and Switching
NSSA-443	Network Design and Performance
NSSA-445	Sensor and Ad-Hoc Networks

Web administration

Required course	
NSSA-320	Configuration Management
Choose two of the following:	
NSSA-322	System Administration II
NSSA-244	Virtualization
NSSA-427	Scalable Web Services Architectures

Web development

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

Additional information

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.

Computing Security, BS

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Program overview

The scope of computer 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, as is the creation of damaging software that attacks computing systems and networks. Therefore, security has become a major concern. The result is an increased need for people and technologies that can secure and protect from attack the data 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 the preservation of information assets, students become experts in the identification of computer security vulnerabilities. Students also understand the forensic requirements needed to prove an attack occurred, identify its origin, assess the extent of the damage or loss of information, and design strategies that ensure data can be recovered.

An important goal of the major is to provide students with a level of specialization in computing security beyond what is provided by more general majors offered in information systems or information technology. This is accomplished with a foundation of courses that includes a breadth of computing disciplines and then allows the student to focus on a particular area of security such as forensics, mobile device forensics, or network or computing system security. Favoring depth over breadth, students are allowed sufficient time to explore the issues and technologies of computer and network security.

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

Cooperative education is a required component of the major. Co-op is full-time, paid, professional experience that enables students to work in a variety of organizations – from small- or medium-sized businesses to large international companies or law enforcement organizations – that require computer systems or computer networks. These may be security-centric businesses (law enforcement agencies, security auditors) to users of information technology (manufacturing companies, school districts, health care). Co-op provides real-world experience and a competitive edge when applying for jobs after graduation. Typically, the first co-op occurs during the summer following the second year. The remaining co-ops may occur during the student's third year or the following summer. Students must complete the co-op requirement prior to completing their course work.

Advanced electives

Students complete six advanced security electives that expand their knowledge in one of several disciplines of security, including system security, network security, forensics, malware, secure software development, database and application security, security evaluation, or theory.

Curriculum

Computing security, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSEC-101	Fundamentals of Computing Security	3
CSCI-141, 142	Computer Science I, II	8
MATH-181, 182	Project-based Calculus I, II	8
	LAS Perspective 1, 2	6
	First Year Writing Seminar	3
MATH-190	Discrete Mathematics for Computing	3
NSSA-241	Introduction to Routing and Switching	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
CSCI-243	The Mechanics of Programming	3
MATH-251	Probability and Statistics I	3
CSCI-250	Concepts of Computer Systems	3
NSSA-221	System Administration	3
Choose one of the following:		3
MATH-241	Linear Algebra	
MATH-252	Probability and Statistics II	
PHYS-211, 212	LAS Perspective 6: University Physics I, II	8
NSSA-245	Network Services	3
CSEC-99	Co-op Seminar	0
NSSA-221	Systems Administration I	3
	LAS Perspective 3, 4	6
CSEC-099	Cooperative Education (summer)	Co-op
Third Year		
CSCI-462	Introduction to Cryptography	3
PUBL-363	Cyber Security Policy and Law	3
ISTE-230	Introduction to Database and Data Modeling	3
	LAS Immersion 1 (WI)	3
CSEC-472	Authentication and Security Models	3
CSEC-380	Principles of Web Application Security	3
	Program Electives	6
	Free Electives	6
CSEC-099	Cooperative Education (summer)	Co-op
Fourth Year		
	LAS Elective‡	3
	Program Electives	12
	LAS Immersion 2, 3	6
	Free Electives	6
CSEC-490	Capstone in Computing Security	3
Total Semester Credit Hours		**126**

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 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).

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		
CSEC-101	Fundamentals of Computing Security	3
CSCI-141, 142	Computer Science I, II	8
MATH-181, 182	Project-based Calculus I, II	8
	LAS Perspective 1, 2	6
	First Year Writing Seminar	3
MATH-190	Discrete Mathematics for Computing	3
NSSA-241	Introduction to Routing and Switching	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
CSCI-243	The Mechanics of Programming	3
MATH-251	Probability and Statistics I	3
CSCI-250	Concepts of Computer Systems	3
MATH-241/252	Linear Algebra/Probability and Statistics II	3
PHYS-211, 212	LAS Perspective 6: University Physics I, II	8
NSSA-221	System Administration	3
NSSA-245	Network Services	3
	LAS Perspective 3, 4	6
CSEC-099	Cooperative Education (summer)	Co-op
Third Year		
CSCI-462	Introduction to Cryptography	3
PUBL-363	Cyber Security Policy and Law	3
	LAS Immersion 1 (WI)	3
CSEC-472	Authentication and Security Models	3
CSEC-731	Web Server and Application Security Audits	3
ISTE-230	Introduction to Database and Data Modeling	3
CSEC-380	Principles of Web Application Security	3
	Program Elective	3
	Free Electives	6
CSEC-099	Cooperative Education (summer)	Co-op
Fourth Year		
CSEC-742	Computer System Security	3
CSEC-733	Information Security and Risk Management	3
	Program Electives	6
	LAS Immersion 2, 3	6
	Free Electives	6
CSEC-490	Capstone in Computing Security (WI)	3
	LAS Elective‡	3
Fifth Year		
CSEC-601	Research Methods and Proposal Development	3
CSEC-603	Enterprise Security and Forensics	3
CSEC-604	Cryptography and Authentication	3
	Graduate Electives	6
	CSEC Thesis	6
Total Semester Credit Hours		**156§**

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 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).
§ The BS degree requires 126 semester hours. The MS degree requires 30 semester hours. Students use 9 semester hours of computing security graduate electives toward both degrees.

Computing security, BS degree/Science, technology and public policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSEC-101	Fundamentals of Computing Security	3
CSCI-141, 142	Computer Science I, II	8
MATH-181, 182	Project-based Calculus I, II	8
	LAS Perspective 1, 2	3
	First Year Writing Seminar	3
MATH-190	Discrete Mathematics for Computing	3
NSSA-241	Introduction to Routing and Switching	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
CSCI-243	The Mechanics of Programming	3
MATH-251	Probability and Statistics I	3
CSCI-250	Concepts of Computer Systems	3
MATH-241	Linear Algebra	3
PHYS-211, 212	LAS Perspective 6: University Physics I, II	8
NSSA-221	System Administration I	3
NSSA-245	Network Services	3
	LAS Perspective 3, 4, 6	9
CSEC-099	Cooperative Education Seminar	0
CSEC-099	Cooperative Education (spring, summer)	Co-op
Third Year		
CSCI-462	Introduction to Cryptography	3
PUBL-363	Cyber Security Policy and Law	3
CSEC-472	Authentication and Security Models	3
ISTE-230	Introduction to Database and Data Modeling	3
	CSEC Electives	6
	Free Electives	9
CSEC-380	Principles of Web Application Security	3
Fourth Year		
PUBL-701	LAS Immersion 1: Policy Analysis	3
PUBL-702	LAS Immersion 2: Graduate Decision Analysis	3
	CSEC Electives	12
	LAS Elective†	3
CSEC-490	Capstone in Computing Security (WI)	3
	Free Elective	3
Fifth Year		
PUBL-700	Readings in Public Policy	3
PUBL-703	Program Evaluation and Research Design	3
	Public Policy Graduate Electives	6
STSO-740	Graduate Science and Technology Policy	3
	LAS Immersion 3	3
Choose of the the following:		6
	Thesis	
	Graduate Electives	
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 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).

Additional information

Part-time study

The major is available on a part-time basis. Courses can be completed during the day and in the evening to accommodate those who work, regardless of their schedules. Please refer to the Part-time Study website for more information on this option.

Game Design and Development, BS

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Program overview

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.

Plan of study

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.

Cooperative education

Cooperative education is full-time, paid work experience that provides students with an opportunity to learn on the job in real-world industry setting—a definite edge when applying for jobs after graduation. 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.

Curriculum

Game design and development, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
IGME-105, 106	Game Development and Algorithmic Problem Solving I, II	8
IGME-110	Introduction to Interactive Media	3
	First Year Writing Seminar	3
MATH-131	LAS Perspective 7A: Discrete Mathematics	4
IGME-119	2D Animation and Asset Production	3
	LAS Perspective 1, 2	6
PHYS-111	LAS Perspective 6: College Physics I	4
MATH-185	LAS Perspective 7B: Mathematics of Graphical Simulation I	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
IGME-202	Interactive Media Development	3
IGME-219	3D Animation and Asset Production	3
IGME-236	Interaction, Immersion, and the Media Interface (WI)	3
	LAS Perspective 3, 4, 5	9
	Mathematics Course†	3
IGME-220	Game Design and Development I	3
IGME-209	Data Structures and Algorithms for Games and Simulations I	3
IGME-230	Website Design and Implementation	3
IGME-099	Cooperative Education Preparation Workshop	0
IGME-499	Cooperative Education (summer)	co-op
Third Year		
IGME-320	Game Design and Development II	3
IGME-309	Data Structures and Algorithms for Games and Simulations II	3
	LAS Immersion 1, 2	6
	LAS Electives	6
IGME-330	Rich Media Web Application Development I	3
	Advanced Elective	3
	Free Electives	6
IGME-499	Cooperative Education (summer)	co-op
Fourth Year		
	Advanced Electives	9
	Free Electives	9
	LAS Immersion 3	3
	LAS Electives	9
Total Semester Credit Hours		**124**

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 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 (MATH-181), or Calculus I (MATH-181A).
‡ 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-420	Level Design
IGME-421	Tabletop Game Design and Development
IGME-430	Rich Media Web Application Development II
IGME-440	Online Virtual Worlds and Simulations
IGME-450	Casual Game Development
IGME-451	Systems Concepts for Games and Media
IGME-460	Data Visualization
IGME-470	Physical Computing and Alternative Interfaces
IGME-480	Current Topics in Interactive Development
IGME-529	Foundations of Interactive Narrative
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 Audio
IGME-580	IGM Production Studio
IGME-581	Innovation and Invention
IGME-582	Humanitarian Free and Open Source Software Development
IGME-583	Legal/Business Aspects of FOSS
IGME-584	Linux Software Development
IGME-585	Project in FOSS Development
IGME-589	Research Studio
IGME-590	Undergraduate Seminar in IGM
IGME-599	Independent Study

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.

Game design and development, BS/MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
IGME-105, 106	Game Development and Algorithmic Problem Solving I, II	8
IGME-110	Introduction to Interactive Media	3
	First Year Writing Seminar	3
MATH-131	LAS Perspective 7A: Discrete Mathematics	4
IGME-119	2D Animation and Asset Production	3
	LAS Perspective 1, 2	6
PHYS-111	LAS Perspective 6: College Physics I	4
MATH-185	LAS Perspective 7B: Mathematics of Graphical Simulation I	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
IGME-202	Interactive Media Development	3
IGME-219	3D Animation and Asset Production	3
IGME-236	Interaction, Immersion, and the Media Interface (WI)	3
	LAS Perspective 3, 4, 5	9
	Mathematics Course†	3
IGME-220	Game Design and Development I	3
IGME-209	Data Structures and Algorithms for Games and Simulation I	3
IGME-230	Website Design and Implementation	3
IGME-099	Cooperative Education Preparation	0
IGME-499	Cooperative Education (summer)	co-op
Third Year		
IGME-320	Game Design and Development II	3
IGME-309	Data Structures and Algorithms for Games and Simulation II	3
	LAS Immersion 1, 2	6
	LAS Electives	6
IGME-330	Rich Media Web Application Development I	3
	Advanced Elective	3
	Free Electives	6
IGME-499	Cooperative Education (summer)	co-op

COURSE		SEMESTER CREDIT HOURS
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
	Advanced Elective	3
	Graduate Elective	3
	Free Elective	3
	LAS Immersion 3	3
	LAS Electives	9
Fifth Year		
IGME-695	Colloquium in Game Design and Development	1
IGME-788	Capstone Design	3
	Advanced Electives	6
	Graduate IGM Elective	3
	Free Electives	6
IGME-789	Capstone Development	3
Total Semester Credit Hours		**148**

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 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 (MATH-181), or Calculus I (MATH-181A).

Graduate advanced electives

IGME-670	Digital Audio Production
IGME-671	Interactive Game Audio
IGME-680	IGM Production Studio
IGME-681	Innovation and Invention
IGME-720	Social and Pervasive Game Design
IGME-730	Game Design and Development for Casual and Mobile Platforms
IGME-740	Game Graphics Programming
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	Independant Study

Human-Centered Computing, BS

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Stephen Zilora, Chair
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Program overview

Fundamental to human-centered computing is a focus on humans as individuals and in social contexts, and their behavior with technology. With roots in multiple areas of computing, arts, and social sciences, HCC blends strength from these varied disciplines to understand the way in which people use 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. With a combination of content from computing, psychology, and design, HCC blends core theoretical and applied human technology concepts in a contemporary interdisciplinary curricular model. 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 HCC depending on individual student interests in computing, design, or psychology.

Plan of study

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.

Cooperative education

The major requires students to complete two blocks of cooperative education. Students may begin their co-op requirement after completing their second year of study.

Curriculum

Human-centered computing, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ACSC-010	Year One: College Experience	0
	First Year LAS Elective	3
ISTE-120, 121	Computer Program Solving: Information Domain I, II	8
ISTE-140, 240	Web and Mobile I, II	6
ISTE-110	Ethics in Computing (WI)	3
PSYC-101	LAS Perspective 6: Introduction to Psychology	3
PSYC-223	Cognitive Psychology	3
STAT-145	LAS Perspective 7A: Introduction to Statistics I	3
NMDE-111	New Media Digital Design Survey I	3
	Wellness Education*	0
Second Year		
PSYC-250, 251	Research Methods I (WI), II	6
ISTE-262	Foundations of HCC	3
NMDE-112	New Media Digital Design Survey II	3
STAT-146	LAS Perspective 7B: Introduction to Statistics II	4
ISTE-264	Prototyping and Usability Testing	3
ISTE-252	Foundations of Mobile	3
ISTE-099	Second Year Seminar	0
	LAS Perspective 4, 5	6
	Free Elective	3
	Cooperative Education (summer)	Co-op
Third Year		
	HCC Concentration Courses	12
ISTE-266	Design for Accessibility	3
	LAS Perspective 2, 3	6
	LAS Immersion 1	3
	Free Electives	6
	Cooperative Education (spring)	Co-op
Fourth Year		
ISTE-500, 501	Senior Development Project I, II (WI)	6
	HCC Concentration Courses	6
	LAS Perspective 1	3
	LAS Immersion 2, 3	6
	Free Elective	3
	LAS Elective	3
Total Semester Credit Hours		**120**

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 Wellness courses.

Concentrations

Accessibility

ISTE-362	Access and Assistive Technology
ISTE-462	Research in Accessibility
ISTE-464	Accessibility through the Lifespan

Design

NMDE-201	Design Elements II
NMDE-203	Interactive II
NMDE-302	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-392	Fundamentals of Instructional Technology
ISTE-394	Interactive Courseware
PSYC-235	Learning and Behavior

Natural language processing

ENGL-351	Language Technology (required)
ENGL-481	Introduction to Natural Language Processing (required)
Plus one of the following:	
ENGL-582	Advanced Topics in Computational Linguistics
ENGL-584	Spoken Language Processing

Psychology

PSYC-330	Memory and Attention
PSYC-331	Language and Thought
PSYC-332	Decision Making, Judgement and Problem Solving

Additional information

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.

New Media Interactive Development, BS

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Program overview

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, casual games, production, and more.

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 Imaging Arts and Sciences. 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.

Cooperative education

Students are required to complete two blocks of cooperative education, which can occur during the academic year or during the summer. Co-ops are full-time, paid work experiences where students gain valuable, hands-on experience in industry—a definite edge when applying for jobs after graduation. Co-op may begin after the second year of study.

Curriculum

New media interactive development, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
IGME-101, 102	New Media Interactive Design and Algorithmic Problem Solving I, II	8
IGME-110	Introduction to Interactive Media	3
NMDE-111	New Media Design Digital Survey I	3
NMDE-112	New Media Design Digital Survey II	3
MATH-131	Discrete Mathematics	4
	LAS Perspective 1, 2	6
	First Year Writing Seminar	3
MATH-185	Mathematics of Graphical Simulation I	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
IGME-201	New Media Interactive Design and Algorithmic Problem Solving III	3
IGME-230	Website Design and Implementation	3
IGME-330	Rich Media Web Application Development I	3
IGME-340	Multi-platform Media Application Development	3
	LAS Perspective 3, 4, 5, 6‡	12
STAT-145	Introduction to Statistics†	3
IGME-236	Interaction, Immersion, and the Media Interface (WI)	3
IGME-099	Co-op Preparation Workshop	0
IGME-499	Cooperative Education (summer)	Co-op
Third Year		
IGME-202	Interactive Media Development	3
IGME-430	Rich Media Web Applications II	3
IGME-470	Physical Computing and Alternative Interfaces	3
IGME-480	Current Topics in Interactive Development	3
	Free Electives	6
	LAS Immersion 1, 2	6
	LAS Electives	6
IGME-499	Cooperative Education (summer)	Co-op
Fourth Year		
NMDE-401	New Media Design Career Skills	3
	Advanced Program Electives	6
	Free Electives	9
	LAS Immersion 3	3
IGME-588	New Media Team Project	3
	LAS Electives	6
Total Semester Credit Hours		**123**

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 Wellness courses.
† Students have the option of taking Introduction to Statistics (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.

Concentrations

Students select two three-course concentrations from the list below.

Accessibility

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

Design

NMDE-201	Elements II
NMDE-203	Interactive II
NMDE-302	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-392	Fundamentals of Instructional Technology
ISTE-394	Interactive Courseware
PSYC-235	Learning and Behavior

Natural Language Processing

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

Psychology

PSYC-330	Memory and Attention
PSYC-331	Language and Thought
PSYC-332	Decision Making, Judgment, and Problem Solving

Advanced program electives

COURSE	
FNRT-328	Composing for Video Games and Interactive Media
IGME-460	Data Visualization
IGME-529	Foundations of Interactive Narrative
IGME-570	Digital Audio Production
IGME-571	Interactive and Game Audio
IGME-581	Innovation and Invention
ISTE-456	Mobile Application Development II
NMDE-201	New Media Design Elements II
NMDE-203	New Media Design Interactive II
NMDE-302	New Media Design Graphical User Interface

Software Engineering, BS

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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 software engineering major combines traditional computer science and engineering with specialized course work in software engineering.

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.

Plan of study

An important component of the curriculum is 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 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 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.

Cooperative education

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 (SWEN-561).

Accreditation

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

Curriculum

Software engineering, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSCI-141, 142	Computer Science I, II	8
MATH-181, 182	LAS Perspective 7A, 7B: Project-based Calculus I, II	8
	LAS Perspective 1, 2	6
SWEN-101	Freshman Seminar	1
MATH-190	Discrete Mathematics for Computing	3
SWEN-250	Personal Software Engineering	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
PHYS-211, 212	LAS Perspective 5, 6: University Physics I, II	8
SWEN-220	Mathematical Models of Software	3
COMM-253	Communication (WI)	3
PHYS-211, 212	LAS Perspective 5, 6: University Physics I, II	8
SWEN-261	Introduction to Software Engineering	3
	LAS Perspective 3, 4	6
STAT-205	Applied Statistics	3
SWEN-256	Software Process and Project Management	3
SWEN-262	Engineering of Software Subsystems	3
	Cooperative Education (summer)	co-op
Third Year		
CSCI-261	Analysis of Algorithms	3
SWEN-444	Human-Centered Requirements and Design	3
	SWEN Process Elective	3
	Math/Science Elective	3
	LAS Immersion 1	3
	Cooperative Education (spring)	co-op
Fourth Year		
SWEN-440	Software Engineering System Requirements and Architecture (WI)	3
SWEN-331	Engineering Secure Software	3
CMPE-240	Engineering Fundamentals of Computer Systems	4
	Math/Science Elective	3
	LAS Immersion 2	3
	Cooperative Education (spring)	co-op
Fifth Year		
SWEN-561, 562	Software Engineering Project I, II	6
	Engineering Electives	6
	Professional Elective	3
	SWEN Design Elective	3
	LAS Immersion 3	3
	Free Electives	9
Total Semester Credit Hours		**125**

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 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.

Software engineering, 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, 182	LAS Perspective 7A, 7B: Project-based Calculus I, II	8
	LAS Perspective 1, 2	6
SWEN-101	Software Engineering Seminar	1
MATH-190	Discrete Mathematics for Computing	3
SWEN-250	Personal Software Engineering	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
PHYS-211, 212	LAS Perspective 5, 6: University Physics I, II	8
COMM-253	Communication (WI)	3
SWEN-256	Software Process and Project Management	3
SWEN-261	Introduction to Software Engineering	3
	LAS Perspective 3, 4	6
STAT-205	Applied Statistics	3
SWEN-220	Math Models of Software Engineering	3
SWEN-262	Engineering of Software Subsystems	3
Third Year		
SWEN-440	Software System Requirements and Architecture (WI)	3
SWEN-444	Human-Centered Requirements and Design	3
CSCI-261	Analysis of Algorithms	3
SWEN-722	Process Engineering	3
	Math/Science Elective	3
	LAS Immersion 1	3
	LAS Perspective 4	3
	Cooperative Education	co-op
Fourth Year		
CMPE-240	Engineering Fundamentals of Computer Systems	4
SWEN-331	Engineering Secure Software	3
	Application Domain Elective	3
	LAS Immersion 2	3
	Cooperative Education	co-op
Fifth Year		
SWEN-561, 562	Software Engineering Project I, II	6
SWEN-749	Software Evolution and Reengineering	3
	SWEN Design Elective	3
	Professional Elective	3
	LAS Immersion 2, 3	6
	Free Electives	9
SWEN-640	Research Methods	3
Sixth Year		
SWEN-790	Thesis	6
SWEN-799	Software Engineering Independent Study	3
SWEN-755	Software Architectures and Product Lines	3
	Graduate Electives	9
Total Semester Credit Hours		**146**

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 Wellness courses.

Software engineering, BS degree/Computing security, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CSCI-141, 142	Computer Science I, II	8
MATH-181, 182	LAS Perspective 7A, 7B: Calculus I, II	8
SWEN-101	Freshman Seminar	1
MATH-190	Discrete Mathematics for Computing	3
SWEN-250	Personal Software Engineering	3
	LAS Perspective 1, 2	6
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
PHYS-211, 212	LAS Perspective 5, 6: University Physics I, II	8
COMM-253	Communication (WI)	3
SWEN-261	Introduction to Software Engineering	3
STAT-205	Applied Statistics	3
SWEN-256	Software Process and Project Management	3
SWEN-220	Math Models of Software Engineering	3
SWEN-262	Engineering of Software Subsystems	3
	LAS Perspective 3, 4	6
Third Year		
CSCI-261	Analysis of Algorithms	3
SWEN-444	Human-Centered Requirements and Design	3
	SWEN Process Elective	3
	LAS Immersion 1	3
	Math/Science Elective	3
	Cooperative Education	Co-op
Fourth Year		
CMPE-240	Engineering Fundamentals of Computer Systems	4
SWEN-331	Engineering Secure Software	3
SWEN-440	Software System Requirements and Architecture (WI)	3
	Math/Science Elective	3
	LAS Immersion 2	3
	Cooperative Education	Co-op
Fifth Year		
SWEN-561, 562	Software Engineering Project I, II	6
CSEC-731	Web Server and Application Security Audits	3
CSEC-733	Information Security and Risk Management	3
CSEC-742	Computer System Security	3
	LAS Immersion 3	3
	SWEN Design Elective	3
	Engineering Electives	6
	Professional Elective†	3
Sixth Year		
CSEC-601	Research Methods and Proposal Development	3
CSEC-603	Enterprise Security	3
CSEC-604	Cryptography and Authentication	3
	CSEC Graduate Electives	6
CSEC-790	CSEC Thesis	6
Total Semester Credit Hours		**146**

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 Wellness courses.

† Please see adviser for a list of approved professional electives.

Engineering electives

	Any software engineering (SWEN) elective course
	Any course offered through the College of Engineering (exceptions apply)
CSCI-331	Introduction to Intelligent Systems
CSCI-344	Programming Language Concepts
CSCI-351	Data Communications and Networks I
CSCI-352	Operating Systems
CSCI-420	Principles of Data Mining
CSCI-431	Introduction to Computer Vision
CSCI-442	Language Processors
CSCI-451	Data Communications and Networks II
CSCI-454	Parallel Computing
CSCI-462	Cryptography
CSCI-510	Introduction to Computer Graphics

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-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-549	Software Engineering Design Seminar

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

Professional electives

BLEG-200	Business Law I
DECS-310	Operations Management
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*

BIOL-101	General Biology I
BIOL-102	General Biology II
CHMG-141, 145	General and Analytical Chemistry I with Lab
CHMG-142, 146	General and Analytical Chemistry II with Lab
CSCI-262	Introduction to Computer Science Theory
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-351	Graph Theory
MATH-367	Codes and Ciphers
PHYS-220	University Astronomy

Additional information

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.

Web and Mobile Computing, BS

http://wmc.rit.edu/

Stephen Zilora, Chair
(585) 475-7645, Steve.Zilora@rit.edu

Program overview

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.

Cooperative education

The major requires students to complete two blocks of cooperative education. Students may begin their co-op requirement after completing their second year of study.

Curriculum

Web and mobile computing, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ISTE-120	Computational Problem Solving in the Information Domain I	4
MATH-131	LAS Perspective 7A: Discrete Mathematics	4
	First Year LAS Elective	3
	LAS Perspective 1	3
ISTE-121	Computer Problem Solving: Information Domain II	4
ISTE-140, 240	Web and Mobile I, II	6
ISTE-230	Introduction to Database and Data Modeling	3
NMDE-111	New Media Design Digital Survey I	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-161	LAS Perspective 7B: Applied Calculus	4
ISTE-260	Designing the User Experience	3
ISTE-330	Database Connectivity and Access	3
ISTE-222	Computer Problem Solving: Information Domain III	3
	LAS Perspective 2, 3	6
SWEN-383	Software Design Principles and Patterns	3
ISTE-252	Foundations of Mobile Design	3
ISTE-340	Client Programming	3
NSSA-290	Networking Essentials for Developers	3
ISTE-099	Second Year Seminar	0
	Cooperative Education (summer)	Co-op
Third Year		
ISTE-341	Server Programming	3
	LAS Perspective 4	3
	LAS Perspective 5‡	4
	Free Electives	9
ISTE-422	Application Development Practices	3
	WMD Concentration Courses	6
	LAS Immersion 1	3
	Cooperative Education (summer)	Co-op
Fourth Year		
ISTE-500, 501	Senior Development Project I, II (WI)	6
	WMD Concentration Courses	6
	LAS Immersion 2, 3	6
	LAS Perspective 6	4
	Free Elective	3
	LAS Electives (WI)	6
Total Semester Credit Hours		**126**

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 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.
§ Students satisfy this requirement by selecting one of the following four credit options: General Biology (BIOL-101) and General Biology Lab (BIOL-103); General and Analytical Chemistry (CHMG-141) and General and Analytical Chemistry (CHMG-145); or College Physics (PHYS-111).

Additional information

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.

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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

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Scott Johnson, BS, MS, Rochester Institute of Technology—Lecturer

Alan Kaminsky, BS, Lehigh University; MS, University of Michigan—Professor

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Thomas Kinsman, BS, University of Delaware; MS, Carnegie Mellon University; Ph.D., Rochester Institute of Technology—Lecturer

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Xumin Liu, BE, Dalian University of Technology (China); ME, Jinan University (China); Ph.D., Virginia Polytechnic Institute and State University—Associate Professor

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Stephen Jacobs, BA, MA, New School for Social Research—Professor

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Kate Gleason College of Engineering

Doreen Edwards, Dean
rit.edu/kgcoe

Programs of study

Bachelor of Science in:		Page
#	Biomedical Engineering *Focus areas available in biomaterials; biomedical device and system design; biomedical signal processing; and physiological modeling, dynamics and control.*	58
#	Chemical Engineering	60
#	Computer Engineering	62
#	Electrical Engineering *Focus areas available in clean and renewable energy, computer engineering, robotics, and wireless communication.*	64
#	Industrial Engineering	66
#	Mechanical Engineering *Options available in aerospace engineering, automotive engineering, bioengineering, and energy and the environment.*	72
#	Microelectronic Engineering	76

Certificates in:		
	Integrated Electronics	72
	Mechatronics Engineering	75

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. The college offers majors leading to a bachelor of science degree in biomedical, chemical, computer, electrical, industrial, mechanical, and microelectronic engineering. 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.

The first two years of each major emphasize mathematics, science and introductory-level engineering fundamentals to establish a foundation for the applied sciences and engineering subjects that follow in the third, fourth, and fifth years. Students also acquire hands-on design experience in their first year. This introduces, as early as possible, the creative and innovative elements of engineering practice, helps students develop a strong appreciation for their engineering discipline, and prepares them for meaningful work experience on their first co-op placement. Advanced courses, of both a fundamental and applied nature, are taught in the fourth and fifth years.

Each major has a full complement of technical and free electives so that students may tailor their educational experiences to address special interests and career goals. In particular, all majors offer the flexibility of pursuing minors in a wide range of academic disciplines, from business and foreign language to the arts. In their fifth year, all students participate in Senior Design, a distinctive element of the Kate Gleason College. This broad-based, multidisciplinary design initiative provides the opportunity for student teams from a variety of disciplines to generate creative and innovative solutions to real-world, industry-inspired engineering problems.

In addition to the foundation and engineering courses in each major, students take a variety of other courses that enhance their education. In modern society, engineering decisions are rarely made without considering the ethical and socio-economic impacts. Because the ability to communicate clearly and effectively with others is indispensable to an engineer, a significant portion of the curriculum is devoted to the liberal arts. These courses sensitize students to the factors that surround most decision-making situations, improving their ability to communicate with others, making their professional lives more meaningful, and encouraging their positive impact on society.

Goals

The overarching goals of the engineering program are to:

- educate students to become engineering professionals who are highly marketable and able to make an immediate impact in the workplace, and
- provide graduates with the educational foundation needed to succeed in selective graduate programs across the nation.

The Kate Gleason College accomplishes these goals by:

- integrating cooperative education into the program for all students,
- providing a strong foundation in mathematics and science as well as an appropriate balance between the liberal arts and technical courses,
- establishing an appropriate balance between the engineering design and engineering science components of the program,
- incorporating a strong laboratory component that is supported by outstanding laboratory facilities, and
- having a diverse faculty committed to engineering education.

Advances in engineering and technology are occurring at a rapid rate. Our career-oriented programs allow us to respond quickly to these changes, keeping our curriculum current and responsive to industry needs.

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.

Faculty

The college's faculty is dedicated to teaching, research, and professional development with an emphasis on student involvement and success. Many faculty members have significant industrial experience that enhances their ability to convey the relevance of the subject matter in multiple contexts. Over 90 percent of the faculty members hold doctoral degrees.

Facilities and resources

The college's programs reside in a building complex that includes over 350,000 square feet of classrooms, machine shops, computer-based design capabilities, and specialized laboratories for teaching and research. Highlights include an integrated circuit design center, computer labs with industry-standard CAD software packages, more than 10,000 square feet of Class-1000 clean-room laboratory space for the fabrication of integrated circuits, a machining and manufacturing center equipped with state-of-the-art computer numerically controlled (CNC) machinery and 3D printing equipment, and a first-in-class engineering design center to teach product development and innovation. The engineering complex offers wireless access throughout. The chemical engineering and biomedical engineering majors reside in Institute Hall, which consists of 86,000 sq. ft. of office space, classrooms, labs, and open spaces. The facility also contains dedicated teaching and research labs, computer labs, a chemical stock room, and a green data center.

Cooperative education

RIT's cooperative education requirement enhances the knowledge students acquire in the academic setting with on-the-job experience. The exposure is invaluable in bringing the engineering discipline to life for students, providing a meaningful framework for the complex concepts that are studied in the classroom. Co-op experiences also acquaint students with the constraints imposed by the industrial environment on the solution of real-world engineering problems and help them decide which career path would be most rewarding. The Office of Career Services and Cooperative Education assists students in identifying and applying for co-op positions.

Students typically begin co-op after two years of study, at a time when their educational background qualifies them for jobs that involve meaningful engineering work. One example of how cooperative education may be integrated into the academic program is shown.

YEAR	FALL	SPRING	SUMMER
One	RIT	RIT	--
Two	RIT	RIT	--
Three	Co-op	RIT	Co-op
Four	RIT	Co-op	Co-op
Five	RIT	RIT	--

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. The biomedical engineering major has applied for its initial accreditation which is expected in summer 2016. 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).

Advising

Each student is immediately assigned an academic adviser who is available for academic and career counseling. By the end of the first year each student is also assigned a faculty adviser as an additional resource for career advising. The college's Student Services Office also provides specialized co-curricular programs and individual counseling to meet students' needs.

Academic enrichment

The Honors Program: The Honors Program is designed to enrich the academic and professional experiences of some of the best students who apply to RIT. Honors participants have access to distinctive courses, receive special advising within the college, and enjoy privileges such as early registration and access to special housing. Engineering students enrolled in the Honors program are eligible to participate in a unique curriculum that focuses on product innovation for a global economy and strives to educate students about how engineers become leaders who shape the future of our society. Highlights include an all-expenses-paid trip to a key industry center, which provides a first-hand exposure to industry best practices in the conceptualization, development, design, and manufacture of innovative products from both a domestic and global perspective. Travel destinations have included a variety of destinations known for their diverse portfolio of engineering companies (e.g., Seattle, San Francisco, Phoenix, Austin, Miami; and Guadalajara, Mexico). Seminars and social events with engineering faculty mentors round out the program.

Minors: RIT offers students more than 90 minors to choose from to enhance their academic program or further develop a personal area of interest. For a detailed list of minors, including courses, please refer to the Minors section of this bulletin.

Study Abroad: RIT encourages all students to consider a study abroad program. Students may study full time at a variety of host schools and are able to select both courses in their majors and/or liberal arts classes. The Study Abroad Office has information about foreign study options and opportunities. Students may choose to take advantage of a growing number of opportunities for study

abroad, co-op placement outside the United States, or collaboration with students at an international university.

Writing competency: All students are required to be proficient in writing the English language. This is accomplished through required courses in the liberal arts and through writing requirements established and monitored by individual departments. A passing grade on the college's writing test, administered in the third, fourth, or fifth year, is required for graduation.

Professional student organizations: The college maintains memberships in the following professional organizations: American Institute of Chemical Engineers, American Society of Mechanical Engineers, Biomedical Engineering Society, Engineers for a Sustainable World, Institute of Electrical and Electronic Engineers, Institute of Industrial Engineers, Microelectronic Engineering Student Association, National Society of Black Engineers, Society of Automotive Engineers, Society of Hispanic Professional Engineers, Society of Manufacturing Engineers, and Society of Women Engineers.

Special Opportunities

Accelerated dual degree options: Many of the engineering majors offer accelerated dual degree (BS/MS, BS/ME, or BS/MBA) options. These options offer students the opportunity to earn a bachelor's degree and a master's degree in less time than pursuing each degree individually. Please refer to individual programs, the Graduate Bulletin, or the college's website for more information.

Graduate study: The college offers doctorate degrees in engineering and microsystems engineering; master of science degrees in computer engineering, electrical engineering, industrial and systems engineering, materials science and engineering (offered jointly with the College of Science), mechanical engineering, microelectronic engineering, product development, manufacturing leadership, and sustainable engineering; master of engineering degrees in engineering management, industrial and systems engineering, mechanical engineering, microelectronics manufacturing engineering, and sustainable engineering; and advanced certificates in lean six sigma, mechatronics, and vibrations. For more information regarding these graduate programs, please refer to the *Graduate Bulletin* or visit the college's website.

Women and minorities in engineering: The Kate Gleason College is proud of its many co-curricular programs that have helped build a strong sense of community among its students and faculty. Focused on student success, the college's Office of Student Services manages a variety of special programs to enhance the quality of the educational experience for female and minority engineering students.

Our nationally recognized Women in Engineering (WE@RIT) program is dedicated to increasing the representation of women within the engineering disciplines through outreach and community building. Current students can participate in these programs and learn valuable leadership skills, network with women engineers in the area, and have access to resources that help prepare them for success. For more information visit rit.edu/women.

Engineering Exploration, Undeclared

http://www.rit.edu/kgcoe/student-resource/engineering-exploration
Matthew Marshall, Associate Dean of Undergraduate Programs
(585) 475-7142, mmmeie@rit.edu

Program overview

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

Students complete foundation courses required by all the engineering disciplines. Course work taken in the engineering exploration option will transfer into all engineering majors without any loss of credits hours.

During the fall semester, students take Engineering Exploration Seminar (EGEN-100), where students are introduced to the curriculum of each engineering major. Sample lab and project work is presented as well as the various career opportunities pertaining to each academic program. Additional career-oriented activities are available through this option, which include meetings with engineering faculty and students in the different majors, observing presentations of engineering design projects, exploring engineering laboratory facilities, and one-on-one consulting with an academic adviser regarding engineering course work.

Curriculum

Undeclared engineering, typical course sequence

COURSE		SEMESTER CREDIT HOURS
MATH-181	Project-Based Calculus I	4
CHMG-131	General Chemistry for Engineering	4
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: College Experience	0
	Wellness Education*	0
Total Semester Credit Hours		**27-35**

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 Wellness courses.
‡ Students choose one or two engineering courses in consultation with their adviser.

Biomedical Engineering, BS

http://www.rit.edu/kgcoe/biomedical

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Program overview

Biomedical engineers are intimately involved in the development of devices and techniques to address issues associated with the state of human health. Such development is inherently a multidisciplinary endeavor requiring expertise from a wide range of professionals, and in particular engineers from the classical disciplines such as chemical, electrical, and mechanical engineering. This is true whether in industrial, research, or clinical settings. A fully successful multidisciplinary team must have at least one member who possesses a comprehensive understanding of the highly variable and intricate nature of the biomedical system of interest. This team member must possess the quantitative and analytical engineering skills needed to precisely define the challenge that is being addressed and assess the relative effectiveness of plausible solution strategies. This crucial role can be performed effectively by a biomedical engineer expressly educated to meet those requirements and qualifications.

The BS degree in biomedical engineering 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. Undergraduates will 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.

Educational objectives

The biomedical engineering major prepares graduates to:

- apply fundamental knowledge, skills, and tools of engineering to a wide variety of problems related to human health.
- possess a broad education and knowledge of contemporary issues relevant to the practice of the biomedical engineering profession.
- engage in lifelong learning as a means of adapting to change, refining skill level, and remaining aware of professional and societal issues.
- communicate effectively as individuals, and within and across teams.
- accept the professional and ethical responsibilities to function as a biomedical engineer in society.
- work as engineering professionals in the private or public sector.
- participate in graduate study and obtain advanced degrees, if desired

Accreditation

The BS program in biomedical engineering is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org/.

Plan of study

Biomedical engineering is a five-year major consisting of one year of cooperative employment experience and the following course requirements: biomedical engineering core, professional technical electives, science and mathematics, liberal arts, free electives, and wellness education. The major culminates in the fifth year with a two-course multidisciplinary design sequence, a capstone design experience that integrates engineering theory, principles, and processes within a collaborative environment that bridges engineering disciplines.

Typical areas of interest

Biomaterials
An important feature of materials intended for biomedical applications is their compatibility with the environment in which they are employed. This presumes a solid knowledge and understanding of a wide variety of biologically compatible materials. Similarly, the dynamic behavior of the materials in response to stress, strain, and wear must often be assessed in terms of efficacy, safety, and durability. Useful and rigorous modeling, as well as the design and evaluation of material performance, requires a strong foundation in physics, chemistry, and mathematics (including statistics) along with an understanding of appropriate and accurate analysis methods. Courses for this type of work are provided in the core curriculum of the program. However, electives that provide additional expertise in this area (e.g.: material science, probability and statistics, chemistry and chemical engineering) may be obtained by selecting the biomaterials concentration.

Biomedical device and system design
Students will develop the ability to propose and assess innovative ideas and understand the type of analysis and assessment tools that are key elements in the process of developing robust designs. Constraints on such designs are safe and efficient devices, systems, and processes for biomedical applications. This represents a need in industrial, research, and clinical environments, and includes therapeutic, rehabilitative, and research-oriented developments.

Biomedical signal processing
Biological systems are inherently complex and are composed of processes, mechanisms, and phenomena that interact, often in parallel and across a wide range of scales and environments. The ability to determine key aspects of those systems for biomedical applications requires a rigorous and in-depth capability to detect, process, and interpret signals that can be extracted and measured, often in the midst of noise and confounding information. Producing reliable information that can be used to assess or understand those systems requires careful processing and interpretation of available signals.

Physiological modeling, dynamics, and control
Homeostasis is fundamentally a feedback process. Generally, biological systems contain a myriad of interrelated and interacting feedback systems that are inherently non-deterministic in nature and usually have a variety of optimal or satisfactory operating points. If the goal of a therapeutic or rehabilitative system or intervention is to predict the outcome of some intended action, then it becomes essential to accurately model the behavior of the relevant characteristics of the targeted system. This type of analysis can be used to support fundamental research as well as help provide guidance to develop a new device or system. A concentration in this area builds on the core elements of the curriculum as well as an understanding, from a systems perspective, of human physiology.

Curriculum

Biomedical engineering, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	First Year LAS Elective	3
BIME-181	Introduction to Biomedical Engineering I	1
CHMG-141, 145	General and Analytical Chemistry I and Lab	4
MATH-181, 182	Project-Based Calculus I, II	8
	First Year Writing Seminar	3
BIME-182	Introduction to Programming for Biomedical Engineering	2
CHMG-142, 146	General and Analytical Chemistry II and Lab	4
PHYS-211	University Physics I	4
	LAS Perspective 1	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
BIME-200	Introduction to Musculoskeletal Biomechanics	3
BIME-250	Biosystems Process Analysis	3
BIME-391	Biomechanics and Biomaterials Lab (WI)	2
BIOG-140, 141	Cell and Molecular Biology for Engineers I, II	6
MATH-231	Differential Equations	3
BIME-370	Biomaterials	3
BIME-320	Fluid Mechanics	3
MATH-221	Multivariable and Vector Calculus	4
PHYS-212	University Physics II	4
	LAS Perspective 2	3
EGEN-099	Engineering Co-op Preparation	0
Third Year		
BIME-499	Cooperative Education	Co-op
BIME-410	Systems Physiology I	3
BIME-440	Biomedical Signals and Systems Analysis	4
STAT-251	LAS Perspective 7A: Probability and Statistics for Engineers I	3
BIOG-142	Biocompatibility and the Immune System	3
	LAS Perspective 3	3
Fourth Year		
BIME-411	Systems Physiology II (WI)	3
BIME-407	Medical Device Engineering	3
ISEE-325	DOE for Biomedical Engineers	3
BIME-450	Numerical Analysis of Complex Biosystems	3
BIME-491	Quantitative Physiological Signal Analysis Lab	1
	LAS Immersion 1	3
BIME-499	Cooperative Education	Co-op
Fifth Year		
BIME-497, 498	Multidisciplinary Senior Design I, II	6
BIME-460	Dynamics and Control of Biomedical Systems	3
	Professional Electives	6
	Free Electives	6
	LAS Perspective 4	3
	LAS Immersion 2, 3	6
BIME-492	Systems Physiology Control and Dynamics Lab	1
Total Semester Credit Hours		**129**

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 Wellness courses.

Accelerated dual degree option

An accelerated dual degree option is available for outstanding undergraduate students who wish to earn both a bachelor's and a master's degree in approximately five years.

Biomedical engineering, BS degree/Science, technology and public policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIME-181	Introduction to Biomedical Engineering	1
BIME-182	Introduction to Programming for Biomedical Engineers	1
PHYS-211	University Physics	4
	First Year LAS Elective	3
CHMG-141, 142, 145, 164	General and Analytical Chemistry I, II and Labs	8
	First Year Writing Seminar	3
MATH-181, 182	Project-based Calculus I, II	8
ACSC-010	Year One: College Experience	0
	LAS Perspective 1	3
	First Year LAS Elective	3
	Wellness Education*	0
Second Year		
BIME-200	Introduction to Musculoskeletal Biomechanics	3
BIME-250	Biosystems Process and Analysis	3
BIOG-140, 141	Cell and Molecular Biology for Engineers I, II	6
MATH-231	Differential Equations	3
BIME-370	Biomaterials	3
BIME-391	Biomechanics/Biomaterials Lab	1
BIME-320	Fluid Mechanics	3
MATH-221	Multivariable and Vector Calculus	4
PHYS-212	University Physics II	4
	LAS Perspective 2	3
EGEN-099	Engineering Co-op Prep	0
Third Year		
BIME-499	Cooperative Education (fall)	Co-op
BIME-410	Systems Physiology I	3
BIME-440	Biomedical Signals and Systems Analysis	4
STAT-251	Probability and Statistics for Engineers I	3
BIOG-142	Biocompatibility and the Immune System	3
	LAS Perspective 3	3
Fourth Year		
BIME-411	Systems Physiology II	3
BIME-407	Biomedical Device Engineering	3
BIME-450	Analysis of Complex Biosystems	3
BIME-491	Quantitative Physiological Signal Analysis Lab	1
STSO-710	Science Technology Policy	3
PUBL-701	LAS Immersion 1: Graduate Policy	3
PUBL-702	LAS Immersion 2: Graduate Decision Analysis	3
	LAS Immersion 3: Public Policy Elective	3
ISEE-325	Design of Experiments for Biomedical Engineers	3
	BIME Professional Elective	3
	Free Elective	3
Fifth Year		
BIME-497, 498	Multidisciplinary Design I, II	6
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
	LAS Perspective 4	3
	Free Elective	3
	BIME Professional Elective	3
	Public Policy Elective	3
Choose one of the following:		6
	Thesis Research, Thesis	
	Graduate Electives, Comprehensive Exam	
Total Semester Credit Hours		**150**

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 Wellness courses.

Chemical Engineering, BS

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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 art 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. The special focus within the discipline on process engineering cultivates a systems perspective that makes chemical engineers extremely versatile and capable of handling a wide spectrum of technical problems.

Our curriculum prepares students in the traditional areas of chemical engineering while complementing and infusing these areas with insights and perspectives gleaned from faculty research areas and modern trends. The relevance of length scale in traditional and modern applications is emphasized as a key underpinning of chemical engineering analysis.

Educational objectives

Graduates of the bachelor of science 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.

Accreditation

The BS program in chemical engineering is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org/.

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 them with more depth in the chemical engineering field or 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. Mathematics and science courses, free electives, and liberal arts courses round out the curriculum.

Cooperative education

Students are required to complete 48 weeks of cooperative education, which is full-time, paid work experience that enables students to apply what they have learned to co-op positions in companies around the country and the world. This work experience, coupled with the professional networks created by our students and alumni, often translates into jobs 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.

Electives

Professional technical elective courses offered include:

- CHME-421 Interfacial Phenomena
- CHME-422 Introduction to Applied Rheology
- CHME-431 Advanced Separation Processes
- CHME-489 Special Topics: Advanced Reactor Design
- CHME-489 Special Topics: Biochemical Engineering

Curriculum

Chemical engineering, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHME-181, 182	Chemical Engineering Insights I, II	2
CHMG-141, 142	General and Analytical Chemistry I, II	6
CHMG-145, 146	General and Analytical Chemistry Lab I, II	2
MATH-181, 182	Project-based Calculus I, II	8
	First Year LAS Elective	3
	First Year Writing Seminar	3
PHYS-211	University Physics I	4
	LAS Perspective 1	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
CHME-230	Chemical Process Analysis	3
CHMO-231, 135	Organic Chemistry I and Lab	4
MATH-231	Differential Equations	3
	LAS Perspective 2, 3	6
CHME-310	Applied Thermodynamics	3
CHME-320	Continuum Mechanics I	3
CHME-391	Chemical Engineering Principles Lab	2
CHMI-351	Descriptive Inorganic Chemistry	3
MATH-221	Multivariable and Vector Calculus	4
EGEN-099	Engineering Co-op Preparation	0
Third Year		
	Cooperative Education	Co-op
CHME-330	Mass Transfer Operations	3
CHME-321	Continuum Mechanics II	3
CHME-301	Analytical Tech. for Chemical Engineers I	3
CHMA-231	Chemical Instrumental Analysis for Engineering	3
	LAS Perspective 4	3
	LAS Immersion 1	3
Fourth Year		
CHME-350	Multiple Scale Material Science	3
CHME-340	Reaction Engineering	4
CHME-302	Analytical Techniques for Chemical Engineers II	3
CHME-491	Chemical Engineering Processes Lab	2
	LAS Immersion 2, 3	6
	Cooperative Education	Co-op
Fifth Year		
CHME-451	Analysis of Multi-Scale Processes	3
CHME-492	Special Topics: Advanced Design Capstone	3
CHME-490	Design With Constraint	3
	Professional Technical Electives	9
PHYS-212	University Physics II	4
CHME-401	System Dynamics and Control	3
	Free Electives	6
Total Semester Credit Hours		**129**

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 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.

Chemical engineering, BS degree/Science, technology and public policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHME-181, 182	Chemical Engineering Insights I, II	2
CHMG-141, 142	General and Analytical Chemistry I, II	6
CHMG-145, 146	General and Analytical Chemistry Lab I, II	2
MATH-181, 182	Project-based Calculus I, II	8
	First Year LAS Elective	3
	First Year Writing Seminar	3
PHYS-211	University Physics I	4
	LAS Perspective 1	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
CHME-230	Chemical Process Analysis	3
CHMO-231, 235	Organic Chemistry I and Lab	4
MATH-231	Differential Equations	3
	LAS Perspective 2, 3	6
CHME-310	Applied Thermodynamics	3
CHME-320	Continuum Mechanics I	3
CHME-391	Chemical Engineering Principles Lab	2
CHMI-351	Descriptive Inorganic Chemistry	3
MATH-221	Multivariable and Vector Calculus	4
EGEN-099	Engineering Co-op Preparation	0
Third Year		
	Cooperative Education	Co-op
CHME-330	Mass Transfer Operations	3
CHME-321	Continuum Mechanics II	3
CHME-301	Analytical Tech. for Chemical Engineers I	3
CHMA-231	Chemical Instrumental Analysis for Engineering	3
	LAS Perspective 4	3
	Free Elective	3
Fourth Year		
CHME-350	Multiple Scale Material Science	3
CHME-340	Reaction Engineering	4
CHME-302	Analytical Techniques for Engineers II	3
CHME-491	Chemical Engineering Processes Lab	2
PUBL-701	Graduate Policy Analysis	3
PHYS-212	University Physics II	4
	LAS Immersion 1, 2	6
PUBL-702	Graduate Decision Analysis	3
STSO-710	Science and Technology Policy Seminar	3
	Free Elective	3
Fifth Year		
	Professional Electives	9
	LAS Immersion 3	3
PUBL-703	Program Evaluation and Research Design	3
CHME-401	System Dynamics and Control	3
CHME-451	Analysis of Multi-Scale Processes	3
CHME-492	Advanced Design Capstone	3
CHME-490	Design with Contraint	3
PUBL-700	Readings in Public Policy	3
Choose one of the following:		6
	Two Graduate Electives and Comprehensive Exam	
PUBL-799	Thesis	
Total Semester Credit Hours		**150**

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 Wellness courses.

Chemical engineering, BS degree/Materials science and engineering, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHME-181, 182	Chemical Engineering Insights I, II	2
CHMG-141, 145	General and Analytical Chemistry I and Lab	4
CHMG-142, 146	General and Analytical Chemistry II and Lab	4
MATH-181, 182	Calculus I, II	8
PHYS-211	University Physics I	4
ACSC-010	Year One: College Experience	1
	LAS Perspective 1	3
	LAS Elective	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
CHME-230	Chemical Process Analysis	3
CHMO-231, 235	Comprehensive Organic Chemistry I and Lab	4
MATH-231	Differential Equations	3
CHME-310	Applied Thermodynamics	3
CHME-320	Continuum Mechanics I	3
CHME-391	Chemical Engineering Principles Lab	2
CHMI-351	Inorganic Chemistry I	3
MATH-221	Multivariable and Vector Calculus	4
	LAS Perspective 2, 3	6
	Cooperative Education Preparation	0
	Wellness Education	0
Third Year		
	Cooperative Education	co-op
CHME-330	Mass Transfer Operations	3
CHME-321	Continuum Mechanics II	3
CHME-301	Analytical Tech. for Chemical Engineers I	3
CHMA-221	Instrumental Analysis	3
	LAS Perspective 4	3
	Free Elective	3
Fourth Year		
CHME-350	Multiple Scale Material Science	3
CHME-340	Reaction Engineering	4
CHME-302	Analytical Tech. for Chemical Engineers II	3
CHME-491	Chemical Engineering Process Lab	2
MTSE-601	Introduction to Materials Science	3
PHYS-211	University Physics II	4
MTSE-704	Experimental Techniques	3
	LAS Immersion 1	3
	Professional Technical Electives (MSE)	6
	Free Elective	3
Fifth Year		
CHME-451	Analysis of Multi-scale Processes	3
CHME-490	Design with Constraint	3
CHME-401	System Dynamics and Control	3
MTSE-705	Theoretical Methods	3
CHME-492	Advanced Design Capstone	3
	LAS Immersion 2, 3	6
	Professional Technical Elective (MSE)	3
	MTSE Elective	3
Choose one of the following:		9
MTSE-790	Research and Thesis	
	MTSE Electives	
Total Semester Credit Hours		**150**

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 Wellness courses.

Computer Engineering, BS

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Program overview

The computer engineering major focuses on the design and development of computer and computer-integrated systems, with due consideration to such engineering factors as function, performance, security, sustainability and cost. Computer engineers design and build these systems to meet application requirements with attention to the hardware-software interaction. The program spans topics from formal specifications to heuristic algorithm development; from systems architecture to computer design; from interface electronics to software development, especially real-time applications; and from computer networking to integrated circuit design and implementation.

As an engineering discipline, computer engineering emphasizes the careful adoption of design methodology and the application of sophisticated engineering tools. The intensive programming and laboratory work requirements ensure significant experience with modern facilities and up-to-date design tools.

The computer engineering department focuses on educating students in software, hardware and integration of systems. Faculty have expertise and research in the following areas and students who have a similar interest may choose to take professional electives in these areas as well: high performance computing, integrated circuits and systems, embedded systems and control, networks and security, and computer vision and machine intelligence.

The cooperative education program enables students to apply the principles and techniques of computer engineering to real industrial and societal problems and provides them with a stronger framework on which to build their academic courses. These co-op work periods alternate with academic semesters throughout the last three years of the program.

The faculty members of the computer engineering department are committed to quality engineering education and student success.

Educational objectives

The computer engineering department has established the following educational objectives for the computer engineering program, 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.

Accreditation

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

Principal field of study

For students matriculated in the interdisciplinary computer engineering program, the principal field of study is defined as all courses taken in the Kate Gleason College of Engineering and the departments of computer science and software engineering.

Curriculum

Computer engineering, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CMPE-110	Introduction to Computer Engineering	1
MATH-181, 182	Project-based Calculus I, II	8
CSCI-141, 142	Computer Science I, II	8
	First Year LAS Elective	3
	First Year Writing Seminar	3
CMPE-160	Digital Systems Design I	3
PHYS-211	University Physics I	4
	LAS Perspective 1, 2	6
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
CMPE-250	Assembly Language	3
MATH-190	Discrete Math for Computing	3
MATH-219	Multivariable Calculus	3
PHYS-212	University Physics II	4
SWEN-261	Introduction to Software Engineering	3
	LAS Perspective 3	3
CMPE-260	Digital Systems Design II	4
EEEE-281	Circuit Analysis I	3
MATH-231	Differential Equations	3
MATH-241	Linear Algebra I	3
EGEN-099	Engineering Co-op Preparation	0
Third Year		
CMPE-350	Computer Organization	3
EEEE-282	Circuit Analysis II	3
EEEE-381	Electronics I	3
CMPE-380	Applied Programming	3
	LAS Perspective 4	3
CMPE-499	Cooperative Education	Co-op
Fourth Year		
CMPE-499	Cooperative Education	Co-op
CMPE-460	Interface and Digital Electronics	4
CMPE-480	Digital Signal Processing	3
CMPE-550	Computer Architecture	3
MATH-251	Probability and Statistics I	3
	LAS Immersion 1	3
Fifth Year		
CMPE-495, 497	Senior Design Projects I	3
CMPE-496, 498	Senior Design Projects II	3
CMPE-570	Data and Communication Networks	3
CMPE-530	Digital IC Design	3
	LAS Immersion 2, 3	6
	Professional Electives	6
	Free Electives	6
Total Semester Credit Hours		**129**

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 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
MATH-181, 182	Project-Based Calculus I, II	8
CSCI-141, 142	Computer Science I, II	8
	First Year LAS Elective	3
	First Year Writing Seminar	3
CMPE-160	Digital Systems Design I	3
PHYS-211	University Physics I	4
	LAS Perspective 1, 2	6
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
CMPE-250	Assembly Language	3
MATH-190	Discret Math for Computing	3
MATH-219	Multivariable Calculus	3
PHYS-212	University Physics II	4
SWEN-261	Introduction to Software Engineering	3
	LAS Perspective 3	3
CMPE-260	Digital Systems Design II	4
EEEE-281	Circuit Analysis I	3
MATH-231	Differential Equations	3
MATH-241	Linear Algebra I	3
EGEN-099	Engineering Co-op Preparation	0
Third Year		
CMPE-350	Computer Organization	3
EEEE-282	Circuit Analysis II	3
EEEE-381	Electronics I	3
CMPE-380	Applied Programming	3
MATH-251	Probability and Statistics I	3
	LAS Perspective 4	3
CMPE-499	Cooperative Education	Co-op
Fourth Year		
CMPE-460	Interface and Digital Electronics	4
CMPE-480	Digital Signal Processing	3
CMPE-550	Computer Architecture	3
CMPE-670	Data and Communication Networks	3
CMPE-795	Computer Engineering Graduate Seminar	0
	LAS Immersion 1, 2	6
CMPE-495, 497	Senior Design Projects I	3
	Professional Electives	6
CMPE-630	Digital IC Design	3
	Restricted Core for BS/MS	3
Fifth Year		
CMPE-496, 498	Senior Design Projects II	3
CMPE-610	Analytical Topics in Computer Engineering	3
	Graduate Electives	9
	LAS Immersion 3	3
	Free Elective	3
Choose one of the following:		9
CMPE-790	Thesis	
CMPE-791	Graduate Project, Project Focused Electives	
Total Semester Credit Hours		**150**

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 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
CSCI-141, 142	Computer Science I, II	8
CSCI-181, 182	Project-based Calculus I, II	8
CMPE-160	Digital Systems Design I	3
PHYS-211	University Physics I	4
ACSC-010	Year One: College Experience	0
	First Year Writing Seminar	3
	First Year LAS Elective	3
	LAS Perspective 2, 3	6
	Wellness Education*	
Second Year		
CMPE-250	Assembly Language	3
SWEN-261	Introduction to Software Engineering	3
MATH-219	Multivariable Calculus	3
MATH-190	Discrete Math	3
PHYS-212	University Physics II	4
CMPE-260	Digital Systems Design II	4
MATH-231	Differential Equations	3
MATH-241	Linear Algebra I	3
EEEE-281	Circuit Analysis I	3
	LAS Perspective 1	3
EGEN-99	Co-op Preparation Seminar	0
CMPE-499	Cooperative Education (optional, summer)	Co-op
Third Year		
CMPE-350	Computer Organization	3
CMPE-380	Applied Programming	3
EEEE-381	Electronics I	3
EEEE-282	Circuit Analysis II	3
	LAS Perspective 4	3
CMPE-499	Cooperative Education (fall, spring, summer)	Co-op
Fourth Year		
MATH-251	Probability and Statistics I	3
CMPE-480	Digital Signal Processing	3
CMPE-550	Computer Architecture	3
CMPE-570	Data and Communication Networks	3
CMPE-460	Interface and Digital Electronics	4
PUBL-701	LAS Immersion I: Graduate Policy Analysis	3
PUBL-702	LAS Immersion 2: Graduate Decision Analysis	
	Professional Elective	3
	Free Electives	6
Fifth Year		
CMPE-530	Digital IC Design	3
CMPE-495/497, 496/498	Senior Design Projects I, II	6
	Professional Elective	3
PUBL-700	Graduate Readings in Public Policy	3
	Graduate Electives	6
PUBL-710	Graduate Seminar in Science Technology Policy	3
	LAS Immersion 3: Graduate Elective	3
PUBL-703	Seminar to Evaluate Research Design	3
Choose one of the following:		6
	Thesis	
	Graduate Electives, Comprehensive Exam	
Total Semester Credit Hours		**150**

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 Wellness courses.

Electrical Engineering, BS

http://www.rit.edu/kgcoe/eme/
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Program overview

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.

The major 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, co-op 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 (EEEE-105) 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 adviser. 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.

Accreditation

The BS in electrical engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

Plan of study

The first two years of the curriculum are devoted to establishing a foundation in mathematics and the physical science, 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.

Options

Students may develop a focus area in one of four 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 option–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 option–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 option–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 option–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.

Curriculum

Electrical engineering, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181, 182	Project-Based Calculus I, II	8
CHMG-131	General Chemistry for Engineers	3
	First Year LAS Elective	3
EEEE-105	Freshman Practicum	1
	First Year Writing Seminar	3
	LAS Perspective 1, 2, 3	9
PHYS-211	University Physics I	4
EEEE-120	Digital Systems I	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-221	Multivariable and Vector Calculus	4
PHYS-212	University Physics II	4
CMPR-271	Computational Problem Solving for Engineers	3
EEEE-281, 282	Circuits I, II	6
	LAS Perspective 4	3
MATH-231	Differential Equations	3
EEEE-260	Semiconductor Devices	3
EEEE-220	Digital Systems II	3
	Restricted Elective	3
EGEN-099	Engineering Co-op Preparation	0
Third Year		
MATH-381	Complex Variables	3
EEEE-374	Electromagnetic Fields and Transmission Lines	4
EEEE-353	Linear Systems	4
EEEE-380	Digital Electronics	3
	LAS Immersion 1	3
	Cooperative Education (fall and summer)	Co-op
Fourth Year		
MATH-251	Probability and Statistics I	3
EEEE-420	Embedded Systems Design	3
EEEE-414	Classical Control	3
EEEE-480	Analog Electronics	4
	Free Elective	3
Fifth Year		
EEEE-484	Communication Systems (WI)	3
EEEE-497	Senior Design I	3
EEEE-483	Mechatronics	3
	Professional Electives	9
	LAS Immersion 2, 3	6
EEEE-498	Senior Design II	3
	Free Elective	3
Total Semester Credit Hours		**129**

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 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		
EEEE-105	Freshman Practicum	1
MATH-181, 182	Project-Based Calculus I, II	8
CHMG-131	General Chemistry for Engineers	3
	First Year LAS Elective	3
	First Year Writing Seminar	3
	LAS Perspective 1, 2, 3	9
PHYS-211	University Physics I	4
EEEE-120	Digital Systems I	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-221	Multivariable and Vector Calculus	4
PHYS-212	University Physics II	4
CMPR-271	Computational Problem Solving for Engineers	3
EEEE-281, 282	Circuits I, II	6
	LAS Perspective 4	3
MATH-231	Differential Equations	3
EEEE-260	Semiconductor Devices	3
EEEE-220	Digital Systems II	3
	Restricted Elective	3
EGEN-099	Engineering Co-op Preparation	0
Third Year		
	Cooperative Education (fall and summer)	Co-op
MATH-381	Complex Variables	3
EEEE-374	Electromagnetic Fields and Transmission Lines	4
EEEE-353	Linear Systems	4
EEEE-380	Digital Electronics	3
	LAS Immersion I	3
Fourth Year		
MATH-251	Probability and Statistics I	3
EEEE-420	Embedded Systems Design	3
EEEE-414	Classical Control	3
EEEE-480	Analog Electronics	4
	Free Elective	3
EEEE-484	Communication Systems (WI)	3
EEEE-483	Mechatronics	3
	LAS Immersion 2	3
EEEE-602	Random Signals and Noise	3
EEEE-707	Engineering Analysis	3
EEEE-497	Senior Design I	3
Fifth Year		
EEEE-498	Senior Design II	3
	Professional Electives	9
EEEE-709	Advanced Engineering Math	3
	LAS Immersion 3	3
	Graduate Electives	9
EEEE-790	MS Thesis	6
	Free Elective	3
Total Semester Credit Hours		**150**

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 Wellness courses.

Electrical engineering, BS degree/Science, technology and public policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181, 182	Project-based Calculus I, II	4
CHMG-131	General Chemistry of Engineers	3
PHYS-211	University Physics I	4
EEEE-120	Digital Systems I	3
	First Year LAS Elective	3
EEEE-105	Freshman Practicum	1
	LAS Perspective 1, 2, 3	9
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-221	Multivariable and Vector Calculus	4
PHYS-212	University Physics II	4
CPSE-211	Computational Problem Solving for Engineers	3
EEEE-281, 282	Circuits I, II	6
MATH-231	Differential Equations	3
EEEE-260	Semiconductor Devices	3
EEEE-220	Digital Systems II	3
	Restricted Science Elective	3
	LAS Perspective 4	
Third Year		
MATH-381	Complex Variables	3
EEEE-374	EM Fields and Transmission Lines	4
EEEE-353	Linear Systems	4
EEEE-380	Digital Electronics	3
	Free Elective	3
	Cooperative Education (spring)	co-op
Fourth Year		
EEEE-420	Embedded Systems Design	3
EEEE-414	Classical Control	3
EEEE-480	Analog Electronics	4
MATH-251	Probability and Statistics I	3
PUBL-701	LAS Immersion 1: Graduate Policy Analysis	3
PUBL-702	LAS Immersion 2: Graduate Decision Analysis	3
	Professional Electives	6
	Free Elective	6
Fifth Year		
EEEE-484	Communication Systems (WI)	3
EEEE-497, 498	Senior Design I, II	6
EEEE-483	Mechatronics	3
PUBL-700	Readings in Public Policy	3
	LAS Immersion 3: Public Policy Elective	3
	Public Policy Electives	6
STSO-710	Science and Technology Policy Seminar	3
PUBL-703	Evaluation and Research Design	3
Choose one of the following:		6
	Thesis Research	
	Comprehensive Exam, Graduate Electives	
Total Semester Credit Hours		**XXX**

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 Wellness courses.

Industrial Engineering, BS

http://www.rit.edu/kgcoe/ise/

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Program overview

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.

Because of the flexible nature of the major, the industrial engineering student can gain breadth of knowledge in many different areas of industrial engineering, including, but not limited to, advanced manufacturing, distribution/logistics, ergonomics/human factors, modeling/simulation, and sustainable design and development. Students may choose free and professional electives for this purpose. Faculty are committed to high-quality engineering education as well as the program's educational objectives.

The industrial engineering 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.

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 an 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.

Educational objectives

Faculty from the department of industrial and systems engineering, in conjunction with its constituents, have 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.

Accreditation

The BS program in industrial engineering is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

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 a 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

A number of accelerated dual degree options are available that enable students to combine a BS in industrial engineering with a variety of master's degrees, allowing students to earn both degrees in approximately five years of study.

Curriculum

Industrial engineering, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	First Year LAS Elective	3
ISEE-120	Fundamentals of Industrial Engineering	3
CHMG-131	General Chemistry for Engineers	3
MATH-181, 182	Project-Based Calculus I, II	8
	LAS Perspective 1, 2	6
ISEE-140	Materials Processing	3
PHYS-211	University Physics I	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
ISEE-200	Computing for Engineers	3
MATH-221	Multivariable and Vector Calculus	4
PHYS-212	University Physics II	4
STAT-251	Probability and Statistics for Engineers I	3
ISEE-325	Engineering Statistics and Design of Experiments	3
	LAS Perspective 3, 4	6
MECE-200	Fundamentals of Mechanics	4
MATH-233	Linear Systems and Differential Equations	4
ISEE-345	Engineering Economy	3
Third Year		
ISEE-499	Cooperative Education (fall and summer)	Co-op
ISEE-301	Operations Research	4
ISEE-350	Engineering Management	3
ISEE-330	Ergonomics and Human Factors	4
ISEE-323	Facilities Planning	3
MECE-304	Fundamentals of Materials Science	2
MECE-306	Materials Science with Applications Laboratory	1
Fourth Year		
ISEE-420	Production Planning and Scheduling	3
ISEE-560	Statistical Quality Control	3
ISEE-510	Systems Simulation	3
	Professional Elective	3
	LAS Immersion 1	3
ISEE-499	Cooperative Education (spring and summer)	Co-op
Fifth Year		
ISEE-561	Linear Regression Analysis	3
ISEE-497, 498	Senior Design I, II	6
	Professional Electives	9
	Free Electives	6
	LAS Immersion 2, 3	6
Total Semester Credit Hours		**129**

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 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		
	First Year LAS Elective	3
ISEE-120	Fundamentals of Industrial Engineering	3
CHMG-131	General Chemistry for Engineers	3
MATH-181, 182	Project-Based Calculus I, II	8
	LAS Perspective 1, 2 (WI)	6
ISEE-140	Materials Processing	3
PHYS-211	University Physics I	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
ISEE-200	Computing for Engineers	3
MATH-221	Multivariable Calculus	4
PHYS-212	University Physics II	4
STAT-251	Probability and Statistics for Engineers I	3
ISEE-325	Engineering Statistics and Design of Experiments	3
	LAS Perspective 3, 4	6
MECE-200	Fundamentals of Mechanics	4
MATH-233	Linear Systems and Differential Equations	4
ISEE-345	Engineering Economy	3
EGEN-099	Engineering Co-op Preparation	0
ISEE-499	Cooperative Education (summer)	Co-op
Third Year		
ISEE-499	Cooperative Education (fall)	Co-op
ISEE-301	Operations Research	4
ISEE-350	Engineering Management	3
ISEE-330	Ergonomics and Human Factors	4
ISEE-323	Facilities Planning	3
MECE-304	Fundamentals in Materials Science	2
MECE-306	Materials Science with Applications Laboratory	1
Fourth Year		
ISEE-420	Production Planning and Scheduling	3
ISEE-560	Applied Statistical Quality Control	3
ISEE-510	Systems Simulation	3
	Free Electives	6
	Professional Electives	12
ISEE-760	Design of Experiments	3
	LAS Immersion 1, 2	6
ISEE-499	Cooperative Education (summer)	Co-op
Fifth Year		
ISEE-497, 498	Senior Design I, II	6
ISEE-561	Linear Regression Analysis	3
ISEE-771	Engineering of Systems I	3
	Graduate Electives	12
	LAS Immersion 3	3
ISEE-792	Engineering Capstone	3
Total Semester Credit Hours		**150**

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 Wellness courses.

Industrial engineering, BS degree/Industrial and systems engineering, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	First Year LAS Elective	3
ISEE-120	Fundamentals of Industrial Engineering	3
CHMG-131	General Chemistry for Engineers	3
MATH-181, 182	Project-Based Calculus I, II	8
	LAS Perspective 1, 2 (WI)	6
ISEE-140	Materials Processing	3
PHYS-211	University Physics I	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
ISEE-200	Computing for Engineers	3
MATH-221	Multivariable Calculus	4
PHYS-212	University Physics II	4
STAT-251	Probability and Statistics for Engineers I	3
ISEE-325	Engineering Statistics and Design of Experiments	3
	LAS Perspective 3, 4	6
MECE-200	Fundamentals of Mechanics	4
MATH-233	Linear Systems and Differential Equations	4
ISEE-345	Engineering Economy	3
EGEN-099	Engineering Co-op Preparation	0
ISEE-499	Cooperative Education (summer)	Co-op
Third Year		
ISEE-499	Cooperative Education (fall)	Co-op
ISEE-301	Operations Research	4
ISEE-350	Engineering Management	3
ISEE-330	Ergonomics and Human Factors	4
ISEE-323	Facilities Planning	3
MECE-304	Fundamentals of Materials Science	2
MECE-306	Materials Science and Applications Laboratory	1
Fourth Year		
ISEE-420	Production Planning and Scheduling	3
ISEE-560	Statistical Quality Control	3
ISEE-510	Systems Simulation	3
	Professional Electives	12
	Free Electives	6
ISEE-760	Design of Experiments	3
	LAS Immersion 1, 2	6
ISEE-499	Cooperative Education (summer)	Co-op
Fifth Year		
ISEE-497, 498	Senior Design I, II	6
ISEE-561	Linear Regression Analysis	3
ISEE-771	Engineering of Systems I	3
	Graduate Electives	9
	Thesis	6
	LAS Immersion 3	3
Total Semester Credit Hours		**150**

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 Wellness courses.

Industrial engineering, BS degree/Sustainable engineering, ME degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	First Year LAS Elective	3
ISEE-120	Fundamentals of Industrial Engineering	3
CHMG-131	General Chemistry for Engineers	3
MATH-181, 182	Project-Based Calculus I, II	8
	LAS Perspective 1, 2 (WI)	6
ISEE-140	Materials Processing	3
PHYS-211	University Physics I	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
ISEE-200	Computing for Engineers	3
MATH-221	Multivariable and Vector Calculus	4
PHYS-212	University Physics II	4
STAT-251	Probability and Statistics for Engineers I	3
ISEE-325	Engineering Statistics and Design of Experiments	3
	LAS Perspective 3, 4	6
MECE-200	Fundamentals of Mechanics	4
MATH-233	Linear Systems and Differential Equations	4
ISEE-345	Engineering Economy	3
EGEN-099	Engineering Co-op Preparation	0
ISEE-499	Cooperative Education (summer)	Co-op
Third Year		
ISEE-499	Cooperative Education (fall)	Co-op
ISEE-301	Operations Research	4
ISEE-350	Engineering Management	3
ISEE-330	Ergonomics and Human Factors	4
ISEE-323	Facilities Planning	3
MECE-304	Fundamentals of Materials Science	2
MECE-306	Materials Science and Applications Laboratory	1
ISEE-499	Cooperative Education (summer)	Co-op
Fourth Year		
ISEE-420	Production Planning and Scheduling	3
ISEE-560	Applied Statistical Quality Control	3
ISEE-510	Systems Simulation	3
	Professional Electives	12
	Engineering Elective	3
	Free Electives	6
	LAS Immersion 1, 2	6
ISEE-499	Cooperative Education (summer)	Co-op
Fifth Year		
ISEE-497, 498	Senior Design I, II	6
ISEE-561	Linear Regression Analysis	3
ISEE-771	Engineering of Systems I	3
ISEE-785	Fundamentals of Sustainable Engineering	3
MECE-629	Renewable Energy Systems	3
	LAS Immersion 3	3
ISEE-786	Lifecycle Assessment	3
	Technology Elective	3
ISEE-792	Engineering Capstone	3
Total Semester Credit Hours		**150**

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 Wellness courses.

Industrial engineering, BS degree/Sustainable engineering, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	First Year LAS Elective	3
ISEE-120	Fundamentals of Industrial Engineering	3
CHMG-131	General Chemistry for Engineers	3
MATH-181, 182	Project-Based Calculus I, II	8
	LAS Perspective 1, 2 (WI)	6
ISEE-140	Materials Processing	3
PHYS-211	University Physics I	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
ISEE-200	Computing for Engineers	3
MATH-221	Multivariable and Vector Calculus	4
PHYS-212	University Physics II	4
STAT-251	Probability and Statistics for Engineers I	3
ISEE-325	Engineering Statistics and Design of Experiments	3
	LAS Perspective 3, 4	6
MECE-200	Fundamentals of Mechanics	4
MATH-233	Linear Systems and Differential Equations	4
ISEE-345	Engineering Economy	3
EGEN-099	Engineering Co-op Preparation	0
ISEE-499	Cooperative Education (summer)	Co-op
Third Year		
ISEE-499	Cooperative Education (fall)	Co-op
ISEE-301	Operations Research	4
ISEE-350	Engineering Management	3
ISEE-330	Ergonomics and Human Factors	4
ISEE-323	Facilities Planning	3
MECE-304	Fundamentals of Materials Science	2
MECE-306	Materials Science and Applications Laboratory	1
ISEE-499	Cooperative Education (summer)	Co-op
Fourth Year		
ISEE-420	Production Planning and Scheduling	3
ISEE-560	Applied Statistical Quality Control	3
ISEE-510	Systems Simulation	3
	Professional Electives	9
	Free Electives	6
ISEE-795, 796	Graduate Seminar I, II	0
	Technology Elective	3
	Social Context Elective	3
	LAS Immersion 1, 2	6
ISEE-499	Cooperative Education (summer)	Co-op
Fifth Year		
ISEE-497, 498	Senior Design I, II	6
ISEE-561	Linear Regression Analysis	3
ISEE-771	Engineering of Systems I	3
ISEE-785	Fundamentals of Sustainable Engineering	3
MECE-629	Renewable Energy Systems	3
	LAS Immersion 3	3
ISEE-786	Lifecycle Assessment	3
ISEE-790	Thesis	6
Total Semester Credit Hours		**150**

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 Wellness courses.

Industrial engineering, BS degree/Engineering management, ME degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	First Year LAS Elective	3
ISEE-120	Fundamentals of Industrial Engineering	3
CHMG-131	General Chemistry for Engineers	3
MATH-181, 182	Project-Based Calculus I, II	8
	LAS Perspective 1, 2 (WI)	6
ISEE-140	Materials Processing	3
PHYS-211	University Physics I	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
ISEE-200	Computing for Engineers	3
MATH-221	Multivariable and Vector Calculus	4
PHYS-212	University Physics II	4
STAT-251	Probability and Statistics for Engineers I	3
ISEE-325	Engineering Statistics and Design of Experiments	3
	LAS Perspective 3, 4	6
MECE-200	Fundamentals of Mechanics	4
MATH-233	Linear Systems and Differential Equations	4
ISEE-345	Engineering Economy	3
EGEN-099	Engineering Co-op Preparation	0
ISEE-499	Cooperative Education (summer)	Co-op
Third Year		
ISEE-499	Cooperative Education (fall)	Co-op
ISEE-301	Operations Research	4
ISEE-350	Engineering Management	3
ISEE-330	Ergonomics and Human Factors	4
ISEE-323	Facilities Planning	3
MECE-304	Fundamentals of Materials Science	2
MECE-306	Materials Science and Applications Laboratory	1
ISEE-499	Cooperative Education (summer)	Co-op
Fourth Year		
ISEE-420	Production Planning and Scheduling	3
ISEE-560	Statistical Quality Control	3
ISEE-510	Systems Simulation	3
	Professional Electives	9
	Free Electives	6
ISEE-760	Design of Experiments	3
	Professional/Engineering Management Elective	3
	LAS Immersion 1, 2	6
ISEE-499	Cooperative Education (summer)	Co-op
Fifth Year		
ISEE-497, 498	Senior Design I, II	6
ISEE-561	Linear Regression Analysis	3
ISEE-771	Engineering of Systems I	3
ISEE-750	Systems and Project Management	3
ACCT-794	Cost Management in Technical Organizations	3
	Engineering Management Electives	6
	LAS Immersion 3	3
ISEE-792	Engineering Capstone	3
Total Semester Credit Hours		**150**

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 Wellness courses.

Industrial engineering, BS degree/Applied statistics, MS degree

The BS/MS degree in industrial engineering and applied statistics is no longer accepting new students. Currently matriculated students are not affected.

Industrial engineering, BS degree/Applied statistics, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	First Year LAS Elective	3
ISEE-120	Fundamentals of Industrial Engineering	3
CHMG-131	General Chemistry for Engineers	3
MATH-181, 182	Project-based Calculus I, II	8
	LAS Foundation 1, 2 (WI)	6
ISEE-140	Materials Processing	3
PHYS-211	University Physics I	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
ISEE-200	Computing for Engineers	3
MATH-221	Multivariable Calculus	4
PHYS-212	University Physics II	4
CQAS-251	Probability and Statistics for Engineers I	3
CQAS-252	Probability and Statistics for Engineers II	3
	LAS Perspective 3, 4	6
MECE-200	Fundamentals of Mechanics	4
MATH-233	Linear Systems and Differential Equations	4
ISEE-345	Engineering Economy	3
EGEN-099	Engineering Co-op Preparation	0
ISEE-499	Cooperative Education (summer)	Co-op
Third Year		
ISEE-499	Cooperative Education (summer)	Co-op
ISEE-301	Operations Research	4
ISEE-350	Engineering Management	3
ISEE-330	Ergonomics and Human Factors (WI)	4
ISEE-323	Facilities Planning	3
MECE-304	Fundamentals in Material Science	2
MECE-306	Materials Science with Applications Laboratory	1
Fourth Year		
ISEE-420	Production Planning and Scheduling	3
ISEE-421	Design and Analysis of Production Systems	3
ISEE-510	Systems Simulation	3
CQAS-721, 722	Theory of Statistics I, II	6
CQAS-741	Regression Analysis	3
CQAS-611	Statistical Software	3
	Professional Elective	3
CQAS-701	Foundations of Experimental Design	3
	LAS Immersion 1, 2	6
	Free Elective	3
CQAS-795	Graduate Seminar	0
ISEE-499	Cooperative Education	Co-op
Fifth Year		
ISEE-497, 498	Senior Design I, II	6
ISEE-460	Statistical Quality Control	3
	Professional Elective	3
	Graduate Electives	9
	LAS Immersion 3	3
	Free Elective	3
CQAS-792	Capstone	3
Total Semester Credit Hours		**150**

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 Wellness courses.

Industrial engineering, BS degree/Science, Technology and Public Policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ISEE-120	Fundamentals of Industrial Engineering	3
CHMG-131	College Chemistry	3
MATH-181, 182	Project-based Calculus I, II	8
ISEE-140	Materials Processing	3
PHYS-211	University Physics	4
	LAS Perspective 1, 2	6
	First Year Writing Seminar	3
	First Year LAS Elective	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
ISEE-200	Computing for Engineers	3
ISEE-345	Engineering Economy	3
MATH-221	Multivariable and Vector Calculus	4
MATH-233	Linear Systems and Differential Equations	4
CQAS-251, 252	Probability and Statistics for Engineers I, II	6
PHYS-212	University Physics II	4
MECE-200	Fundamentals of Mechanics	4
	LAS Perspective 3, 4	6
Third Year		
	Cooperative Education (fall)	co-op
ISEE-301	Operations Research	4
ISEE-350	Engineering Management	3
ISEE-330	Ergonomics and Human Factors (WI)	4
ISEE-323	Facilities Planning	3
MECE-304	Fundamentals of Materials Science	2
MECE-306	Materials Science Applications Lab	1
Fourth Year		
ISEE-420	Production Planning and Scheduling	3
ISEE-560	Statistical Quality Control	3
PUBL-701	LAS Immersion I: Graduate Policy Analysis	3
ISEE-510	Systems Simulation	3
ISEE-421	D/A Production Systems	3
PUBL-702	LAS Immersion 2: Graduate Decision Analysis	3
STSO-710	Science and Technology Policy Seminar	3
PUBL-703	Evaluation and Research Design	3
	Professional Elective	3
	Free Electives	6
Fifth Year		
ISEE-561	Linear Regression Analysis	3
ISEE-497, 498	Senior Design I, II	6
PUBL-700	Readings in Public Policy	3
	LAS Immersion 3: Public Policy Elective	3
	Public Policy Electives	6
	Professional Electives	6
Choose one of the following:		6
	Thesis Research	
	Comprehensive Exam, Graduate Electives	
Total Semester Credit Hours		**XXX**

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 Wellness courses.

Additional information

Facilities

The industrial and systems engineering department is located in the James E. Gleason Building and houses several state-of-the-art laboratories, including the Brinkman Machine Tools and Manufacturing Lab, the Metrology and Rapid Prototyping Lab, the Toyota Production Systems Lab, the Occupational Ergonomics and Biomechanics Lab, the Advanced Systems Integration Lab, the Sustainable Engineering Research Group (SERG) Lab, and the Print Research and Image Systems Modeling (PRISM) Lab. Ample computing facilities reside within each of these specialized labs, as well as a dedicated PC computer lab. These labs offer an extensive library of software to support industrial engineering course work, project work, and research, including conventional word processing, spreadsheet, and presentation applications (e.g., Microsoft Office), database management (e.g., Microsoft ACCESS), data acquisition (e.g., Lab View), statistical analysis (e.g., Minitab, SAS), facilities layout (e.g., AutoCad, Factory Flow, Factory Plan, LayoutIQ), manufacturing (e.g., MasterCam Cambridge Engineering Selector Software), optimization (e.g., ILOG OPL-CPLEX, LINDO, KNITRO, AMPL, Gurobi, Mathematica), systems simulation software (e.g., Solver, Arena, Promodel), biomechanics (3DSSPP), and lifecycle assessment and costing tools (e.g., SimaPro, CES Eco-Audit).

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

Integrated Electronics, Certificate

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Program overview

The certificate in integrated electronics offers a comprehensive curriculum on the design of state-of-the-art electronic circuits. 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 courses focusing on issues and trade-offs involved in widely used circuits. In addition, the certificate offers an advanced course to instill an 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.

At least five years of working knowledge with electronics and some college-level math and science (e.g., algebra and physics) are required for admission. Applications are reviewed by the program director. Courses in this certificate are available online.

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	3
EEEE-726	Mixed Signal Design	3
Total Semester Credit Hours		**12**

Mechanical Engineering, BS

http://www.rit.edu/kgcoe/mechanical/
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Program overview

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 major 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 major 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.

Accreditation

The BS in mechanical engineering major is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

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.

Curriculum

Mechanical engineering, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	First Year Writing Seminar	3
MATH-181, 182	LAS Perspective 7A, 7B: Project-based Calculus I, II	8
	LAS Perspective 1, 2	6
MECE-102	Engineering Mechanics Lab	3
MECE-104	Engineering Design Tools	3
MECE-305, 306	Materials Science with Applications and Lab	4
	First Year LAS Elective	3
MECE-103	Statics	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
	LAS Perspective 3, 4	6
EEEE-281	Circuits I and Lab	3
MECE-211	Engineering Measurements Lab	2
MATH-219	Multivariable Calculus	3
MECE-205	Dynamics	3
MECE-110	Thermodynamics I	3
MECE-210	Fluid Mechanics I	3
	LAS Immersion 1	3
MATH-231	Differential Equations	3
MECE-203, 204	Strength of Materials I and Lab	4
EGEN-099	Cooperative Education Preparation	0
Third Year		
MECE-499	Cooperative Education (fall or spring)	Co-op
MECE-348	Contemporary Issues	3
MATH-326	Boundary Value Problems	3
MECE-317	Numerical Methods	3
PHYS-212	LAS Perspective 5: University Physics II	4
	LAS Electives	6
MECE-499	Cooperative Education (summer)	Co-op
Fourth Year		
MECE-499	Cooperative Education (fall or spring)	Co-op
MATH-241	Linear Algebra	3
MECE-320	System Dynamics	3
MECE-310	Heat Transfer I	3
MECE-301	Engineering Applications Lab	2
MECE-3xx	ME Extended Core Elective	3
MECE-499	Cooperative Education (summer)	Co-op
Fifth Year		
MECE-497, 498	Senior Design I, II	6
	ME Extended Core or Applied Elective	3
	ME Applied Electives	6
STAT-205	Applied Statistics	3
	LAS Immersion 2, 3	6
	Free Electives	6
Total Semester Credit Hours		**129**

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

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		
	First Year Writing Seminar	3
MATH-181, 182	LAS Perspective 7A, 7B: Project-based Calculus I, II	8
	LAS Perspective 1, 2	6
MECE-102	Engineering Mechanics Lab	3
MECE-104	Engineering Design Tools	3
	First Year LAS Elective	3
MECE-103	Statics	3
MECE-305, 306	Material Science with Applications and Lab	4
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
	LAS Perspective 3, 4	6
MATH-219	Multivariable Calculus	3
MECE-205	Dynamics	3
MECE-110	Thermodynamics I	3
MECE-210	Fluid Mechanics I	3
EEEE-281	Circuits I and Lab	3
MECE-211	Engineering Measurements Lab	2
MATH-231	Differential Equations	3
MECE-203, 204	Strength of Materials I and Lab	4
	LAS Immersion 1	3
EGEN-099	Cooperative Education Preparation	0
Third Year		
	LAS Perspective 6	3
	Approved Science Elective	3
MATH-326	Boundary Value Problems	3
MATH-241	Linear Algebra	3
MECE-348	Contemporary Issues	3
MECE-317	Numerical Methods	3
MECE-310	Heat Transfer	3
	Extended Core Elective	3
MECE-499	Cooperative Education (fall, spring, or summer)	Co-op
Fourth Year		
MECE-707	Engineering Analysis	3
MECE-301	Engineering Applications Lab	2
MECE-320	System Dynamics	3
PHYS-212	University Physics II	4
	Graduate Focus Area Course	3
STAT-205	Applied Statistics	3
	Free Elective	3
	Graduate Electives	6
MECE-499	Cooperative Education (summer)	Co-op
Fifth Year		
MECE-497, 498	Senior Design I, II	6
	LAS Immersion 2, 3	6
MECE-709	Advanced Engineering Mathematics	3
	Free Elective	3
	Graduate Focus Area Courses	6
	Graduate Elective	3
MECE-790	Thesis	6
Total Semester Credit Hours		**150**

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

Mechanical engineering, BS/ME degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	First Year Writing Seminar	3
MATH-181, 182	LAS Perspective 7A, 7B: Project-based Calculus I, II	8
	LAS Perspective 1, 2	6
MECE-102	Engineering Mechanics Lab	3
MECE-104	Engineering Design Tools	3
	First Year LAS Elective	3
MECE-305, 306	Material Science and Applications and Lab	4
MECE-103	Statics	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
	LAS Perspective 3, 4	6
MATH-219	Multivariable Calculus	3
MECE-205	Dynamics	3
MECE-110	Thermodynamics I	3
	LAS Immersion 1	3
MECE-210	Fluid Mechanics I	3
MATH-231	Differential Equations	3
EEEE-281	Circuits I and Lab	3
MECE-211	Engineering Measurements Lab	2
MECE-203, 204	Strength of Materials I and Lab	4
EGEN-099	Cooperative Education Preparation	0
Third Year		
	Free Elective	3
MATH-326	Boundary Value Problems	3
MECE-348	Contemporary Issues	3
MECE-317	Numerical Methods	3
MATH-241	Linear Algebra	3
	ME Extended Core Elective	3
MECE-310	Heat Transfer I	3
MECE-499	Cooperative Education (summer, fall, spring)	Co-op
Fourth Year		
MECE-707	Engineering Analysis	3
	Graduate Elective	3
MECE-320	System Dynamics	3
MECE-301	Engineering Applications Lab	2
MECE-730	Design Project Leadership	3
PHYS-212	University Physics II	4
STAT-205	Applied Statistics	3
	Science Electives	6
	Graduate Focus Areas Course	3
	Free Elective	3
MECE-499	Cooperative Education (summer)	0
Fifth Year		
MECE-709	Advanced Engineering Mathematics	3
	LAS Immersion 2, 3	6
	Free Elective	3
MECE-497, 498	Senior Design I, II	6
	Graduate Focus Area Courses	6
	Graduate Electives	9
Total Semester Credit Hours		**150**

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

Mechanical engineering, BS degree/Science, technology and public policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	First Year Writing Seminar	3
MATH-181	LAS Perspective 7A: Project-based Calculus I	4
	LAS Perspective 1, 2	6
MECE-305, 306	Material Science with Applications and Lab	4
MECE-102	Engineering Mechanics Lab	3
MECE-104	Engineering Design Tools	3
	First Year LAS Elective	3
MATH-182	LAS Perspective 7B: Project-based Calculus II	4
MECE-103	Statics	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
	LAS Perspective 3, 4	6
MECE-210	Fluid Mechanics I	3
EEEE-281	Circuits I and Lab	3
MECE-211	Engineering Measurements Lab	2
MATH-219	Multivariable Calculus	3
MECE-205	Dynamics	3
MECE-110	Thermodynamics I	3
MATH-231	Differential Equations	3
MECE-203, 204	Strength of Materials I and Lab	4
	Free Elective	3
EGEN-099	Cooperative Education Preparation	0
Third Year		
PHYS-212	LAS Perspective 5: University Physics II	4
	Science Elective	3
MECE-317	Numerical Methods	3
MECE-320	System Dynamics	3
MATH-326	Boundary Value Problems	3
MECE-499	Cooperative Education (spring or fall and summer)	Co-op
Fourth Year		
STAT-205	Applied Statistics	3
MATH-241	Linear Algebra	3
MECE-348	Contemporary Issues	3
MECE-310	Heat Transfer I	3
MECE-301	Engineering Applications Lab (WI)	2
PUBL-701	Graduate Policy Analysis	3
PUBL-702	Graduate Decision Analysis	3
STSO-710	Science and Technology Policy Seminar	3
	Extended Core Elective	3
	Immersion 1, 2	6
	Elective	3
	LAS Perspective 6	3
MECE-499	Cooperative Education (summer)	co-op
Fifth Year		
PUBL-700	Readings in Public Policy	3
	LAS Immersion 3	3
MECE-497, 498	Senior Design I, II	6
	Free Elective	3
	Extended Core or Applied Elective	3
	Applied Electives	6
PUBL-703	Program Evaluation and Research Design	3
Choose one of the following:		6
PUBL-799	Thesis	
	Two Graduate Electives and Comprehensive Exam	
Total Semester Credit Hours		**150**

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.

Mechatronics Engineering, Certificate

http://www.rit.edu/kgcoe/mechatronics-engineering-certificate
Mark Smith, Director of Multidisciplinary Programs
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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.

Curriculum

Mechatronics engineering, certificate, typical course sequence*

COURSE		SEMESTER CREDIT HOURS
First Year*		
Choose one of the following:		3
MECE-255	Foundations of Thermal and Mechanical Systems	
EEEE-255	Foundations of Circuits and Electronics	
Choose one of the following:		3
MECE-515/MECE-615/EEEE-515	Embedded Systems for Mechatronics	
Choose one of the following:		3
MECE-625/EEEE-625	Lab Applications in Mechatronics	
Total Semester Credit Hours		**9**

* The certificate may be completed in one academic year.

Additional information

Admissions

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.

Microelectronic Engineering, BS

http://www.rit.edu/kgcoe/microelectronic
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Program overview

Semiconductor technology at the micro and nanometer scale remains a key driver for the world economy. World-wide electronics is expected to top one trillion dollars in 2017 and the semiconductor industry is a leader in this crucial manufacturing field. The preparation and maintenance of a capable high-tech workforce is important for the nation's economic growth and long-term security.

Students are required to complete two semesters and two summers of cooperative education, beginning after their second year of study. Students may find co-op employment at one of the many major integrated circuits manufacturers across the United States. 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, microelectomechanical 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:

- A 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 VLSI design, 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.

Curriculum

Microelectronic engineering, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181, 182	Project-Based Calculus I, II	8
CHMG-131	General Chemistry for Engineering	3
	First Year Writing Seminar	3
MCEE-101	Introduction to Nanoelectronics	3
	First Year LAS Elective	3
PHYS-211	University Physics I	4
CMPR-271	Computational Problem Solving for Engineers	3
EEEE-120	Digital Systems I	3
	LAS Perspective 1	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-221	Multivariable and Vector Calculus	4
PHYS-212	University Physics II	4
MCEE-205	Statistics and DOE	3
EEEE-281, 282	Circuits I, II	6
	LAS Perspective 2, 3	6
MATH-231	Differential Equations	3
PHYS-213	Modern Physics	3
MCEE-201	IC Technology	3
EGEN-099	Engineering Co-op Preparation	0
Third Year		
	Cooperative Education (fall and summer)	Co-op
MCEE-320	E&M Fields for Microelectronics	3
MCEE-360	Semiconductor Devices for Microelectronic Engineering	4
MCEE-503	Thin Films (WI)	3
EEEE-380	Digital Electronics	3
	Free Elective	3
Fourth Year		
MCEE-502	Semiconductor Process Integration	3
MCEE-505	Lithography Materials and Processes	3
EEEE-353	Linear Systems	4
EEEE-480	Analog Electronics	4
	LAS Perspective 4	3
MCEE-499	Cooperative Education (spring and summer)	Co-op
Fifth Year		
MCEE-495, 496	Senior Design I, II	6
MCEE-550	CMOS Processing	4
	Professional Electives	6
	LAS Immersion 1, 2, 3	9
MCEE-496	Senior Design II	3
MCEE-515	Nanolithography Systems	3
	Free Elective	3
Total Semester Credit Hours		**129**

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 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		
MATH-181, 182	Project-Based Calculus I, II	8
CHMG-131	General Chemistry for Engineers	3
	First Year Writing Seminar	3
MCEE-101	Introduction to Nanoelectronics	3
	First Year LAS Elective	3
PHYS-211	University Physics I	4
CMPR-271	Computational Problem Solving for Engineers	3
EEEE-120	Digital Systems I	3
	LAS Perspective 1	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-221	Multivariable and Vector Calculus	4
PHYS-212	University Physics II	4
MCEE-205	Statistics and DOE	3
EEEE-281	Circuits I	3
	LAS Perspective 2, 3	6
MATH-231	Differential Equations	3
PHYS-213	Modern Physics	3
EEEE-282	Circuits II	3
MCEE-201	IC Technology	3
EGEN-099	Engineering Co-op Preparation	0
Third Year		
MCEE-499	Cooperative Education (fall)	Co-op
MCEE-320	E&M Fields for Microelectronic Engineering	3
MCEE-360	Semiconductor Devices for Microelectronic Engineering	4
EEEE-380	Digital Electronics	3
MCEE-502	Semiconductor Process Integration	3
	Free Elective	3
MCEE-499	Cooperative Education (summer)	Co-op
Fourth Year		
MTSE-702	Polymer Science	3
MCEE-603	Thin Films (WI)	3
MTSE-790	Thesis	3
MCEE-505	Lithography Materials and Processes	3
MTSE-601	Materials Science	3
MTSE-617	Material Degradation	3
	LAS Perspective 4	3
EEEE-353	Linear Systems	4
EEEE-480	Analog Electronics	4
MTSE-703	Solid State Science	3
MCEE-499	Cooperative Education (summer)	Co-op
Fifth Year		
MCEE-497, 498	Senior Design I, II	6
	Professional Electives	6
	LAS Immersion 1, 2, 3	9
MCEE-550	CMOS Processing	4
MCEE-515	Nanolithography Systems	3
MTSE-790	Thesis	6
	Free Elective	3
Total Semester Credit Hours		**150**

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 Wellness courses.

Microelectronic engineering, BS degree/Science, technology and public policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181, 182	Project-based Calculus I, II	8
CHMG-131	General Chemistry for Engineers	3
MCEE-101	Introduction to Nanoelectronics	3
PHYS-211	University Physics I	4
CMPR-271	Computational Problem Solving for Engineers	3
EEEE-120	Digital Systems I	3
	First Year Writing Seminar	3
	LAS Perspective 1	3
	LAS Elective	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-221	Multivariable and Vector Calculus	4
PHYS-212	University Physics II	4
MCEE-205	Statistics and DOE	3
EEEE-281, 282	Circuits I, II	6
MATH-231	Differential Equations	3
MCEE-201	IC Technology	3
PHYS-213	Modern Physics	3
	LAS Perspective 2, 3	6
Third Year		
	Cooperative Education (fall)	co-op
MCEE-320	EM Fields	3
MCEE-360	Semiconductor Devices	4
MCEE-503	Thin Film	3
EEEE-381	Electronics I	3
	Free Elective	3
Fourth Year		
MCEE-502	VLSI Process Modeling	3
EEEE-482	Electronics II	4
MCEE-505	Lithographic Materials and Processing	3
EEEE-353	Linear Systems	4
PUBL-701	LAS Immersion 1: Graduate Policy Analysis	3
PUBL-702	LAS Immersion 2: Graduate Decision Analysis	3
PUBL-703	Evaluation and Research Design	3
	Professional Electives	6
	Free Elective	3
Fifth Year		
MCEE-550	CMOS IC	4
MCEE-495, 496	Senior Design I, II	6
MCEE-515	Nanolith Systems	3
STSO-710	Science and Technology Policy Seminar	3
	Public Policy Electives	6
PUBL-700	Readings in Public Policy	3
	LAS Immersion 3: Public Policy Elective	3
Choose one of the following:		6
	Thesis Research	
	Comprehensive Exam, Graduate Electives	
Total Semester Credit Hours		**150**

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 Wellness courses.

Doreen Edwards, BS, South Dakota School of Mines and Technology; Ph.D., Northwestern University—Dean; Professor

Biomedical Engineering

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Chemical Engineering

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Computer Engineering

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P. R. Mukund, BS, MS, Ph.D., University of Tennessee—Professor

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Alexander Liberson, BS, MS, Ph.D., State University of Aerospace Technology (Moscow)—Lecturer

Rui Liu, BS, Beijing University (China); MS, Northeastern University; Ph.D., Georgia Institute of Technology—Visiting Assistant Professor

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Ali Ogut, B.Ch.E., Hacettepe University (Turkey); MS, Ph.D., University of Maryland—Professor

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Michael Schrlau, BS, University of Pittsburgh; Ph.D., University of Pennsylvania—Assistant Professor

Robert J. Stevens, BS, Swarthmore College; MS, North Carolina State University; Ph.D., University of Virginia—Associate Professor

Benjamin Varela, BS, Institute of Technology of Juarez (Mexico); MS, Ph.D., New Mexico State University—Associate Professor

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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

Stefan F. Preble, BS, Rochester Institute of Technology; Ph.D., Cornell University—Associate Professor

Jiandi Wan, BS, Wuhan University (China); Ph.D., Boston University—Assistant 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 field in which he received his education.

Held by: Satish G. Kandlikar

Gleason Memorial Professorship in Electrical Engineering

Established: 1993

Donor: Gleason Memorial Fund

Purpose: To provide support for a faculty member who will provide leadership in research and development in electrical engineering.

Held by: Eli S. Saber

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 and Rachel Silvestrini

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 healthcare 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 Health Sciences and Technology

Daniel Ornt, Dean
rit.edu/healthsciences

Programs of study

	Bachelor of Science in:	Page
	Biomedical Sciences	83
	Diagnostic Medical Sonography (Ultrasound)	84
	Exercise Science	88
	Nutrition Management	89
#	Physician Assistant	87

	Certificates in:	
	Diagnostic Medical Sonography (Ultrasound)	85
	Echocardiography (Cardiac Ultrasound)	86
	Exercise Science	89
	Health Systems Administration	86

The physician assistant program is only available as an accelerated BS/MS option.

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.

The college offers clinically related and biomedical research-based programs to meet both the present and future needs of the health care system. The college's faculty and staff are committed to delivering high quality educational programs. Building on a foundation of liberal arts and basic sciences, students will gain advanced knowledge in theoretical science and practical applications in experiential learning environments. These experiences prepare students to serve as practitioners, scientists, and leaders through their contributions to, and the provision of, high-quality patient care, health care service, and/or applied, translational biomedical research.

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.

Faculty

Faculty members in the college have considerable experience in their respective fields of discipline. Basic science and clinical faculty work side-by-side to provide students with a comprehensive learning experience to prepare them for their chosen healthcare-related career.

Facilities and resources

In addition to facilities shared with the College of Science, the College of Health Sciences and Technology provides a comprehensive environment to support academic, community, and career-training programs in the emerging life and medical sciences. A new 45,000-square-foot Clinical Health Sciences Center provides clinical and research space for the physician assistant and diagnostic medical sonography majors, the Wegmans School of Health and Nutrition, forensic clinical psychology research, and the Center for Applied Psychophysiology and Self-regulation. The College's facilities also include the Center for Bioscience Exploration and Technology, which hosts high-tech bioscience classrooms and laboratories in an anatomical studies laboratory, histopathology and forensic medicine laboratory, as well as an oral microbiology and biofilm research laboratory.

Cooperative education and clinical internships

All students will gain advanced knowledge in theoretical science and practical applications in experiential learning environments. For some students in the college this comes primarily in the form of unpaid clinical internship rotations through medical settings designed to help students master technical standards for their degree and eventual licensure. Additional opportunities are available for students to participate in cooperative education experiences to complement disciplines offered through the curriculum.

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

Advising

The college's Student Services Office offers administrative support to assist with course selection and registration, career guidance, student records, and course scheduling. In addition, the administrative staff provides students with information on additional support services within RIT. Students are assigned an individual faculty adviser, who becomes an integral part of their advising network.

Academic enrichment

Honors Program: Students who demonstrate a high level of achievement at the high school level may be invited to join the Honors program. These students will participate in Honors course work throughout their program of study and experiential learning activities under the guidance of a faculty mentor. Honors students will be selected during the admissions process.

Study Abroad: RIT encourages all students to consider a study abroad program to enhance their understanding of other cultures. Students may study full time at a variety of host schools. RIT's Study Abroad Office has information about foreign study options and opportunities.

Minors: RIT offers students more than 90 minors to choose from to enhance their academic program or further develop a personal area of interest. For a detailed list of minors, including courses, please refer to the Minors section of this bulletin.

Special opportunities

Graduate study: The college offers a master of science degree in health systems administration, and a master of fine arts degree in medical illustration. Additional graduate programs in health-related fields and in the sciences are offered through the College of Science. Please refer to the *Graduate Bulletin* or the colleges' websites for more information.

Premedical studies and pre-health professions advisory program

The premedical studies and pre-health professions advisory program is designed to provide guidance and assistance to all RIT students who are interested in continuing their education in one of the health professions; e.g., medicine, osteopathy, dentistry, optometry, or podiatry. Faculty members who participate in this program provide advice on the prerequisites (course selection, health-related experiences, extracurricular activities) needed for application to various health-related professional schools. In addition, they provide assistance with the application process.

Enrollment in premedical studies/pre-health professions advisory program

The premedical studies and pre-health professions advisory program is available to students who are enrolled in one of the degree granting programs or to nonmatriculated students taking the premedical core courses or pre-professional prerequisite courses. To enroll in the program, students must contact the premedical studies and pre-health professions office in the Center for Bioscience Education and Technology (CBET).

Biomedical Sciences, BS

http://www.rit.edu/healthsciences/undergraduate-programs/biomedical-sciences/

Robert Osgood, Program Director
(585) 475-7902, robert.osgood@rit.edu

Program overview

The biomedical sciences major prepares students for advanced study in various areas of health care (e.g. medicine, dentistry, nursing, public health), research, or for direct entry into a health care career. 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.

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 AIDS, diabetes, cancer, infectious disease, and neurological disorders. Courses and concentrations are designed to provide the knowledge base and the technical skills required in a broad spectrum of medical and health care related careers.

Plan of study

The major's curricular requirements are flexible, consisting of a life sciences core, courses in the liberal arts, and a broad range of professional elective course options. The life sciences core is designed to provide students with a strong grounding in mathematics and science. A complement of liberal arts courses and an array of professional electives, prepare students for a particular career path—e.g., entry into graduate study, including medical/dental school—or a research position in an applied area of biomedical science. In addition, concentrations are available to focused study in pre-health professions, genetics, pre-medical studies, or biomedical research. In consultation with an academic adviser students may select a series of required and elective courses associated with a program concentration. Students also may choose to use elective credits to engage in undergraduate research with a faculty mentor, pursue a double major, or select a secondary field of study through a minor.

Curriculum

Biomedical sciences, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-101, 103	General Biology I and Lab	4
CHMG-141, 145	LAS Perspective 5: General and Analytical Chemistry I and Lab	4
	First Year LAS Elective	3
	LAS Perspective 1	3
BIOL-102, 104	General Biology II and Lab	4
CHMG-142, 146	LAS Perspective 6: General and Analytical Chemistry II and Lab	4
	First Year Writing Seminar	3
MATH-161	LAS Perspective 7A: Applied Calculus	4
ACSC-010	Year One: College Experience	0
	Wellness Education*	0

COURSE		SEMESTER CREDIT HOURS
Second Year		
MEDS-250, 251	Anatomy and Physiology I, II and Labs	8
	Chemistry Sequence Courses	7
Choose one of the following:		3
STAT-145	LAS Perspective 7B: Introduction to Statistics I	
STAT-155	LAS Perspective 7B: Introduction to Biostatistics	
	LAS Perspective 2, 3	6
BIOL-201	Cellular and Molecular Biology	4
Third Year		
	Program Elective Requirements	12
	Professional Electives	9
	Professional Elective (WI)	3
	LAS Perspective 4	3
	Professional Elective	3
	LAS Immersion 1	3
Fourth Year		
	Program Elective Requirement	6
	Professional Electives	6
	Free Electives	12
	LAS Immersion 2, 3	6
Total Semester Credit Hours		**120**

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 Wellness courses.

Diagnostic Medical Sonography (Ultrasound), BS

http://www.rit.edu/healthsciences/undergraduate-programs/diagnostic-medical-sonography

Hamad Ghazle, Program Director
(585) 475-2241, hhgscl@rit.edu

Program overview

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 beyond radiology, OB/GYN, vascular, and cardiology and is now used in areas such as emergency medicine, orthopedics, sports medicine, ophthalmology, rheumatology, pain medicine, intensive care, and beyond. 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 and a survey of employers indicate a strong demand for well-trained sonographers.

The major prepares competent, compassionate, and responsible ultrasound professionals and leaders. Leadership and administration capabilities are emphasized in addition to the development of scanning skills and techniques and diagnostic abilities. The major also assists and prepares students for medical, dental, veterinary, or graduate school. Students apply their theoretical knowledge and practice their skills in our dedicated ultrasound scanning suite before embarking on the clinical internship portion of the program. Upon successful completion of the program's requirements, students are eligible to take a national certifying examination for abdominal, small parts, obstetrical, and gynecological ultrasound. Each student is also introduced to vascular ultrasound.

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.

Plan of study

The major is a four-year program, which includes a clinical internship, unless the student has transfer credit from another academic institution. Those holding associate degrees may be able to complete the BS degree in two years; additional course work may be required. Contact the program director for further information on program requirements.

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 designed to meet the growing needs of the national and international medical communities.

Clinical internship

The clinical internship provides hands-on experience at two or more approved medical facilities. Students can complete their clinical internships at any approved regional or national medical ultrasound facility upon the approval of the program director. 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 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.

Accreditation

The diagnostic medical sonography major is accredited by the Commission on Accreditation of Allied Health Education Programs 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.

Curriculum

Diagnostic medical sonography (general ultrasound), BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-101	General Biology	3
BIOL-103	General Biology Lab I	1
MATH-111	LAS Perspective 7A: Pre-Calculus	3
	First Year LAS Elective	3
	LAS Perspective 1, 2, 3	9
BIOL-102	General Biology II	3
BIOL-104	General Biology Lab II	1
STAT-145	LAS Perspective 7B: Introduction to Statistics	3
	First Year Writing Seminar	3
MEDI-130	Computers in Medicine	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
PHYS-111	LAS Perspective 5: College Physics I	4
MEDS-250	Human Anatomy and Physiology I	4
MEDS-201	Language of Medicine	3
	LAS Perspective 4	3
PHYS-112	LAS Perspective 6: College Physics II	4
MEDS-251	Human Anatomy and Physiology II	4
MEDS-245	Medical Genetics	3
	LAS Immersion 1	3
	Free Elective	3

COURSE		SEMESTER CREDIT HOURS
Third Year		
DMSO-312	Human Cross Sectional Anatomy	3
DMSO-301	Sonographic Scanning Skills and Techniques I	3
DMSO-309	Sonography Physics and Instrumentation I	3
	LAS Immersion 2, 3	6
	Free Elective	3
DMSO-310	Sonography Physics and Instrumentation II	3
DMSO-302	Sonographic Scanning Skills and Techniques II	3
MEDS-415	Pathophysiology of Organ Systems I	3
MEDS-333	Patient Care	2
Fourth Year		
DMSO-452	Obstetrical Sonography I	3
DMSO-453	Gynecological Sonography	3
DMSO-456	Abdominal and Small Parts Sonography I	3
DMSO-570	Clinical Sonography I	7
DMSO-414	Sonographic Vascular Evaluation	3
DMSO-454	Obstetrical Sonography II	3
DMSO-457	Abdominal and Small Parts Sonography II	3
DMSO-460	Administration and Research in Sonography (WI)	3
DMSO-571	Clinical Sonography II	5
Total Semester Credit Hours		**125**

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 Wellness courses.

Diagnostic Medical Sonography (Ultrasound), Certificate

http://www.rit.edu/healthsciences/undergraduate-programs/diagnostic-medical-sonography/certificate-options

Hamad Ghazle, Program Director
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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 formulated 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 is designed 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 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 a year of anatomy and physiology with laboratories and a 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.

In addition to the diagnostic medical sonography certificate, RIT also offers a bachelor of science degree and a certificate in echocardiography (cardiac ultrasound). Both of these options are designed to meet the growing needs of the national and international medical communities

Clinical internship

The clinical internship is divided into two rotations at various medical facilities. After successfully completing the first year of course work, students are assigned to clinical training sites. At these facilities, students work side-by-side with sonographers, physicians, radiologists, perinatologists, and other health care professionals to learn, develop, apply, sharpen, and master the skills necessary to perform various ultrasound examinations. Each student's clinical progress and performance is closely monitored by the program's faculty. Upon completion of the program, graduates are eligible to take the national certifying examinations.

Curriculum

Diagnostic medical sonography, certificate, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
DMSO-312	Human Cross Sectional Anatomy	3
DMSO-301	Sonographic Scanning Skills and Techniques I	3
DMSO-309	Sonography Physics and Instrumentation I	3
DMSO-310	Sonography Physics and Instrumentation II	3
DMSO-302	Sonographic Scanning Skills and Techniques II	3
MEDS-415	Pathophysiology of Organ Systems I	3
MEDS-333	Patient Care	2
Second Year		
DMSO-452	Obstetrical Sonography I	3
DMSO-453	Gynecological Sonography	3
DMSO-456	Abdominal and Small Parts Sonography I	3
DMSO-570	Clinical Sonography I	7
DMSO-414	Sonographic Vascular Evaluation	3
DMSO-454	Obstetrical Sonography II	3
DMSO-457	Abdominal and Small Parts Sonography II	3
DMSO-460	Administration and Research in Sonography	3
DMSO-571	Clinical Sonography II	5
Total Semester Credit Hours		**53**

Additional information

Gainful employment

Information regarding costs and the U.S. Department of Labor's Standard Occupational Classification (SOC) code and occupational profiles for this program can be viewed at www.rit.edu/emcs/financialaid/gedt/2017-2018/diagnostic-medical-sonigraphy.html.

Echocardiography (Cardiac Ultrasound), Certificate

http://www.rit.edu/healthsciences/undergraduate-programs/diagnostic-medical-sonography/certificate-options

Hamad Ghazle, Program Director
(585) 475-2241, hhgscl@rit.edu

Program overview

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. Depending on a candidate's previous course work, certain prerequisite courses such as a patient care course may be required prior to or during enrollment in the program. Contact the program director for further information on prerequisite course work and degree options.

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 pre-clinical 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.

Clinical internship

The clinical internship is divided into two rotations completed at various medical facilities. After successfully completing the first year of course work, students are assigned to a clinical training site. At these facilities, students work side by side with physicians, echocardiographers, cardiologists, and other health care professionals to learn, develop, apply, sharpen, and master the necessary skills to perform various echocardiographic examinations. Each student's clinical progress and performance is closely monitored by faculty. Upon completion of the program, graduates are eligible to take the national certifying examinations.

Curriculum

Echocardiography, certificate, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ECHO-305	Cardiac Anatomy and Physiology	3
ECHO-307, 308	Echocardiographic Scanning Skills and Techniques I, II	2
DMSO-309, 310	Sonography Physics and Instrumentation I, II	6
MEDS-415	Pathophysiology of Organ Systems I	3
ECHO-320	Electrophysiology and Cardiac Pharmacology	2
Second Year		
ECHO-401, 402	Echocardiography I, II	6
ECHO-410	Ischemic Heart Disease: Stress Echocardiography	2
ECHO-415	Cardiac M-Mode	2
ECHO-430, 431	Congenital Heart Disease I, II	4
ECHO-465	Echocardiography Special Procedures	2
ECHO-425	Seminar in Echocardiography	2
ECHO-420, 421	Clinical Echocardiography I, II	8
Total Semester Credit Hours		**42**

Additional information

Gainful employment

Information regarding costs and the U.S. Department of Labor's Standard Occupational Classification (SOC) code and occupational profiles for this program can be viewed at www.rit.edu/emcs/financialaid/gedt/2017-2018/echocardiography.html.

Health Systems Administration, Certificate

https://www.rit.edu/healthsciences/graduate-programs/health-systems-administration

Carla Stebbins, Program Director
(585) 475-4761, casihst@rit.edu

Program overview

Students working on undergraduate degrees in the health sciences or those considering a career within the health care industry, would benefit from an orientation to the industry as a whole. The health systems administration certificate introduces students to the extraordinary complexity of the U.S. health care system while also exposing students to the systems of care in other countries; 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.

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**

Physician Assistant, BS

http://www.rit.edu/healthsciences/undergraduate-programs/physician-assistant/

Heidi Miller, Program Director
(585) 475-5945, hbmscl@rit.edu

Program overview

The physician assistant major focuses on primary care for patients. Physician assistants provide diagnostic and therapeutic patient care in conjunction with a supervising physician. They 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, obstetrics/gynecology, psychiatry, general surgery, orthopedics, neurosurgery, and neonatology. Clinical rotations (internships) during students' last year provide the opportunity to explore these varied disciplines.

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.

Clinical internship

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 inpatient medicine, family medicine, geriatrics, orthopedics, emergency medicine, OB/GYN, pediatrics, general surgery, and psychiatry. Students also select one elective rotation, which enables them to customize their experience according to their medical area of interest.

Accreditation

The physician assistant program (professional phase) is accredited by The Accreditation Review Commission on Education for the Physician Assistant (ARC-PA).

Curriculum

Physician assistant, BS/MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year (Pre-professional)		
BIOL-101, 103	General Biology I and Lab	4
CHMG-141, 145	LAS Perspective 5: General and Analytical Chemistry I and Lab	4
	LAS Perspective 1, 2, 3	9
	First Year LAS Elective	3
BIOL-102, 104	General Biology II and Lab	4
CHMG-142, 146	LAS Perspective 6: General and Analytical Chemistry II and Lab	4
MATH-161	LAS-Perspectives 7A: Applied Calculus	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year (Pre-professional)		
MEDS-250, 251	Anatomy and Physiology I, II	8
CHMB-240	Biochemistry for Health Sciences	3
	LAS Perspective 4	3
	Free Elective	3
	LAS Immersion 1, 2, 3	9
PHYA-206	Medical Microbiology	3
STAT-145	LAS Perspective 7B: Introduction to Statistics I	3
Third Year (Professional)		
PHYA-405, 406	Pathophysiology I, II	4
PHYA-401, 402	History/Physical Dx I, II	8
PHYA-422, 423	Clinical Medicine I, II	10
PHYA-419	Advanced Gross Anatomy	2
PHYA-420	Physician Assistant Seminar	1
PHYA-415, 416	Pharmacology I, II	3
PHYA-430	Clinical Genetics	2
Fourth Year (Professional)		
PHYA-510	Hospital Practice	4
PHYA-424	Clinical Medicine III	5
PHYA-440	Society and Behavioral Medicine	3
PHYA-417	Pharmacology III	2
PHYA-421	Diagnostic Imaging	2
PHYA-550	Procedural Clinical Skills	3
PHYA-520	Clinical Integration	4
PHYA-560	Health Care Policy and Law	2
PHYA-729	Clinical Epidemiology	3
PHYA-730	Research Methods (WI)	2
	Free Elective	3
PHYA-750	Pediatrics	4
PHYA-751	General Medicine	4
PHYA-752	OB-GYN	4
PHYA-761	Professional Practice I	2
PHYA-710	Graduate Project I (WI)	2
Fifth Year (Professional)		
PHYA-753	Emergency Medicine	4
PHYA-754	Surgery	4
PHYA-755	Orthopedics	4
PHYA-762, 763	Professional Practice II, III	4
PHYA-720	Graduate Project II	2
PHYA-756	Geriatrics	4
PHYA-757	Psychiatry	4
PHYA-758	Family Medicine	4
PHYA-759	Elective Rotation	4
Total Semester Credit Hours		**181**

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 Wellness courses.

Additional information

Admission requirements

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). For more information regarding these additional admission requirements, please contact the Office of Undergraduate Admissions. 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.

Transfer admission

Qualified transfer students are accepted into the major, on a space available basis. Prior health care experience and/or shadowing is 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 completed 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 liberal arts courses is evaluated and approved by the College of Liberal Arts. 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.

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.

Wegmans School of Health and Nutrition

Exercise Science, BS

https://www.rit.edu/exercisescience

William Brewer, Director of Exercise Science
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Program overview

Exercise science is a growing field that scientifically addresses issues of health and fitness as well as human performance. The exercise science major provides students with a solid educational base in the biomedical sciences along with a core curriculum in exercise physiology, fitness, and kinesiology. The major offers two tracks – athletic and clinical – providing students with career driven course selection to develop the skill set needed for professional practice. The clinical track is for students interested in helping people recover from the unhealthy effects of a sedentary lifestyle and the athletic track focuses on training athletes to extend and expand their capacity to perform.

Tracks

The clinical track is for students interested in utilizing exercise as a therapeutic modality. Clinical exercise medicine is an emerging field that is poised to grow as the population ages. This field is designed for students who wish to become the newest practitioners in health care, providing exercise programming as an integrated medical service. 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. Courses utilize a scientific approach to athletic conditioning, allowing students to learn how to better train and maintain athletes. Skilled strength and conditioning specialists are in demand at all sports levels and the prevalence of private sector training facilities has never been higher. Students intent on a career training athletes will be well prepared to advise and guide athletic performers.

Certification

Students who complete the athletic track are prepared to achieve professional certification through the National Strength and Conditioning Association 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.

Curriculum

Exercise science, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-101, 103	General Biology I and Lab	4
BIOL-102, 104	General Biology II and Lab	4
CHMG-141, 145	LAS Perspective 5: General and Analytical Chemistry I and Lab	4
CHMG-142, 146	LAS Perspective 6: General and Analytical Chemistry II and Lab	4
EXSC-101	Seminar in Exercise Science	1
MATH-161	LAS Perspective 7A: Applied Calculus	4
EXSC-150	Introduction to Exercise Science	3
	LAS Perspective 1	3
	First Year Writing Seminar	3
	First Year LAS Elective	3

COURSE		SEMESTER CREDIT HOURS
Second Year		
MEDS-250	Anatomy and Physiology I and Lab	4
MEDS-251	Anatomy and Physiology II and Lab	4
PHYS-111, 112	College Physics I, II	8
STAT-145	LAS Perspective 7B: Introduction to Statistics	3
EXSC-206	Fitness Prescription	3
BIOL-201	Cellular and Molecular Biology	4
EXSC-210	Human Motor Development	3
	LAS Perspective 2, 3	6
Third Year		
EXSC-350	Exercise Physiology and Lab	4
EXSC-410	Kinesiology and Lab	4
EXSC-420	Biomechanics and Lab	4
EXSC-490	Exercise Science Research (WI)	3
	Professional Electives	6
	LAS Perspective 4	3
	LAS Immersion 1	3
	Wellness Education*	0
Fourth Year		
	LAS Immersion 2, 3	6
EXSC-270	Group Exercise Design	3
EXSC-360	Worksite Health Promotion	3
EXSC-320	Coaching Healthy Behavior	3
EXSC-380	Sports Psychology	3
	Open Electives	6
	Professional Elective	3
Total Semester Credit Hours		**122**

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 Wellness courses.

Exercise Science, Certificate

https://www.rit.edu/exercisescience
William Brewer, Program Director
(585) 475-2476, wsbscl@rit.edu

Program overview

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, ski resort, 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 and Life Fitness	3
EXSC-206	Fitness Prescription	3
EXSC-207	Exercise for Special Populations	3
Total Semester Credit Hours		**9**

Nutrition Management, BS

www.rit.edu/nutrition
Elizabeth Kmiecinski, Director
(585) 475-2357, eakism@rit.edu

Program overview

People are increasingly interested in the nutritional requirements for obtaining good health and a 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 nutrition management major offers a challenging curriculum that prepares students to become RDNs, and to practice in diverse settings such as private practice, community nutrition and public health, wellness, sports fitness programs, corporations, clinical dietetics, hospital or long-term care food management facilities, research, food companies, nutrition education, restaurant consulting, writing, and communication.

Plan of study

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, is 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.

Two-year transfer in nutrition management

Due to specific areas of study required by both the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics and RIT, the amount of transferable credit and the estimated time to complete work for the BS degree must be determined by each individual's transcript. A minimum grade-point average of 3.2 and grades of A or B in all required science courses are required for admission and continuation in the major. For specific information regarding transfer admission, please refer to the Admission section of this bulletin.

Accreditation

The nutrition management major is accredited through June 2023 by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics, 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995.

Curriculum

Nutrition management, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
HSPT-121	Principles of Food Production	3
	First Year LAS Elective	3
	First Year Writing Seminar	3
CHMG-111, 112	LAS Perspective 5, 6: General Organic Biochemistry I, II	8
MATH-101	LAS Perspective 7A: College Algebra	3
PSYC-101	Introduction to Psychology	3
NUTR-215	Contemporary Nutrition	3
MEDG-106	Microbiology in Health and Disease	3
ECON-101	Principles of Microeconomics	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MEDS-250	LAS Perspective 5: Anatomy and Physiology I, Lab	4
FOOD-123	Sanitation and Safety	1
ACCT-110	Financial Accounting	3
SOCI-102	Foundations of Sociology	3
MEDS-251	LAS Perspective 6: Anatomy and Physiology II, Lab	4
FOOD-223	Food and Beverage Management	3
NUTR-223	Food and Beverage Management Lab	1
STAT-145	LAS Perspective 7B: Introduction to Statistics I	3
	LAS Immersion 1	3
	LAS Perspective 1, 2	6
Third Year		
HSPT-383	Assessing and Improving Service Quality	3
NUTR-402	Dietetic Environment	3
NUTR-333	Techniques of Dietetic Education	3
MTKG-230	Principles of Marketing	3
NUTR-554	Life Cycle Nutrition	4
FOOD-325	Food Innovation and Development	3
HRDE-386	Human Resources Development	3
	LAS Immersion 2, 3	6
	LAS Perspective 3	3
Fourth Year		
NUTR-497	Dietetic Internship Seminar	1
NUTR-525, 526	Medical Nutrition Therapy I, II	6
NUTR-560	Senior Project (WI)	3
NUTR-510	Nutrition and Integrative Medicine	1
	Free Electives	9
NUTR-550	Community Nutrition	3
HSPT-481	Leadership Innovation in Service Industries	3
Total Semester Credit Hours		**123**

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 Wellness courses.

Daniel Ornt, BA, Colgate University; MD, University of Rochester—Dean; Vice President

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—Assistant Professor

Richard L. Doolittle, BA, University of Bridgeport; MS, Ph.D., University of Rochester—Vice Dean; Professor

Caroline Easton, BS, Rochester Institute of Technology; Ph.D. University of Connecticut—Professor

Michele Lennox, AAS, Rochester Institute of Technology—Lecturer

Douglas P. Merrill, BS, Ph.D., State University of New York College of Environmental Science and Forestry—Director, Premedical and Health Professions Advising; Professor

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, Ph.D., University of Lagos (Nigeria)—Associate Professor

Kristen Waterstam-Rich, BS, MS, Rochester Institute of Technology—Interim Associate Dean; 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

Patricia Newcomb, AB, Mount Holyoke College; MD, Tufts University School of Medicine—Academic Coordinator; Assistant Professor

Heather Grotke, BS, Rochester Institute of Technology; MS, PA-C, Daemen College—Clinical Coordinator; Lecturer

Melodie J. Kolmetz, AAS, EMT-P, Monroe Community College; BS, PA-C, Rochester Institute of Technology; MPAS, University of Nebraska Medical Center—Assistant Professor

John B. Oliphant, BA, ATC, Messiah College; M.S.Ed., Elmira College; MHP, PA-C, Northeastern University; Ph.D., Niagara University—Assistant Professor

Diagnostic Medical Sonography

Hamad Ghazle, BS, APS, Rochester Institute of Technology; MS, Ed.D. University of Rochester—Program Director; Professor

BethRae King, BS, RDCS, State University of New York 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

Wegmans School of Health and Nutrition

Barbara A. Lohse, BS, University of Wisconsin-Eau Claire; MS, University of Wisconsin-Stout; Ph.D., University of Wisconsin-Madison—Head, Wegmans School of Health and Nutrition; Professor

Exercise Science

William S. Brewer, BS, State University College at Cortland; MS, Empire State College—Program Director; Senior Lecturer

Nutrition Management

Elizabeth A. Kmiecinski, BS, The Ohio State University; RD, Charleston Area Medical Center; MS, University of Kentucky—Program Director; Associate Professor

Angelina M. Maia, BS, University of New Hampshire; MS, RD, LD, Ph.D., University of Maine—Lecturer

Elizabeth H. Ruder, BS, Cornell University; Ph.D., Pennsylvania State University; MPH, The John Hopkins School of Public Health—Assistant Professor

College of Imaging Arts and Sciences

Lorraine Justice, Dean
cias.rit.edu

Programs of study

Bachelor of Fine Arts in:	Page
3D Digital Design	100
Ceramics	96
Film and Animation *Options available in: animation and production*	104
Fine Arts Studio	99
Furniture Design	96
Glass	97
Graphic Design	101
Illustration	98
Industrial Design	102
Interior Design	102
Medical Illustration	99
Metals and Jewelry Design	98
New Media Design	103
Photographic and Imaging Arts *Options available in advertising photography, fine art photography, photojournalism, and visual media.*	108

Bachelor of Science in:	
Media Arts and Technology	107
Motion Picture Science	106
Photographic Sciences *Options available in: biomedical photographic communications and imaging and photographic technology.*	111

Associate in Occupational Studies in:	
Furniture Design	97

The College of Imaging Arts and Sciences includes the schools of American Crafts, Art, Design, Film and Animation, Media Sciences, and Photographic Arts and Sciences. Students in most of the baccalaureate and master's degree programs complete foundation courses for fundamental studio course work and historical grounding in the visual arts.

Admission requirements

For information on undergraduate admission, including freshman and transfer admission guidelines, please refer to the Undergraduate Admission section of this bulletin. Admission to most majors in CIAS requires a combination of academic performance and creative visual skills that are evaluated via a portfolio review. Faculty will review each student's portfolio to evaluate creative visual skills as well as the potential for success in the student's selected program.

Portfolio review: The following undergraduate BFA programs require a portfolio of 10-20 images: 3D digital design, ceramics, fine arts studio, illustration, glass, graphic design, industrial design, interior design, medical illustration, metals and jewelry design, new media design, and furniture design.

The schools of Media Sciences, Photographic Arts and Sciences, and Film and Animation do not require a portfolio for acceptance into their undergraduate BFA or BS programs. However, a portfolio is required if students are requesting a transfer of credits to satisfy program requirements.

Guidelines for portfolio submission: Artistic disciplines require a measure of skill and dedication. Because accepted students become part of an elite learning community, they must first demonstrate a proven level of artistic talent. Your portfolio will help us evaluate your artistic skills, your artistic preferences, and your familiarity with various types of artistic media. The following guidelines should be used when preparing a portfolio for submission.

1. 10-20 Pieces: The 10-20 pieces of your best artwork that you choose to submit should demonstrate an understanding of pictorial composition, creativity/originality of ideas, drawing and design ability, a sense for the use of materials, attention to detail, and craftsmanship. The work should be from a variety of media and subject matter. We're looking for good traditional drawing skills as well as artwork relevant to your artistic interests.

2. 3 to 6 Pieces Drawn from Observation: Include a minimum of three to six drawings made by direct observation (not copied from photographs, comics, or "fantasy"). Drawings should demonstrate a full range of tonal values and a variety of line qualities.

3. Creativity and Craftsmanship The craftsmanship in a work of art is as important as the ideas presented. You can demonstrate creativity through innovative ideas and content, interesting composition, and proficient use of materials.

4. Acceptable Media Formats: Images (up to 5 MB each), Video (up to 60 MB each), Audio (up to 30 MB each) and PDFs (up to 10

MB each). You may also link to media from YouTube, Vimeo and SoundCloud.

Submitting your portfolio: Upload portfolio through SlideRoom at rit.slideroom.com. You may also mail your portfolio to the Admissions Office. If you are not submitting digitally, please mail official transcripts, recommendations, writing samples and paper test reports to Office of Undergraduate Admissions.

5. Special Requirements:

Medical Illustration: Include at least six drawings of natural forms such as seashells, plants, human figures, or animals, rendered in a single medium. Studies of anatomical parts such as hands and feet are also acceptable.

School for American Crafts: You are encouraged to include works done in the medium of your intended major: ceramics, glass, metals or wood. However, a portfolio that is entirely two-dimensional is also acceptable. If you do not have a portfolio, but are interested in any of the Craft School programs, please contact the faculty directly to discuss alternative approaches to completing your application

National Portfolio Days

All schools 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 portfolio. For information on National Portfolio Days, please call (585) 475-2968. For dates of open houses and general admission information, call the Office of Undergraduate Admissions at (585) 475-6631.

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.

Facilities

- Professional imaging environment for the still and moving image, including 30 fully equipped photographic studios, 20 fully equipped b/w and color darkrooms, five photo-oriented labs, professional printing lab, graduate studios, and a one of a kind lending cage with extensive collection of cameras and related equipment.
- Image Permanence Institute, recognized world leader in the education, research, and preservation of images and cultural property.
- Extensive professional 16mm film, digital video, and digital cinema field production equipment, including newly renovated film and animation facilities, 60 digital film editing stations, three animation labs, three stop-motion studios, two sound stages, and prop shop.
- Over a dozen specialized instructional and research labs for immersive study in Media Sciences supporting cross-disciplinary work in applied color science, 3D print materials, packaging printing, and new media publishing.
- Wallace Library, rich in photography, graphic arts publications, and contemporary periodicals in design, arts, crafts for study, and research; ARTstor, an online image collection; and electronic reserve course materials.
- Cooperative efforts with George Eastman House International Museum of Photography and Film, with access to the museum's collections of photography, rare books, motion pictures, and technology.
- Library of the Kodak Research Laboratories.
- The Melbert B. Cary Jr. Graphic Arts Collection, containing more than 20,000 volumes of rare books and additional resources that illustrate fine printing, the history of printing, book design and illustration, papermaking, binding, and other aspects of the graphic arts.
- The Graphic Design Archives in the Wallace Library are complete and partial collections of some of the world's most influential pioneers in graphic design. The collections contain original source materials documenting the designers' working lives and include such unique items as original artwork, sketchbooks, sculptures, architectural models, reliefs, and printed samples.
- The Vignelli Center for Design Studies houses the extensive professional archive of Massimo and Lella Vignelli, and offers exhibition space and archival study classrooms for the examination of Modernist design history, theory, and criticism.
- Fully equipped studios for designing, forming, and finishing utilitarian and sculptural objects in clay, glass, metals and wood, including CNC routers and metal cutters. The recently added Sands Family Studios wing houses state-of-the-art hot glass, large-scale metal fabricating and specialized ceramic kiln areas.
- Bevier Gallery and the William Harris Gallery, the college's on-campus exhibition spaces.
- Gallery r is the university's off-campus, student-managed contemporary art gallery. The gallery actively educates and encourages viewers to examine the relevance of art and cultural exposure in their own lives. Gallery r is an educational laboratory presenting art to the widest possible audience and maintaining a select collection of student and alumni artwork for on-site consignment and sales.
- The college houses archives, as well as exhibition and display spaces. Exhibitions regularly feature the work of contemporary painters, designers, photographers, illustrators, graphic artists, filmmakers, and faculty, student and alumni work.
- Individual studio spaces for all seniors in the fine arts studio major.

Cooperative education

Students may participate in cooperative education experiences or internships. Co-op allows students the opportunity to evaluate career goals before making employment decisions, develop insight into their chosen fields, gain professional experience that enhances their resumes, and increase their potential for placement and rapid career advancement after graduation. As part of the student's career exploration, co-op experiences provide an opportunity to observe and perform work directly related to the student's major.

Co-op is required in the School of Media Sciences and in the bachelor of science programs in the School of Photographic Arts and Sciences. Although co-op is not required in the BS program in film and animation or the BFA programs in the schools of Ameri-

can Crafts, Art, Design, Film and Animation, or Photographic Arts and Sciences, many students choose to co-op during the summer semester to enhance their learning while gaining valuable on-the-job experience.

For more information about cooperative education, please refer to the Office of Career Services and Cooperative Education or visit the college's website.

Accreditation

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

Advising

All majors provide expert advisement to students in multiple ways. Each CIAS student is assigned a primary faculty adviser with whom they consult on a semester basis concerning course selection, assignments, co-ops, educational challenges, and career opportunities. In addition, each school has program chairs per discipline whose primary task is to advise students, as well as the chair of the school and academic advisers in the college's Student Services Office. While at RIT and after graduation, students can seek and receive personal and professional advisement to support their studies and career aspirations.

Academic Enrichment

Honors Program: Students who demonstrate a high level of achievement at the high school level may be invited to join the Honors program. These students will participate in Honors course work throughout their program of study and experiential learning activities under the guidance of a faculty mentor. Honors students will be selected during the admission process.

Study Abroad: RIT encourages all students to consider a study abroad program. Students may study full time at a variety of host schools and are able to select both courses in their majors and/or liberal arts classes. The RIT Global office has information about foreign study options and opportunities.

Minors: RIT offers students more than 90 minors to choose from to enhance their academic program or further develop a personal area of interest. For a detailed list of minors, including courses, please refer to the Minors section of this bulletin.

Professional student organizations: The college maintains memberships in the following professional organizations: Industrial Designers Society of America, ACM Siggraph, American Institute of Architects, American Institute of Graphic Arts, American Society of Interior Designers, American Society of Media Photography, Bio Communications Association, College Art Association, ICOGRADA, International Interior Design Association, International Panoramic Photographers Association, International Society for Optical Engineering, National Press Photographer Association Student Chapter, Ophthalmic Photographers Society, Photo Imaging Educators Association, Photo Marketing Association International, Society of Environmental Graphic Designers, Society for Imaging Science and Technology, Society for Photographic Education and Society of Motion Picture and Television Engineers.

Special Opportunities

Graduate study: The college offers master of fine art degrees in ceramics, film and animation, fine arts studio, furniture design, glass, industrial design, metals and jewelry design, visual communication design, and photography and related media; a master of science for teachers in visual arts (all grades); a master of science in print media; and advanced certificates in non-toxic printmaking and user experience design and development. Please refer to the *Graduate Bulletin* or the college's website for more information.

Summer course offerings: The college offers a number of summer courses. Please contact the Office of Part-time Enrollment Services or visit the college's website for more information.

Art history electives

With the exception of students enrolled in the BFA in film and animation, all BFA students are required to take History of Western Art: Ancient to Medieval (ARTH-135) and History of Western Art: Renaissance to Modern (ARTH-136), and select one additional art history elective to broaden their understanding of the historical and aesthetic development of the visual arts. Art history electives include:

ARTH-135*	History of Western Art: Ancient to Medieval
ARTH-136*	History of Western Art: Renaissance to Modern
ARTH-221	Contemporary Design Issues
ARTH-311	Art of Italy: 1250-1400
ARTH-312	Art of Italy: 1600-1750
ARTH-317	Art Florence and Rome: 15th Century
ARTH-318	Art Florence and Rome: 16th Century
ARTH-345†	History to Architecture Interior and Furniture I
ARTH-346†	History to Architecture Interior and Furniture II
ARTH-364	Art of 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
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-554	Late Medieval Art
ARTH-558	The Gothic Revival
ARTH-561	Latin American Art
ARTH-563	Modern Architecture
ARTH-566	Early Medieval Art
ARTH-568	Art and Technology: Machine Aesthetic Cyborg
ARTH-571	Extreme Abstraction
ARTH-572	Art of the Americas
ARTH-573	Conceptual Art
ARTH-574	Dada and Surrealism
ARTH-576	Modernism and Realism
ARTH-577	Displaying Gender
ARTH-578	Edvard Munch
ARTH-581	Russian Realist Art
ARTH-582	Medieval Craft
ARTH-583	Installation Art
ARTH-584	Scandinavian Modernism
ARTH-586	Studies in Material Culture
ARTH-587	The Gothic Cathedral
ARTH-588	Symbols and Symbol-Making

* This elective is required for students in majors in the schools of American Crafts, Art, Design, and Photographic Arts and Sciences (BFA majors only).

† This elective is required for interior design and furniture design majors.

Undeclared Options

Art and Design, Undeclared

http://cias.rit.edu/schools/art
http://cias.rit.edu/schools/design
Glen Hintz, Administrative Chair
(585) 475-6114, facpgd@rit.edu

Program overview

If students have a passion for the visual arts, but are undecided about which major to pursue, they may consider the undeclared art and design option. Students in the schools of American Crafts, Art, and Design begin their studies in a foundation studies program, which provides students with a broad set of introductory experiences in several areas of the visual arts. Students interested in one of the majors in the schools of Art or Design should apply for the undeclared art and design option. Admission is based, in part, on a portfolio evaluation. Portfolio guidelines can be found at admissions.rit.edu.

Crafts, Undeclared

http://cias.rit.edu/schools/american-crafts
Glen Hintz, Administrative Chair
(585) 475-6114, facpgd@rit.edu

Program overview

If students have a passion for the visual arts, but are undecided about which major to pursue, they may consider the undeclared crafts option. Students in the School of American Crafts begin their studies in the foundation studies program, which provides a broad set of introductory experiences in several areas of the visual arts. Students may then select a major within the School for American Crafts. Admission to the undeclared crafts option is based, in part, on a portfolio evaluation. Portfolio guidelines can be found at admissions.rit.edu.

Photography, Undeclared

http://photography.rit.edu
Therese Mulligan, Ph.D., Administrative Chair
(585) 475-2762, mtmpph@rit.edu

Program overview

For students interested in photography but unsure which major best meets their career aspirations, the undeclared photography option provides you with an overview of the two photography majors and their options—photographic and imaging arts (with options in advertising photography, fine art photography, photojournalism, or visual media) or photographic sciences (with options in biomedical photographic communications and imaging and photographic technology). Undeclared photography 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
	LAS Perspective 5, 6, or 7	3
	LAS Perspective 1	3
Choose one of the following:		3
ARTH-135	LAS Perspective 2: History of Western Art: Ancient to Medieval	
	LAS Perspective 7A	
	LAS Perspective 5	
Choose one of the following:		3
ARTH-136	LAS Perspective 3: History of Western Art: Renaissance to Modern	
	LAS Perspective 7B	
	LAS Perspective 6	
Choose one of the following:		3
FDTN-111	Drawing I (BFA)	
	LAS Perspective 2 (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.

School for American Crafts

Studio Residency program

The School for American Crafts offers a Studio Residency program for students in ceramics, furniture design, glass, and metals and jewelry design. Residence positions are limited and are awarded after the review of all applicants' portfolios, transcripts, and references. An interview is required. Accepted residents are required to register for one independent study credit during each semester of residence.

Accepted residents are expected to be present in their assigned studio during class hours and to contribute up to 10 hours of work per week in the main studio. These work hours are coordinated and overseen by the faculty in the resident's discipline. In exchange, the school will provide workspace, access to facilities, and supportive instruction. The resident is invited to participate in the full range of studio activities.

Participants may be those seeking additional studio experience prior to undergraduate or graduate study, early career professionals, or teachers on leave who wish to work again in an academic studio environment. The faculty in each discipline make decisions concerning appropriate candidates.

Inquiries should be made to the Studio Residency Program, School for American Crafts, College of Imaging Arts and Sciences, Rochester Institute of Technology, 73 Lomb Memorial Drive, Rochester, NY 14623-5603.

Ceramics, BFA

http://cias.rit.edu/schools/american-crafts/undergraduate-ceramics
Peter Pincus, Visiting Professor
(585) 475-6114, sac@rit.edu
Jane Shellenbarger, Assistant Professor
(585) 475-6114, sac@rit.edu

Program overview

The ceramics major has a deep focus on intellectual development, technical skill, and practical knowledge. The ultimate goal is to create an environment where intellectual discourse and craftsmanship can thrive. The studio supports a range of fundamental topics within ceramics, such as throwing, glazing, and firing, and emphasizes personal development with individual critiques and group discussions.

The major emphasizes practical training and education in preparation for ceramics-related employment. Students learn how to operate a studio business and maintain equipment, manage galleries, teach, and interface with community projects. Students are also exposed to a wide scope of visual arts and study their cultural relevance through weekly seminars, visiting artists, trips to museums, and attendance at the National Ceramics Conference every spring.

Curriculum

Ceramics, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
FDTN-111, 112	Drawing I, II	6
FDTN-121, 122	2D Design I, II	6
FDTN-131, 132	3D Design I, II	6
	CIAS Studio Elective‡	3
	LAS Perspective 5, 6, or 7	3
ENGL-150	First Year Writing Seminar	3
	Free Elective	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
ARTH-135	LAS Perspective 2: History of Western Art: Ancient to Medieval	3
ARTH-136	LAS Perspective 3: History of Western Art: Renaissance to Modern	3
CCER-201, 202	Ceramics Sophomore I, II	12
CGEN-201	Crafts Drawing Practice	3
STAR-202	Crafts CADD Drawing	3
	LAS Perspective 1, 3	6
Third Year		
CCER-301, 302	Ceramics Junior I, II	12
	Art History Electives§	6
	CIAS Studio Elective‡	3
	LAS Elective	3
	LAS Immersion 1 (WI)	3
	Free Elective	3
Fourth Year		
CCER-501, 502	Ceramics Senior I, II	12
CGEN-501	Crafts Promotional Materials (WI)	3
CGEN-502	Crafts Business Practice	3
	LAS Immersion 2, 3	6
	CIAS Studio Elective‡	3
	Free Elective	3
Total Semester Credit Hours		**120**

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 Wellness courses.
‡ CIAS Studio Electives are courses designated by lab or studio contact hours in the course description.
§ Art History electives are non-studio courses offered in the colleges of Imaging Arts and Sciences or Liberal Arts that examine the historical aspects of art, design, crafts, photography, print media, or film.

Furniture Design, BFA

http://cias.rit.edu/schools/american-crafts/undergraduate-woodworking
Andy Buck, Professor
(585) 475-6114, sac@rit.edu

Program overview

The furniture design major engages students in the pursuit of their creative interests while providing a comprehensive technical background in contemporary woodworking. The major 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.

In addition to the intensive wood studio, students gain experience in drawing, fundamental design issues, concept development, art history, and business practices. The major also emphasizes self-promotion, professionalism, portfolio development, gallery interactions, and studio operations. During the senior year, students culminate their work in an exhibition at an off-campus gallery. Upon graduation, students are well-prepared to transition from student to professional craftsman in this fine art field.

Curriculum

Furniture design, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
FDTN-111, 112	Drawing I, II	6
FDTN-121, 122	2D Design I, II	6
FDTN-131, 132	3D Design I, II	6
ENGL-150	First Year Writing Seminar	3
	LAS Perspective 5, 6, or 7	3
	Studio Electives‡	6
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
ARTH-135	LAS Perspective 2: History of Western Art: Ancient to Medieval	3
ARTH-136	LAS Perspective 3: History of Western Art: Renaissance to Modern	3
CWFD-201, 202	Furniture Design Sophomore I, II	12
CGEN-201	Crafts Drawing Practice	3
STAR-202	Crafts CADD Drawing	3
	LAS Perspective 1, 4	6
Third Year		
	LAS Elective	3
CWFD-301, 302	Furniture Design Junior I, II	12
	Art History Electives**	6
	LAS Immersion 1 (WI)	3
	Free Electives	6
Fourth Year		
CWFD-501, 502	Furniture Design Senior I, II	12
CGEN-501	Crafts Promotional Materials (WI)§	3
CGEN-502	Crafts Business Practice	3
	LAS Immersion 2, 3	6
	CIAS Studio Elective‡	3
	Free Elective	3
Total Semester Credit Hours		**120**

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 Wellness courses.
‡ Studio electives are courses designated by lab or studio contact hours in the course description.
§ Crafts Business Practices (CGEN-501) satisfies the upper-level writing requirement in the major program.
** Art history electives are non-studio courses offered in CIAS or the College of Liberal Arts that examine the historical aspects of art, design, crafts, photo, or film.

Furniture Design, AOS

http://cias.rit.edu/schools/american-crafts/other-woodworking-furniture-design-aos-degree
Andy Buck, Professor
(585) 475-6114, sac@rit.edu

Program overview

The associate of occupational studies 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 be 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		
CGEN-201	Crafts Drawing Practice	3
FDTN-111	Drawing I	3
CWFD-201	Furniture Design Sophomore I	6
FDTN-131	3D Design I	3
CGEN-202	Crafts CADD Drawing	3
FDTN-112	Drawing II	3
CWFD-202	Furniture Design Sophomore II	6
FDTN-132	3D Design II	3
	Wellness Education*	0
Second Year		
FDTN-121	2D Design I	3
CWFD-301	Furniture Design Junior I	6
CGEN-501	Crafts Promotional Materials (WI)	3
FDTN-122	2D Design II	3
	Art History Electives†	6
CWFD-302	Furniture Design Junior II	6
CGEN-502	Crafts Business Practice‡	3
Total Semester Credit Hours		**60**

(WI) Refers to a writing intensive course within the major.
* 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 offered in CIAS or COLA that examine the historical aspects of art, design, crafts, photo or film.
‡ Crafts Business Practices (CGEN-501) satisfies the upper-level writing requirement in the major program.

Glass, BFA

http://cias.rit.edu/schools/american-crafts/undergraduate-glass
Michael Rogers, Professor
(585) 475-6114, sac@rit.edu
David Schnuckel, Visiting Lecturer
(585) 475-6114, sac@rit.edu

Program overview

The glass major focuses on comprehensive instruction, exposing students to artistic perspectives and opinions. The curriculum fosters effective artistic expression by teaching both techniques and idea realization within the field of glass. Foundations courses assist students in finding their voice and empowering them to identify a personal definition for their work. Students study the fundamentals of blowing, casting, and cold-forming. Idea generation, development, execution, and presentation are also explored. Self-promotion, gallery interaction, and business practices are especially emphasized, allowing students to pursue careers immediately after graduation.

Curriculum

Glass, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
FDTN-111, 122	Drawing I, II	6
FDTN-121	2D Design I	3
FDTN-131, 132	3D Design I, II	6
FDTN-141	4D Design	
	LAS Perspective 5, 6, or 7	3
ENGL-150	First Year Writing Seminar	3
	Studio Electives‡	6
ACSC-010	Year One: College Experience	0
	Wellness Education*	0

COURSE		SEMESTER CREDIT HOURS
Second Year		
	LAS Perspective 1, 4	6
ARTH-135	LAS Perspective 2: History of Western Art: Ancient to Medieval	3
ARTH-136	LAS Perspective 3: History of Western Art: Renaissance to Modern	3
CGLS-201, 202	Glass Sophomore I, II	12
CGEN-201	Crafts Drawing Practice	3
CGEN-202	Crafts CADD Drawing	3
Third Year		
CGLS-301, 302	Glass Junior I, II	12
	Art History Electives†	6
	LAS Elective	3
	Free Electives	6
	LAS Immersion 1 (WI)	3
Fourth Year		
CGLS-501, 502	Glass Senior I, II	12
CGEN-501	Crafts Promotional Materials (WI)	3
CGEN-502	Crafts Business Practice	3
	LAS Immersion 2, 3	6
	Free Elective	3
	Studio Elective‡	3
Total Semester Credit Hours		**120**

Please see New 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 Wellness courses.
† Art history electives are non-studio courses offered in CIAS or the College of Liberal Arts that examine the historical aspects of art, design, crafts, photography, print media, or film.
‡ Studio electives are courses designated by lab or studio contact hours in the course description.

Metals and Jewelry Design, BFA

http://cias.rit.edu/schools/american-crafts/undergraduate-metalcrafts
Leonard Urso, Professor
(585) 475-6114, sac@rit.edu
Carlos Caballero-Perez, Professor
(585) 475-6114, sac@rit.edu

Program overview

The metals and jewelry design major focuses on fostering a learning environment in which students are exposed to and learn about metalsmithing techniques and design. Students have the opportunity to learn about hollowware, jewelry, sculpture, and furniture within the metals environment. Distinguished faculty assist students in building skills for life after graduation, such as soldering, fabrication, stone setting, silversmithing, forging, and casting. Students also develop drawing and rendering skills in order to enhance their design ideas and artistic methods. During the final year, students culminate their studies by presenting their work in a senior exhibition. Students develop a strong body of work, a portfolio, and a resume, which assists them in a successful transition towards achieving their professional goals and objectives.

Curriculum

Metals and jewelry design, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
FDTN-111, 112	Drawing I	6
FDTN-121	2D Design I	3
FDTN-131, 132	3D Design I, II	6
FDTN-141	4D Design	3
	LAS Perspective 5, 6, or 7	3
ENGL-150	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Studio Electives‡	6
	Wellness Education*	0
Second Year		
ARTH-135	LAS Perspective 2: History of Western Art: Ancient to Medieval	3
ARTH-136	LAS Perspective 3: History of Western Art: Renaissance to Modern	3
CMTJ-201, 202	Metals and Jewelry Design Studio Sophomore I, II	12
CGEN-201	Crafts Drawing Practice	3
STAR-202	Craft CADD Drawing	3
	LAS Perspective 1, 4	6
Third Year		
CMTJ-301, 302	Metals and Jewelry Design Studio Junior I, II	12
	LAS Elective	3
	Art History Electives**	6
	Free Electives	6
	LAS Immersion 1 (WI)	3
Fourth Year		
CMTJ-501, 502	Metals and Jewelry Design Studio Senior I, II	12
CGEN-501	Crafts Promotional Materials (WI)§	3
CGEN-502	Crafts Business Practices	3
	Free Elective	3
	LAS Immersion 2, 3	6
	Studio Elective‡	3
Total Semester Credit Hours		**120**

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 Wellness courses.
‡ Studio electives are courses designated by lab or studio contact hours in the course description.
§ Crafts Promotional Materials (CGEN-501) satisfies the upper-level writing requirement in the major.
** Art history electives are non-studio courses offered in CIAS or the College of Liberal Arts that examine the historical aspects of art, design, crafts, photography, print media, or film.

School of Art

Illustration, BFA

http://cias.rit.edu/schools/art/undergraduate-illustration
Don Arday, Program Chair
(585) 475-7562, facpgd@rit.edu

Program overview

The illustration major 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.

Curriculum

Illustration, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
FDTN-111, 112	Drawing I, II	6
FDTN-121	2D Design I	3
FDTN-131	3D Design I	3
	LAS Perspective 5, 6, or 7	3
ENGL-150	First Year Writing Seminar	3
ILLS-250	Illustration Fundamentals Special Topics	6
ARTH-135	LAS Perspective 2: History of Western Art: Ancient to Medieval	3
ARTH-136	LAS Perspective 3: History of Western Art: Renaissance to Modern	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
ILLS-219	Digital Illustration I	3
	LAS Perspective 1, 4	6
	Art History Elective‡	3
	Illustration Core Courses**	9
	Studio Electives§	6
	Illustration Professional Elective††	3
Third Year		
ILLS-313	Illustration II	3
	Illustration Professional Electives††	12
	Studio Elective§	3
	Art History Elective‡	3
	Free Elective	3
	LAS Immersion 1, 2	6
Fourth Year		
ILLS-413	Illustration III	3
ILLS-501	Illustration Portfolio (WI)	3
	Illustration Professional Electives††	6
	Studio Electives§	6
	Free Electives	6
	LAS Immersion 3	3
	LAS Elective	3
Total Semester Credit Hours		**120**

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 Wellness courses.
‡ Art history electives are non-studio courses offered in CIAS or the College of Liberal Arts that examine the historical aspects of art, design, crafts, photography, print media, or film.
§ Studio elective courses are those designated with studio/lab contact hours listed in the course description.
** Illustration core courses include Illustration I (ILLS-213), Anatomical Illustration (ILLS-214), Digital Illustration I (ILLS-219), and Dimensional Illustration I (ILLS 218).
†† Please see adviser for a complete list of Illustration professional electives.

Fine Arts Studio, BFA

http://cias.rit.edu/schools/art/undergraduate-fine-arts-studio
Eileen Bushnell, Program Chair
(585) 475-7562, efbfaa@rit.edu

Program overview

The fine arts studio major serves the student who is interested in a career in the fine arts across a variety of two and three-dimensional disciplines and media. Students work in painting, non-toxic printmaking, sculpture, and expanded forms to create work exploring individual directions. Technique and idea generation are taught to allow for individual creativity along with courses in business practices for the arts preparing students to enter the professional field of art.

Electives

Students may select electives that enhance their studies or allow them to pursue an area of personal or professional interest. Studio 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 topics courses.

Curriculum

Fine arts studio, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
FDTN-111, 112	Drawing I, II	6
FDTN-121, 122	2D Design I, II	6
FDTN-131, 132	3D Design I, II	6
	LAS Perspective 5, 6, or 7	3
	First Year Writing Seminar	3
ARTH135	LAS Perspective 2: History of Western Art: Ancient to Medieval	3
ARTH-136	LAS Perspective 3: History of Western Art: Renaissance to Modern	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
FDTN-141	4D Design	3
FNAS-201	Introduction to Expanded Forms	3
FNAS-202	Introduction to Non-Toxic Printmaking	3
FNAS-203	Introduction to Painting	3
FNAS-204	Introduction to Sculpture	3
FNAS-305	Figuring Drawing	3
	LAS Perspective 1	3
	CIAS Studio Elective§	3
	Free Elective	3
	LAS Perspective 4	3
Third Year		
FNAS-405	Fine Art Drawing	3
FNAS-514	Ideation and Series	3
	FAS (Major)‡	9
	Art History Elective§	3
	CIAS Studio Elective**	3
	LAS Elective	3
	LAS Immersion 1, 2	6
Fourth Year		
FNAS-401	Senior Show	3
FNAS-517	Business Practices (WI)	3
	FAS (Major)†	9
	Art History Elective§	3
	Free Elective	6
	LAS Immersion 3	3
	CIAS Studio Elective**	3
Total Semester Credit Hours		**120**

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 Wellness courses.
‡ FAS (Major) refers to any combination of 500-level FNAS courses (painting, non-toxic printmaking, sculpture, or new forms). Any of the four choices may be repeated up to 4 times (12 credit hours) as part of the 18 credit requirement.
§ Illustration students are required to take 6 credit hours of art history electives.
** CIAS studio elective courses are those designated with studio/lab contact hours listed in the course description.

Medical Illustration, BFA

http://cias.rit.edu/schools/art/undergraduate-medical-illustration
Glen Hintz, Administrative Chair
(585) 475-7562, facpgd@rit.edu

Program overview

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.

Curriculum

Medical illustration, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
FDTN-111, 112	Drawing I, II	6
FDTN-121	2D Design I	3
FDTN-131	3D Design I	3
FDTN-132	3D Design II	3
MEDG-101, 103	Human Biology I and Lab	4
MEDG-102, 104	Human Biology II and Lab	4
	LAS Perspective 5, 6, or 7	3
ENGL-150	First Year Writing Seminar	3
ILLS-250	Illustration Fundamentals Special Topics	6
ACSC-010	Year One: College Experience	0
	Wellness Education	0
Second Year		
FDTN-141	4D Design	3
ILLS-214	Anatomic Illustration	3
ILLM-507	Computer Applications In Medical Illustration	3
	Illustration Professional Elective‡	3
MEDS-250, 251	Anatomy and Physiology I, II	8
ARTH-135	LAS Perspective 2: History of Western Art: Ancient to Medieval	3
ARTH-136	LAS Perspective 3: History of Western Art: Renaissance to Modern	3
	LAS Perspective 1, 4	6
Third Year		
ILLM-501	Human Gross Anatomy	6
ILLM-502	Illustrating Human Anatomy	3
ILLM-503	3D Modeling Organic Forms	3
ILLM-508	Scientific Visualization	3
ILLM-506	3D Animation Organic Forms	3
	CIAS Studio Elective§	3
	LAS Immersion 1, 2	6
	Art History Elective†	3
Fourth Year		
ILLM-512	Surgical Illustration	3
ILLM-515, 516	Contemporary Media I, II	6
ILLM-517	Portfolio and Business (WI)	3
	CIAS Studio Electives§	6
	Art History Elective†	3
	LAS Immersion 3	3
	Free Elective	3
	LAS Elective	3
Total Semester Credit Hours		**124**

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 Wellness courses.
† Art history electives are non-studio courses offered by CIAS or the College of Liberal Arts that examine the historical aspects of art, design, crafts, photography, print media, or film.
‡ Illustration electives include the following: Illustration I (ILLS-213), Digital Illustration I (ILLS-219), and Zoological and Botanical Illustration (ILLS-563).
§ CIAS studio electives are courses designated by lab or studio contact hours in the course description.

School of Design

3D Digital Design, BFA

http://cias.rit.edu/schools/design/undergraduate-3d-digital-graphics
Marla Schweppe, Program Chair
(585) 475-2754, mkspph@rit.edu

Program overview

From day one, the students in the 3D digital design major use professional 3D software in computer and video games, virtual reality, medical and scientific simulations, data visualization, models for architects and engineers, motion or broadcast graphics, instructional media accident reconstruction, and more. Students also work in immersive systems, game engines, with motion capture and 3D printing. Traditional design skills using commercial 3D software are augmented with principles of time, motion, rendering, compositing, and lighting to create inspiring projects. Alumni work in top companies around the country and the world applying the skills they have learned to design problems of all kinds.

Curriculum

3D digital design, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
DDDD-101	Introduction to Modeling and Motion	3
DDDD-102	Introduction to Visual Design	3
DDDD-103	Imaging for 3D	3
FDTN-131, 132	3D Design I, II	6
FDTN-141	4D Design	3
ARTH-135	LAS Perspective 2: History of Western Art: Ancient to Medieval	3
ARTH-136	LAS Perspective 3: History of Western Art: Renaissance to Modern	3
	LAS Perspective 5, 6, or 7	3
ENGL-150	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
DDDD-201	Modeling and Motion Strategies	3
DDDD-202	Layers and Effects	3
DDDD-203	Scripting	3
DDDD-206	Collaborative Project	3
DDDD-207	Lighting, Materials, and Rendering	3
DDDD-208	Anatomical Figure Drawing	3
FDTN-121	2D Design I	3
	LAS Perspective 1, 4	6
	Programming Elective†	3
Third Year		
DDDD-301	Professional Practice (WI)	3
DDDD-302	History of Digital Graphics	3
DDDD-306	Project Planning and Production	3
	3DDD Professional Electives†	6
	Free Electives	6
	LAS Immersion 1, 2	6
	Art History Elective‡	3
Fourth Year		
DDDD-401	Senior Thesis Testing and Documentation	3
DDDD-402, 403	Senior Thesis I, II	6
	3DDD Professional Electives†	9
	Free Electives	6
	LAS Immersion 3	3
	LAS Elective	3
Total Semester Credit Hours		**120**

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 Wellness courses.
† Please see adviser for a complete list of programming electives and 3DDD professional electives.
‡ Art history electives are non-studio courses offered in CIAS or the College of Liberal Arts that examine the historical aspects of art, design, crafts, photography, print media, or film.

Graphic Design, BFA

http://cias.rit.edu/schools/design/undergraduate-graphic-design
Nancy Bernardo, Program Chair
(585) 475-6378, nabfaa@rit.edu

Program overview

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 art/design history. 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 Imaging Arts and Sciences.

Art/Design/Photo/Craft history electives

Students are required to select two visual art history electives to broaden their understanding of the historical development of the visual arts.

Curriculum

Graphic design, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
FDTN-121	2D Design I	3
FDTN-131	3D Design I	3
FDTN-111, 112	Drawing I, II	6
ARTH-135	LAS Perspective 2: History of Western Art: Ancient to Medieval	3
ARTH-136	LAS Perspective 3: History of Western Art: Renaissance to Modern	3
	LAS Perspective 5, 6, or 7	3
GRDE-106	Elements of Graphic Design	3
GRDE-107	Time Based Design	3
ENGL-150	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
GRDE-201	Typography	3
GRDE-202	Design Imagery	3
GRDE-205	History of Graphic Design (WI)	3
	LAS Perspectives 1, 4	6
	Studio Electives‡	6
GRDE-206	Typography and Imagery	3
GRDE-207	Interactive Media Design	3
MAAT-383	Design Production	3
Third Year		
GRDE-301	Information Design	3
GRDE-302	Web and User Interface Design	3
	Art History Elective§	3
	Studio Electives‡	6
	LAS Immersion 1, 2	6
GRDE-306	Professional Practices	3
GRDE-307	Design Systems and Methodology	3
GRDE-308	Experiential Graphic Design	3
Fourth Year		
GRDE-421	Branding and Identity Design	3
GRDE-411	Senior Portfolio Development	3
	Senior Graphic Design Elective†	6
	Free Electives	9
	LAS Immersion 3	3
GRDE-402	Senior Capstone Project	3
	LAS Elective	3
Total Semester Credit Hours		**120**

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 Wellness courses.
† Please see an adviser for a complete list of graphic design electives.
‡ Studio elective courses are those designated with studio/lab hours listed in the course description.
§ Art history elective courses include Women Pioneers in Design (GRDE-322), 20th Century Editorial Design History (GRDE-326), Graphic Design in Film (GRDE-367).

Additional information

Portfolio requirement

A portfolio is required for admission. Please visit http://cias.rit.edu/prospective-students/portfolio-guide/ for more information.

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.

Industrial Design, BFA

http://cias.rit.edu/schools/design/undergraduate-industrial-design
Bruce Leonard, Program Chair
(585) 475-2954, balfaa@rit.edu

Program overview

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.

Plan of study

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

Curriculum

Industrial design, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
FDTN-121, 122	2D Design I, II	6
FDTN-131, 132	3D Design I, II	6
FDTN-111	Drawing I	3
ARTH-135	LAS Perspective 2: History of Western Art: Ancient to Medieval	3
ARTH-136	LAS Perspective 3: History of Western Art: Renaissance to Modern	3
IDDE-102	Design Drawing	3
	LAS Perspective 5, 6, or 7	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
IDDE-201, 202	Sophomore ID Studio I, II	6
IDDE-206	ID Form	3
IDDE-207	ID Digital Drawing	3
IDDE-211	Human Factors	3
IDDE-212	Integrated CAD	3
IDDE-221	History of Industrial Design	3
	LAS Perspective 1, 4	6
	LAS Elective	3
Third Year		
IDDE-301, 302	Junior ID Studio I, II	8
IDDE-306	Materials and Processes	3
IDDE-307	Graphic Tactics	3
IDDE-311	ID Career Planning (WI)	3
	Studio Electives‡	6
	LAS Immersion 1, 2	6
	Art History Elective§	3
Fourth Year		
IDDE-406	Professional Practice	3
IDDE-407, 408	ID Senior Capstone I, II	6
IDDE-501, 502	Senior ID Studio I, II	8
	Free Elective	3
	LAS Immersion 3	3
	Studio Elective‡	3
	LAS Electives	6
Total Semester Credit Hours		**124**

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 Wellness courses.
‡ Studio elective courses are those designated with studio/lab hours listed in the course description.
§ Art history electives are non-studio courses offered in CIAS or COLA that examine the historical aspects of art, design, crafts, photo or film.

Additional information

Professional organizations

The school 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.

Interior Design, BFA

http://cias.rit.edu/schools/design/undergraduate-interior-design
Mary Golden, Program Chair
(585) 475-7893, megfaa@rit.edu

Program overview

Interior designers, experts in space planning and interior architectural environments, enhance the way people live, work, heal, prosper and play. Interior design is a user-centered discipline; it explores the relationship between people and their physical surroundings.

RIT's comprehensive interior design major synthesizes design history, building structure and systems, space planning, and design process with a consciousness of global affairs to create unique, meaningful environments. Experienced, certified professionals promote relevant skills that allow students to address today's design issues.

Our International Interior Design Association (IIDA) Campus Center facilitates networking and interaction with industry professionals. The world-renowned Vignelli Center for Design Studies serves as an invaluable resource for understanding the process and product of design by the world's most acclaimed designers. Dedicated studio and lecture spaces provide students with the freedom to interact with peers and faculty one-on-one, fostering teamwork and collaboration.

We mentor students with a consciousness for global affairs and today's design challenges so that they may contribute to the profession with a deep-rooted understanding of society, culture, and environment. By maximizing an array of academic and professional opportunities, our graduates are reshaping how we live in the world.

Accreditation

The program is accredited by the Council for Interior Design Accreditation.

Plan of study

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

Curriculum

Interior design, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
INDE-101	Introduction to Interior Design	3
FDTN-121	2D Design I	3
FDTN-131, 132	3D Design I, II	6
FDTN-111	Drawing I	3
ARTH -135	LAS Perspective 2: History of Western Art: Ancient to Medieval	3
ARTH -136	LAS Perspective 3: History of Western Art: Renaissance to Modern	3
	LAS Perspective 5, 6 or 7	3
INDE-102	Design Drawing I	3
ENGL-150	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
INDE-201	Introduction to Interior Design II	3
INDE-202	Design Drawing II	3
INDE-203	Digital Graphics	3
	Studio Electives‡	6
	LAS Perspective 3, 4	6
INDE-222	Design Issues (WI)	3
INDE-207	Color and Lighting	3
INDE-212	Hospitality Design	3
Third Year		
ARTH-345, 346	History of Architecture, Interior, and Furniture I, II	6
INDE-301	Office Design	3
INDE-303	Materials and Specifications	3
	Studio Electives‡	6
	LAS Immersion 1, 2	6
INDE-302	Retail Design	3
INDE-304	Building Systems	3
Fourth Year		
INDE-401	Multi-Story/Purpose Design	4
INDE-405	Business Practices and Career Planning (WI)	3
INDE-407	Contract Documents	4
	LAS Immersion 3	3
	Free Electives	9
INDE-402	Special Projects	3
INDE-403	Health Care Design	3
	LAS Elective	3
Total Semester Credit Hours		**122**

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 Wellness courses.
‡ Studio elective courses are those designated with studio/lab hours listed in the course description.

Additional information

Professional memberships

The school 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.

New Media Design, BFA

http://cias.rit.edu/schools/design/undergraduate-new-media-design
Adam Smith, Program Chair
(585) 475-4552, aesfaa@rit.edu

Program overview

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.

Curriculum

New media design, BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	LAS Perspective 5, 6, or 7	3
	LAS Perspective 1	3
FDTN-121	2D Design I	3
FDTN-111	Drawing I	3
NMDE-111	New Media Design Digital Survey I	3
NMDE-112	New Media Design Digital Survey II	3
ENGL-150	First Year Writing Seminar	3
FDTN-141	4D Design	3
FDTN-112	Drawing II	3
NMDE-103	New Media Design Interactive I	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
ARTH-135	LAS Perspective 2: History of Western Art: Ancient to Medieval	3
IGME-101, 102	NM Interactive Design and Algorithmic Problem Solving I , II	8
NMDE-201	New Media Design Elements II	3
NMDE-202	New Media Design 3D	3
ARTH-136	LAS Perspective 3: History of Western Art: Renaissance to Modern	3
NMDE-204	New Media Design Animation	3
NMDE-203	New Media Design Interactive II	3
	CIAS Studio Elective†	3
	LAS Perspective 4	3
Third Year		
IGME-230	Website Design and Implementation	3
	Art History Electives‡	6
NMDE-305	New Media Design Motion Graphics	3
NMDE-302	New Media Design Graphical User Interface	3
	Free Electives	6
	LAS Immersion 1	3
NMDE-301	New Media Design Elements III (WI)	3
NMDE-303	New Media Design Interactive III	3

COURSE		SEMESTER CREDIT HOURS
Fourth Year		
	LAS Immersion 2, 3	6
	LAS Elective	3
NMDE-401	New Media Design Career Skills	3
NMDE-404	New Media Design Interactive IV	3
	Free Electives	9
NMDE-411	New Media Design Team Project	3
NMDE-406	New Media Design Experimental	3
Total Semester Credit Hours		**122**

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 Wellness courses.
† CIAS studio electives are courses designated by lab or studio contact hours in the course description.
‡ Art history electives are non-studio courses offered in CIAS or the College of Liberal Arts that examine the historical aspects of art, design, crafts, photography, print media, or film.

Additional information

Professional memberships

The school 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.

School of Film and Animation

Film and Animation, BFA

http://cias.rit.edu/film/
Brian Larson, Program Chair, Animation
(585), 475-2711, bjlppr@rit.edu
Jack Beck, Program Chair, Production
(585) 475-2761, jabppr@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. The major develops students' production skills and promotes film, video, and animation as creative media.

Plan of study

The curriculum emphasizes production, with students beginning their first year working in 16mm film, digital 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 the 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 or animations by working through all phases of production, from scripting, production planning, and budgeting to shooting, 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 work flow issues within the constraints of time, space, budget, and technology. Upon graduation, students 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.

Curriculum

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

COURSE		SEMESTER CREDIT HOURS
First Year		
SOFA-101	Production I	3
SOFA-106	Film Syntax	2
ENGL-150	First Year Writing Seminar	3
SOFA-122	Fundamentals of Computers and Imaging Technology	3
SOFA-107	Principles of Animation	3
SOFA-111	Film Viewings	1
SOFA-121	LAS Perspective 2: Animation Survey	3
	LAS Perspective 1	3
SOFA-227	Animation Pre-production	3
	LAS Perspective 5, 6, or 7	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Choose one of the following:		3
SOFA-108	Drawing for Animation (2D)	
SOFA-209	Object and Character Creation (3D)	
Second Year		
Choose one of the following:		3
SOFA-203	2D Animation I: Dynamics	
SOFA-215	3D Animation I	
SOFA-522	Stop Motion Puppet Fundamentals	
SOFA-205	Basic Sound Recording	3
SOFA-228	Animation Scriptwriting and Storyboard (WI)	3
SOFA-217	Animation Production Workshop I	4
SOFA-224	Tradigital Animation	3
SOFA-225	Performance Resources for Animation	3
Choose one of the following:		3
SOFA-216	3D Animation II	
SOFA-218	Concept and Character Design (2D)	
SOFA-533	Advanced Stop Motion Techniques	
SOFA-541	History and Aesthetics of Animation (WI)	3
	CIAS/SOFA Elective‡	3
	LAS Perspective 3	3
Third Year		
SOFA-518	Business and Careers in Animation	3
SOFA-317	Animation Production Workshop II	4
	Free Elective	3
	CIAS/SOFA Electives‡	6
	LAS Perspective 4	3
	LAS Elective	3
	CIAS/SOFA History and Aesthetics course§	3
	LAS Immersion 1 (WI)	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	
SOFA-306	Senior Thesis Seminar	1
Fourth Year		
SOFA-406, 407	Senior Thesis I, II	8
SOFA-408	Senior Forum	1
	CIAS/SOFA History and Aesthetics course§	3
	Free Electives	6
	LAS Immersion 2, 3	6
	CIAS Elective‡	3
Total Semester Credit Hours		**120**

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 Wellness courses.
‡ Please see an adviser for a complete list of CIAS/SOFA electives.
§ Please see an adviser for a complete list of CIAS/SOFA History and Aesthetics courses.

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

COURSE		SEMESTER CREDIT HOURS
First Year		
SOFA-101, 102	Production I, II	6
SOFA-106	Film Syntax	2
SOFA-111	Film Viewings	1
SOFA-112	Fundamentals of Screenwriting	3
SOFA-121	LAS Perspective 2: Animation Survey	3
ENGL-150	First Year Writing Seminar	3
SOFA-122	Fundamentals of Computers and Imaging Technology	3
	History and Aesthetics course‡	3
	LAS Perspective 1	3
	LAS Perspective 5, 6, or 7	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
SOFA-202	Production Processes	4
SOFA-205	Basic Sound Recording	3
SOFA-206	Directing	3
SOFA-208	Dramatic Structure (WI)	3
	LAS Perspective 3, 4	6
	SOFA Production Workshop**	4
	SOFA Craft Choice††	3
	CIAS/SOFA Elective§	3
	Free Elective	3
Third Year		
SOFA-514	Business and Careers in Film	3
SOFA-306	Senior Thesis Seminar	1
	SOFA Production Workshop**	4
	CIAS/SOFA History and Aesthetics courses‡	6
	CIAS/SOFA Electives§	6
	LAS Elective	3
	SOFA Craft Choice††	3
	Free Elective	3
	LAS Immersion 1 (WI)	3
Fourth Year		
SOFA-406, 407	Senior Thesis I, II	8
SOFA-408	Senior Forum	1
	CIAS/SOFA History and Aesthetics course‡	3
	Free Electives	6
	LAS Immersion 2, 3	6
	CIAS/SOFA Elective§	3
Total Semester Credit Hours		**121**

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 Wellness courses.
‡ Please see an adviser for a complete list of CIAS/SOFA History and Aesthetics courses.
§ Please see an adviser for a complete list of CIAS/SOFA electives.
** SOFA production workshop courses include Documentary Workshop (SOFA-211),Fiction Workshop (SOFA-212), 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.
†† SOFA craft choice courses include Advanced Sound Recording (SOFA-521), Advanced Editing (SOFA-523), Advanced Directing (SOFA-524), Writing the Short Film (SOFA-526), Advanced Cinematography (SOFA-578).

Additional information

Admission requirements

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

Portfolio guidelines: Specific instructions on portfolio submission for applicants to the film and animation major are available in the college's introductory section of this bulletin or on the college website (http://cias.rit.edu/prospective-students/portfolio-guide/). Portfolio submission is optional. Only a small group of borderline applicants' portfolios will be reviewed. 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, storyboards, and original music.

Writing policy

The School of Film and Animation has a minimum writing requirement within each of its majors. A copy of the school's official writing competency policy may be obtained from the department or from the Office of Academic Student Services.

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 courses, please contact the school.

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.

Motion Picture Science, BS

http://cias.rit.edu/schools/film-animation/undergraduate-motion-picture-science
David Long, Program Chair
(585) 475-5724, dllppr@rit.edu

Program overview

The motion picture science major provides a science- and engineering-based education in the fundamental imaging technologies used for the motion picture industry. By joining a core curriculum in practical filmmaking from the College of Imaging Arts and Sciences and imaging science from the College of Science, this major 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.

Curriculum

Motion picture science, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
SOFA-101, 102	Production I, II	6
SOFA-103	Introduction to Video and Imaging Systems	3
SOFA-111	Film Viewings	1
IMGS-221	Vision and Psychophysics	3
IMGS-181	Innovation Freshmen Experience I	3
ENGL-150	First Year Writing Seminar	3
PHYS-211	LAS Perspective 5: Physics I	4
MATH-181, 182	LAS Perspective 7A, 7B: Project-Based Calculus I, II	7
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
PHYS-212	LAS Perspective 6: Physics II	4
	LAS Perspective 1, 2	6
IMGS-211	Probability and Statistics for Imaging	3
IMGS-180	Introduction to Computing and Control	3
IMGS-261	Linear and Fourier Methods of Imaging	4
SOFA-202	Production Processes	4
SOFA-205	Basic Sound Recording	3
IMGS-351	Fundamentals of Color Science	3
Third Year		
IMGS-321	Geometric Optics	3
IMGS-251	Radiometry	3
IMGS-361, 362	Imaging Processing and Computer Vision I, II	6
Choose one of the following:		3
SOFA-209	3D Object and Character Creation	
SOFA-531	Digital Effects and Compositing	
SOFA-311	Image Capture and Production Technology	3
SOFA-312	Digital Post-Production Technology (WI)	3
	LAS Perspective 3	3
	LAS Immersion 1	3
	Free Elective	3
Fourth Year		
SOFA-313	Film Projection and Digital Cinema	3
SOFA-401, 402	Senior Project I, II	6
	SOFA Electives†	6
	LAS Perspective 4	3
	LAS Immersion 2, 3	6
	Free Electives	6
Total Semester Credit Hours		**124**

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 Wellness courses.
† Please consult adviser for list of SOFA elective courses.

School of Media Sciences

Media Arts and Technology, BS

http://cias.rit.edu/schools/media-sciences/undergraduate-media-arts-and-technology

Michael Riordan, Program Chair
(585) 475-4753, michael.riordan@rit.edu

Program overview

In the media arts and technology major students learn how to produce, distribute, and manage content to reach audiences of all sizes through web, print, and mobile platforms. The major provides a balance of the creative, business, and technical aspects of graphic communication through immersive study focused on design, imaging, business, and the applied sciences (computer science, color science, information science, and engineering). Elective courses allow students to customize their course of study as they develop specializations around areas of cross-media publishing, next-generation packaging, advertising and promotion, media management, business strategy, sustainability, digital materials, print and new media production, and the development of innovation applications across media.

The flexible elective structure makes the 4+1 MBA option attractive to many students and enables them to earn a BS in the media arts and technology and an MBA in five years through coordination with RIT's Saunders College of Business.

Cooperative education

All students are required to complete two cooperative education experiences. Co-op provides an opportunity for students to earn a salary while gaining valuable industry experience as they prepare for their career. Our graduates enjoy challenging careers with media producers, publishers, advertising agencies, news organizations, packaging companies, communication departments, website developers, and more. Our alumni are employed at companies ranging from Apple, AlphaGraphics, and Conde Nast to Coca-Cola, Time Inc., and Tiffany and Co.

Curriculum

Media arts and technology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MAAT-101	Cross Media Foundations	3
MAAT-206	Print Production	3
	LAS Perspective 1	3
	LAS Electives	6
MAAT-271	Webpage Production I	3
MAAT-272	Webpage Production II	3
MAAT-106	Typography and Page Design	3
ENGL-150	First Year Writing Seminar	3
MATH-101	LAS Perspective 7A: College Algebra	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MAAT-223	Production Workflow	3
MAAT-107	Imaging	3
MAAT-301	Database Publishing	3
MAAT-302	Professional and Technical Writing (WI)	3
	LAS Perspective 2, 3, 4	10
STAT-145	LAS Perspective 7B: Introduction to Statistics I	3
STAT-146	Introduction to Statistics II	3
	Free Elective	3
MAAT-010	Cooperative Education Orientation	0
	Cooperative Education‡	Co-op
Third Year		
MAAT-306	Information Architecture for Publishing	3
MAAT-307	Media Business Management	3
	LAS Perspective 5, 6**	6
	LAS Immersion 1, 2	6
	Program/Professional Electives§	6
Fourth Year		
MAAT-401	Team Project	3
	LAS Immersion 3	3
	LAS Electives	9
	Program/Professional Electives§	6
	Free Electives	9
Total Semester Credit Hours		**121**

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.
‡ The minimum requirement for cooperative education includes a total of 20 weeks and can be broken down by the following options: two summer terms, or one academic semester and one summer term.
§ Program/Professional electives require adviser approval.
** 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.

School of Photographic Arts and Sciences

Photographic and Imaging Arts (options in Advertising Photography, Fine Art Photography, Photojournalism, Visual Media), BFA

http://photography.rit.edu
Therese Mulligan, Ph.D., Administrative Chair
(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.

Advertising photography internships

Students participate in internships with some of the nation's most respected professional photographers, advertising and design agencies, magazine publishers, photography agents, equipment rental, and production services. Working in a variety of commercial and studio environments, students have the opportunity to learn from photographers, picture editors, art directors, and other professionals. In collaboration with their professors and the Office of Career Services and Cooperative Education, students identify and apply for relevant internships, which provide real-world work experience that becomes an invaluable part of students' educational experience.

Career opportunities in advertising photography

Graduates work as studio photographers, editorial photographers, art directors, and picture editors. A significant number of students also become self-employed freelance photographers. Recent graduates have been hired by Saks Fifth Avenue, Conde Nast Publications, Martha Stewart Living, artist agencies, Neiman Marcus, among many others.

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.

Fine art photography internships

Students apply for internships with some of the nation's most respected print and online galleries, museums, and workshop providers. They work behind the camera in editorial, commercial, and studio environments and have the opportunity to learn from photographers, picture editors, art directors, curators and other professionals. Students receive assistance from their professors, as well as from the Office of Career Services and Cooperative Education, in identifying and applying for internships. Internships provide real-world work experience, which is an invaluable part of our students' educational experience.

Career opportunities in fine art photography

Graduates find careers as exhibiting artists, photo educators, picture editors, art directors, photographers' representatives, photographic archivists or curators, museum and gallery staff, multimedia specialists, self-employed photographers, custom-image printers, and film/video

artists or animators. Many students choose to pursue graduate work and earn an MFA degree in the arts.

Photojournalism

Photojournalism teaches students to produce non-fiction visual reporting that tells the stories of real-life people 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.

Photojournalism internships

Students apply for internships with some of the nation's most respected newspapers, websites, and magazines as both photographers and editors. They work behind the camera on a variety of stories and have the opportunity to learn from photographers, editors, and other professionals in the newsroom. Students receive assistance from their professors, as well as from the Office of Career Services and Cooperative Education, in identifying and applying for internships. Internships provide real-world work experience, which is an invaluable part of students' educational experience.

Career opportunities in photojournalism

Photojournalism graduates go to work for some of today's best digital publications, newspapers, and magazines. A significant number of students also become self-employed freelance photographers. They seek freelance assignments with news organizations, picture agencies, non-profits, stock photo agencies, and as editorial photographers. Many graduates are employed as picture editors, website producers, content curators, and television or multimedia editors.

National Press Photographers Association

Photojournalism students are the driving force in the school's National Press Photographers Associate (NPPA) student chapter. Students regularly attend activities sponsored by the NPPA, including regional and national conferences. They also publish their own website. The chapter manages a yearly contest of student work that is judged by alumni who also share their experiences in photojournalism and review student portfolios. The chapters also hosts guest speakers. The RIT student chapter was awarded the nation's top chapter by the NPPA in 2016.

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.

Visual media internships

Students apply for internships with some of the nation's most respected print and online photographic, graphic design firms, and printing/publishing venues. They work behind the camera or in creative collaboration in a variety of professional photo and multimedia environments, and have the opportunity to learn firsthand from photographers, picture editors, art directors, publishers, designers, and other professionals. Students receive assistance from their professors, as well as from the Office of Career Services and Cooperative Education, in identifying and applying for internships, which provide real-world work experience and is a invaluable part of students' educational experience.

Career opportunities in visual media

Visual media graduates go to work as graphic designers, multimedia designers, picture editors, social media and app developers, web designers, and advertising project managers. Recent employers include companies such as Crate and Barrel, Zipcar, Geico, MLB.com, and organizations such as Habitat for Humanity, CURE International, and the Museum of Modern Art.

Curriculum

Photographic and imaging arts (advertising photography option), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
PHAR-101, 102	Photo Arts I, II	8
PHPS-106, 107	Photo Technology I, II	6
FDTN-111	Drawing	3
	LAS Perspective 1	3
ARTH-135	LAS Perspective 2: History of Western Art: Ancient to Medieval	3
ARTH-136	LAS Perspective 3: History of Western Art: Renaissance to Modern	3
	LAS Perspective 5, 6 or 7	3
ENGL-150	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
FDTN-121	2D Design I	3
FDTN-141	4D Design	3
PHAR-202	Elements of Advertising Photography	3
Choose two of the following:		3
PHAR-201	Elements of Fine Art Photography	
PHAR-203	Elements of Photojournalism	
PHAR-204	Elements of Visual Media	
PHAR-211, 212	Histories and Aesthetics of Photography I, II	6
	Free Electives	6
	LAS Elective	3
Third Year		
PHAP-301, 302	Advertising Photography I, II	6
	Advertising Photography Specialization Courses†	6
	Advertising Photography Professional Electives‡	6
	CIAS Elective§	3
	LAS Immersion 1 (WI), 2	6
	Free Elective	3

COURSE		SEMESTER CREDIT HOURS
Fourth Year		
PHAP-403	Portfolio Development	3
Choose one of the following:		3
FINC-120	Personal Financial Management	
MGMT-150	The World of 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 Capstone I, II	6
	Advertising Photography Specialization Course†	3
	CIAS Electives§	9
	Free Elective	3
	LAS Immersion 3	3
	Advertising Photography Professional Elective‡	3
Total Semester Credit Hours		**122**

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 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.
§ CIAS elective refers to any course in the College of Imaging Arts and Sciences.
** Please consult an adviser 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		
PHAR-101, 102	Photo Arts I, II	8
PHPS-106, 107	Photo Technology I, II	6
FDTN-111	Drawing	3
	LAS Perspective 1	3
ARTH-135	LAS Perspective 2: History of Western Art: Ancient to Medieval	3
ARTH-136	LAS Perspective 3: History of Western Art: Renaissance to Modern	3
	LAS Perspective 5, 6, or 7	3
ENGL-150	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
Choose one of the following:		3
PHAR-202	Elements of Advertising Photography	
PHAR-203	Elements of Photojournalism	
PHAR-204	Elements of Visual Media	
PHAR-201	Elements of Fine Art Photography	3
PHAR-211, 212	Histories and Aesthetics of Photography I, II	6
FDTN-121	2D Design I	3
FDTN-141	4D Design	3
	LAS Perspective 4	3
	Free Electives	6
	LAS Elective	3
Third Year		
PHFA-301, 302	Fine Art Core I, II	6
PHFA-401	Professional Development for Artists	3
	Fine Art Photography Specialization Courses†	6
	Fine Art Photography Professional Electives‡	6
	CIAS Elective§	3
	LAS Immersion 1 (WI) , 2	6
	Free Elective	3
Fourth Year		
PHFA-402, 403	Fine Art Photo Portfolio I, II	6
PHFA-401	Professional Development for Artists (WI)	3
	Fine Art Photography Professional Elective‡	3
	Fine Art Photography Specialization Course†	3
	CIAS Electives§	9
	Free Elective	3
	LAS Immersion 3	3
Total Semester Credit Hours		**122**

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 Wellness courses.
† Please consult an adviser for a complete list of courses that fulfill the fine art photography specialization requirement.
‡ Please consult an adviser for a complete list of imaging core courses.
§ CIAS elective refers to any course in the College of Imaging Arts and Sciences.

Photographic and imaging arts (photojournalism option), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
PHAR-101, 102	Photo Arts I, II	8
PHPS-106, 107	Photo Technology I, II	6
FDTN-111	Drawing	3
	LAS Perspective 1	3
ARTH-135	LAS Perspective 2: History of Western Art: Ancient to Medieval	3
ARTH-136	LAS Perspective 3: History of Western Art: Renaissance to Modern	3
	LAS Perspective 5, 6 or 7	3
ENGL-150	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
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	
PHAR-203	Elements of Photojournalism	3
PHAR-211, 212	History and Aesthetics I, II	6
FDTN-121	2D Design I	3
FDTN-141	4D Design	3
	LAS Perspective 4	3
	Free Electives	6
	LAS Elective	3
Third Year		
PHPJ-301	Foundations of Photojournalism	3
PHPJ-302	Photojournalism I	3
PHPJ-307	Ethics and the Law	3
PHPJ-315	Non-Fiction Multimedia	3
	Photojournalism Professional Electives‡	6
	CIAS Elective§	3
	LAS Immersion 1 (WI), 2	6
	Free Elective	3
Fourth Year		
PHPJ-401	Senior Project (WI)	3
PHPJ-402	Photojournalism Portfolio and Professional Development	3
	Photojournalism Professional Electives‡	9
	CIAS Electives§	9
	Free Elective	3
	LAS Immersion 3	3
Total Semester Credit Hours		**122**

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 Wellness courses.
‡ See adviser for a complete list of photojournalism professional electives.
§ CIAS elective refers to any course in the College of Imaging Arts and Sciences.

Photographic and imaging arts (visual media option), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
PHAR-101, 102	Photo Arts I, II	8
PHPS-106, 107	Photo Technology I, II	6
FDTN-111	Drawing	3
	LAS Perspective 1	3
ARTH-135	LAS-Perspective 2: History of Western Art: Ancient to Medieval	3
ARTH-136	LAS-Perspective 3: History of Western Art: Renaissance to Modern	3
	LAS Perspective 5, 6, or 7	3
ENGL-150	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
Choose one of the following:		3
PHAR-201	Elements of Fine Art Photography	
PHAR-202	Elements of Advertising Photography	
PHAR-203	Elements of Photojournalism	
PHAR-204	Elements of Visual Media	3
PHAR-211, 212	Histories and Aesthetics I, II	6
FDTN-121	2D Design I	3
FDTN-141	4D Design	3
	LAS Perspective 4	3
	Free Electives	6
	LAS Elective	3

COURSE		SEMESTER CREDIT HOURS
Third Year		
Choose one of the following:		6
	Marketing‡	
	Management§	
Choose one of the following:		3
	Print Media**	
	Graphic Design††	
	CIAS Elective‡‡	3
	LAS Immersion 1, 2	6
	Visual Media Professional Electives†	6
	Free Elective	3
Fourth Year		
Choose one of the following:		3
	Marketing‡	
	Management§	
Choose one of the following:		3
	Print Media**	
	Graphic Design††	
PHVM-301	Visual Media Career Research	3
PHVM-401	Visual Media Capstone (WI)	3
	CIAS Electives‡‡	9
	Free Elective	3
	LAS Immersion 3	3
	Visual Media Professional Elective†	3
Total Semester Credit Hours		**122**

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 Wellness courses.
† Students complete 9 credits of electives from courses offered in the School of Photographic Arts and Sciences, using course codes PHFA, PHAP, PHPJ, or an elements course: Elements of Fine Art Photography (PHAR-201), Elements of Advertising Photography (PHAR-202), Elements of Photojournalism (PHAR-203), or Elements of Visual Media (PHAR-204)–not taken in the second year.
‡ Students may choose from the following marketing courses: Principles of Marketing (MKTG-230), Internet Marketing (MKTG-320), Product and Service Commercialization (MKTG-340).
§ Students may choose from the following management courses: Organizational Behavior (MGMT-215), Managerial Skills (MGMT-320), Digital Entrepreneurship (MGMT-360).
** Students may choose from the following print media courses: Cross Media Foundations (MAAT-101), Type and Page Design (MATT-106), Print Production (MAAT-206), Database Publishing (MAAT-301).
†† Graphic Design sequence courses include Elements of Graphic Design (GRDE-106), Time-based Design (GRDE-107), and Typography (GRDE-201).
‡‡ CIAS elective refers to any course in the College of Imaging Arts and Sciences.

Additional information

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).

Photographic Sciences (options in Biomedical Photographic Communications, Imaging and Photographic Technology), BS

http://photography.rit.edu/
Christye Sisson, Program Chair
(585) 475-4228, cpspph@rit.edu

Program overview

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, general education, 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 our students upon graduation.

Plan of study

In the photographic sciences major photography is used to advance science, and imaging is used to collect scientific data. 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.

Options

Students may elect to choose one of two options within the major.

Biomedical photographic communications option–This option prepares students for photographic careers in a wide variety of environments including forensic and research laboratories, hospitals, and other biological settings such as ophthalmic (eye) clinics and veterinary research schools, or in other life science situations such as pharmaceutical companies. All students in the photographic sciences degree share foundational courses in that combination with practical experiences using digital photographic equipment and processes, that include still and moving media, desktop publishing, and digital media applications. Additional elective courses in the life sciences prepare students for work assignments such as creating images useful for scientists or biological research. Students can specialize in light and confocal microscopy, scanning electron microscopy, desktop and web publishing, and ophthalmic imaging. Course work can be used to assist in the preparation for certification as a Certified Retinal Angiographer (CRA), administered by the Ophthalmic Photographer's Society.

Imaging and photographic technology option–This option prepares students for imaging careers in governmental agencies, industrial or corporate environments such as Apple Inc., GoPro, and NASA, and image quality-related companies. The third and fourth years allow students to build on a strong foundation of photographic technology, creating areas of specialization that include color measurement, high-speed imaging, optics and camera testing, and image analysis. Complementary courses include programming for imaging, physics, and applications of color in imaging. These courses provide hands-on exposure using modern tools and techniques. Students may choose from a variety of electives including scanning electron microscopy, high-speed photography, and imaging science, as well as publishing and color measurement and management. Many students have also taken advantage of the imaging systems minor to complete a unique education only available at RIT.

Cooperative education

Students are required to complete one cooperative education experience. Co-ops are paid, professional, full- or part-time positions that offer an opportunity for students to gain experience in the field. They 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 GoPro.

Curriculum

Photographic sciences, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
PHPS-101, 102	Photography I, II	8
PHPS-106, 107	Photographic Technology I, II	6
	First Year LAS Elective	3
	LAS Perspective 1, 2, 7A**, 7B**	12
ENGL-150	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
PHPS-201, 202	Scientific Photography I, II	6
PHPS-206	Careers and Professional Practices	3
PHPS-211	Advanced Principles of Photographic Technology	3
	LAS Perspective 3, 4, 5††, 6††	14
PHPS-207	Vision, Perception and Imaging	3
PHPS-212	Fundamentals of Layout and Design	3
PHPS-499	Cooperative Education (summer)	Co-op
Third Year		
	Imaging Core I, II	6
	LAS Electives	9
	LAS Immersion 1 (WI), 2	6
	Free Elective	3
	Specialization I, II†	6
Fourth Year		
	LAS Immersion 3 (WI)	3
	LAS Electives	12
	Free Elective	3
	Professional Electives§	6
PHPS-401	Photographic Sciences Capstone I (WI)	3
PHPS-403	Photographic Sciences Capstone II	3
Total Semester Credit Hours		**124**

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.
† Please consult adviser for a complete list of courses that fulfill the specialization requirement.
§ Please see an adviser for a complete list of photographic sciences electives.
** Please see an adviser for math and science course recommendations.
†† Students choose one of the following science sequences: Human Biology and Lab I, II (BIOL-111, 112) or College Physics I, II (PHYS-111, 112).

Photographic sciences (biomedical photographic communications option), BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
PHPS-101, 102	Photography I, II	8
PHPS-106, 107	Photographic Technology I, II	6
	First Year LAS Elective	3
	LAS Perspective 1, 2, 7A†, 7B†	12
ENGL-150	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
PHPS-201, 202	Scientific Photography I, II	6
PHPS-206	Careers and Professional Practices	3
PHPS-211	Advanced Principles of Photographic Technology	3
	LAS Perspective 3, 4, 5‡, 6‡	14
PHPS-207	Vision, Perception and Imaging	3
PHPS-212	Fundamentals of Layout and Design	3
PHPS-499	Cooperative Education (summer)	Co-op
Third Year		
PHBM-316	Digital Media I	3
PHBM-217	Media Production and Technology	3
Choose one of the following specialization sequences:		6
PHBM-311, 312	Magnified Imaging I, II	
PHBM-321, 322	Ophthalmic Photography I, II	
PHBM-326, 327	Photographic Sciences Bulletin I, II	
	LAS Electives	9
	LAS Immersion 1 (WI), 2	6
	Free Elective	3
Fourth Year		
	LAS Immersion 3	3
	LAS Electives	12
	Free Elective	3
	Professional Electives§	6
PHPS-401, 403	Photographic Sciences Capstone I (WI), II	6
Total Semester Credit Hours		**124**

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.
† Please see an adviser for math Perspective course recommendations.
‡ Please see an adviser for science Perspective course recommendations.
§ Please see an adviser for a complete list of photographic sciences electives.

Photographic sciences (imaging and photographic technologies option), BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
PHPS-101	Photography I	4
PHPS-106	Photographic Technology I	3
	First-Year LAS Elective	3
	LAS Perspective 1, 2, 7A†, 7B†	12
PHPS-102	Photography II	4
PHPS-107	Photographic Technology II	3
ENGL-150	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
PHPS-201, 202	Scientific Photography I, II	6
PHPS-206	Careers and Professional Practices	3
PHPS-211	Advanced Principles of Photographic Technology	3
	LAS Perspective 3, 4, 5‡, 6‡	14
PHPS-207	Vision, Perception and Imaging	3
PHPS-212	Fundamentals of Layout and Design	3
PHPS-499	Cooperative Education (summer)	Co-op
Third Year		
IMPT-331	Programming for Photo Science	3
PHPS-332	Digital Image Processing	3
Choose one of the following specialization sequences:		6
IMPT-302, 306	Color Management Technology, e-Sensitometry	
IMPT-321, 322	Programming for Imaging and Photo Technology, Digital Image Processing	
IMPT-307, 312	Non-conventional Imaging, High Speed Imaging	
	LAS Electives	9
	LAS Immersion 1 (WI), 2	6
	Free Elective	3
Fourth Year		
	LAS Immersion 3	3
	LAS Electives	12
	Free Elective	3
	Professional Electives§	6
PHPS-401, 403	Photographic Sciences Capstone I (WI), II	6
Total Semester Credit Hours		**124**

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.
† Please see an adviser for math Perspective course recommendations.
‡ Please see an adviser for science Perspective course recommendations.
§ Please see an adviser for a complete list of professional electives.

Additional information

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 entrepreneurs.

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.

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

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

Barbara Birkett, BA Aquinas College; MBA University of Michigan; MFA, Rochester Institute of Technology; Ph.D., Capella University; CPA Maryland—Associate Dean of Undergraduate Studies; Associate Professor

School for American Crafts

Andy Buck, BA, Virginia Commonwealth University; MFA, Rhode Island School of Design—Professor

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

Wendell Castle, BFA, MFA, University of Kansas—Artist-in-Residence; Chair in Contemporary Crafts; Professor

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

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

Adam Rogers, BS, Lawrence Technological University; MFA Rochester Institute of Technology—Visiting Assistant Professor

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

Jane Shellenbarger, BFA, Kansas City Art Institute; MFA, Southern Illinois University at Edwardsville—Associate Professor

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

Leonard A. Urso, BFA, MFA, State University College at New Paltz—Professor

School of Art

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

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

Eileen Feeney Bushnell, BFA, University of Massachusetts at Amherst; MFA, Indiana State University—Program Chair, Fine Arts Studio; Associate Professor

Denton Crawford, BFA, University of South Florida; MFA, University of Georgia—Lecturer

Robert Dorsey, BFA, Rochester Institute of Technology; MFA, Syracuse University—Professor

William Finewood, BA, State University College at Geneseo; MFA, Syracuse University—Associate Professor

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

Emily Glass, BFA, State University College at Potsdam; MFA, Kansas State University—Visiting 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—Administrative Chair, School of Art and School for American Crafts; Program Chair, Medical Illustration; Associate Professor

Donivan Howard, BFA, Art Center College of Design; MFA, California State University Fullerton—Visiting Assistant 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

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

Jason Arena, BS, University of Buffalo; MFA, Pratt Institute—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)—Administrative Chair, School of Design; Professor

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

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

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

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

Carol Fillip, BS, State University of New York at Buffalo; MFA, Rochester Institute of Technology—Associate Professor

Shaun Foster, BBA, University of Wisconsin; MFA, Rochester Institute of Technology—Associate Professor

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

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

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

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—Associate Dean of Graduate Studies; Professor

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

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

Bruce Leonard, BID, Syracuse University—Program Co-Chair, Industrial Design; Lecturer

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

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

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

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

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

Hye-Jin Nae, BA, Sung Shin Women's University (South Korea); BFA, University of Wisconsin; MFA,

Rochester Institute of Technology—Assistant Professor

Josh Owen, BA, BFA, Cornell University; MFA, Rhode Island School of Design—Program Co-Chair, Industrial Design; Professor

R. Roger Remington, BFA, Rochester Institute of Technology; MS, University of Wisconsin—Massimo and Lella Vignelli Distinguished Professor of Design

Stan Rickel, BID, Pratt Institute; MID, Syracuse University—Associate Professor

Alicia Ross, BA, Baldwin-Wallace College; MFA Rochester Institute of Technology—Visiting Assistant Professor

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

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—Program Chair, 3D Digital Design; 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—Principle Lecturer

Adam Smith, BFA, MFA, Rochester Institute of Technology—Program Chair, New Media Design; Associate Professor

Michael Strobert, BFA, MFA, Rochester Institute of Technology—Lecturer

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

Tim Wood, BFA, Memphis College of Art; MFA, Rochester Institute of Technology—Assistant Professor

School of Film and Animation

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

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

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

Jack Beck, BA, Denison University; MFA, University of Iowa—Program Chair, Live Production; Associate Professor

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

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

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

Ricardo Figueroa, BS, MS, University of Puerto Rico at Mayaguez (Puerto Rico)—Associate Professor

Mark Foggetti, BS, Rochester Institute of Technology—Senior Lecturer

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

Brian Larson, BFA, Colorado State University; MFA, Miami International University—Program Chair, Animation; Associate Professor

David Long, BS, University of Texas; MS, University of Rochester—Program Chair, Motion Picture Science; Associate Professor

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

Hector Alexander Montoya Melendrez, BA, El Bosque University (Columbia); MFA, Rochester Institute of Technology—Lecturer

Peter Murphey, BFA, Massachusetts College of Art; MFA, The Art Institute of Boston—Assistant Professor

Atia Quadri, BFA, National College of the Arts (Pakistan); MFA, Pratt Institute—Assistant Professor

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

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

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

School of Media Sciences

Irma Abu-Jumah, BS, Dr. Jose Matias Delgado University (El Salvador); MS, Rochester Institute of Technology—Roger K. Fawcett Endowed Professor

Barbara Birkett, BA, Aquinas College; MBA, University of Michigan; MBA, Rochester Institute of Technology; Ph.D., Capella University; CPA, Maryland—Associate Dean of Undergraduate Studies; Associate Professor

Christopher Bondy, BS, New York Institute of Technology; MS, Rochester Institute of Technology—Gannett Distinguished Professor

Shu Chang, BS, Berea College; Ph.D., University of Minnesota—Melbert B. Cary Jr. Distinguished 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., Union Institute and University—Professor

Gregory D'Amico, BA, State University of New York at Stony Brook; MA, Ph.D., New York University—Associate Professor

Robert Eller, AB, MA, University of Missouri—Gravure Research Professor

Elena Fedorovskaya, MS, Ph.D., Lomonosov Moscow State University (Russia)—Paul and Louise Miller Distinguished Professorship

Christine Heusner, BA, Elmira College; MFA, Rochester Institute of Technology—Graduate Director, Print Media; Senior Lecturer

Myrtle Jones, BA, University of Illinois; MA, New York University—Assistant Professor

Bruce Myers, BFA, Montclair State University; MS, Ph.D., New York University—Associate Professor

Michael P. Riordan, BS, State University College at New Paltz; MS, Rochester Institute of Technology—Program Chair, Media Arts and Technology; Lecturer

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

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—Program Chair, Visual Media; James E. McGhee Distinguished Professor

Meredith Davenport, BFA, Rochester Institute of Technology; MFA, Hunter College—Assistant Professor

Denis Defibaugh, BS, MS, Rochester Institute of Technology—Professor

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—Assistant Professor

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

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

Doug Manchee, BA, MA, San Francisco State University—Program Chair, Advertising Photography; Professor

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

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—Administrative Chair, Photographic Arts and Sciences; Professor

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

Willie Osterman, BFA, Ohio University; MFA, University of Oregon—Program Chair, Fine Art Photography; 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—Associate Chair, Photographic Arts and Sciences; Professor

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

Robert Rose, BS, Rochester Institute of Technology; ME, Intercontinental University—Assistant Professor

Patricia Russotti, BS, Empire College; MS, Eds., Indiana University—Associate Professor

Nanette Salvaggio, BS, Rochester Institute of Technology—Lecturer

Nitin Sampat, BS, University of Bombay (India); MS, Rochester Institute of Technology—Minor Coordinator, Imaging Systems; Associate Professor

Christine Shank, BFA, Miami University; MFA, Texas Women's University—Graduate Director, MFA in Photography and Related Media; Associate Professor

Christye Sisson, BS, MS, Rochester Institute of Technology—Program Chair, Photographic Sciences; Associate Professor

William Snyder, BS, Rochester Institute of Technology—Program Chair, Photojournalism; Professor

Josh Thorson, BA, University of Minnesota-Twin Cities; MFA, Bard College; Ph.D., Rensselaer Polytechnic Institute—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—Assistant 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: Christopher Bondy

Artist-in-Residence Professorship

Established: 1984

Purpose: To work with apprentice woodworkers and participate in conferences and lectures at RIT.

Held by: Wendell Castle

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: Shu Chang, Ph.D.

Gravure Research Professor

Established: 2004

Purpose: To promote gravure education in the curriculum.

Held by: Robert Eller

James E. McGhee Professorship in Photographic Management

Established: 1967

Donor: Master Photodealers and Finishers Association and friends of Mr. 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

Paul and Louise Miller Distinguished Professorship

Established: 1979

Donor: Frank E. Gannett Newspaper Foundation

Purpose: To honor the former chairman of the board of the Gannett Company and perpetuate his interest in good management practices in the News Media Industry using Cross Media distribution.

Held by: Elena Fedorovskaya, Ph.D.

Roger K. Fawcett Distinguished Professorship in Publications Color Management

Established: 1991

Donor: World Color Press, Fawcett family, and industry colleagues

Purpose: The endowed chair, the only one of its kind in the nation, was established to address color quality and productivity in both the magazine and the newspaper publishing industries as well as promotion of RIT color research activities.

Held by: Irma Abu-Jumah

College of Liberal Arts

James J. Winebrake, Dean
rit.edu/cla

Programs of study

	Bachelor of Science in:	Page
	Advertising and Public Relations	118
#	Communication *Tracks available in: health communication; rhetoric, media and culture; and technical communication.*	119
	Criminal Justice	121
	Digital Humanities and Social Sciences	122
	Economics	123
	International and Global Studies *Field specializations available in African studies, Asian studies, European studies, gender studies, global justice and peace and conflict issues, indigenous studies, international business, Latin American studies, Middle Eastern studies, and sustainable futures.*	124
	Journalism	127
	Museum Studies *Tracks available in: management and public history.*	128
	Philosophy *Specializations available in: philosophy of mind and cognitive science, philosophy of science and technology, applied ethics, philosophy of social sciences and political philosophy, philosophy of art and aesthetics, history of philosophy, and philosophy and law.*	129
	Political Science *Tracks available in: politics and the life sciences, digital politics and organization, and political institutions.*	131
	Psychology *Tracks available in: clinical psychology, cognitive psychology, social psychology, or visual perception.*	132
#	Public Policy *Concentrations available in: biotechnology, computer crime policy, computer software policy, energy policy, engineering policy, environmental policy, and information and communications policy.*	133
	Sociology and Anthropology *Tracks available in: archaeology, cultural anthropology, sociology, and urban studies.*	135

Accelerated BS/MS option 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.

The college offers undergraduate degree programs in advertising and public relations, communication, criminal justice, digital humanities and social sciences, economics, international and global studies, journalism, museum studies, philosophy, political science, psychology, public policy, and sociology and anthropology. Liberal Arts Exploration is a two-year undeclared option for students who are undecided about their choice of liberal arts major.

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.

The liberal arts curriculum seeks to help students develop specific kinds of knowledge, such as:

- understanding the connections among humanistic, professional, and technological studies;
- building critical awareness of the interactions among society, culture, science, and technology;
- developing awareness of and respect for diverse social and cultural perspectives;
- understanding local, national, and global forms of citizenship and community;
- acquiring knowledge and honing critical understanding of the responsibilities and rights of living in a participatory democracy;
- examining human development and behavior;
- broadening critical awareness of the interactions between society and the environment;
- creating, interpreting, and evaluating artistic expression and understanding the aesthetic dimension of other forms of expression and experience;
- understanding the nature and implications of work and career;
- thinking critically and creatively;
- reasoning through ethical and moral questions in the context of one's judgments and practice;
- demonstrating proficiency in written, oral, visual, and nonverbal forms of communication; and
- demonstrating proficiency in the analysis and interpretation of quantitative and qualitative data.

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.

Faculty
College of Liberal Arts faculty members are recruited from the top graduate schools, and nearly all have doctorate or other terminal degrees. They are dedicated to providing students with outstanding educational experiences and access to cutting-edge research.

Cooperative education/Internships
Students in the College of Liberal Arts have the option of participating in cooperative education or internship opportunities that provide hands-on experience as well as the opportunity to further develop their skills in a chosen profession.

Advising
Liberal arts academic advising: Upon entry into the College of Liberal Arts, each student is assigned a faculty adviser and an academic adviser. The faculty adviser helps students formulate career goals and offers support with cooperative education. The academic adviser offers support with registration and scheduling.

Liberal arts general education advising: The advising staff in the college's Office of Student Services offers support to all RIT students as they select liberal arts courses to fulfill the required general education curriculum for their degree programs. The advising staff provides guidance that is consistent with the general education policies of the university. The office also evaluates liberal arts courses as transfer credits for all RIT students.

Academic enrichment
Honors Program: Students who demonstrate a high level of achievement at the high school level may be invited to join the Honors program. These students will participate in Honors course work throughout their program of study and experiential learning activities under the guidance of a faculty mentor. Honors students will be selected during the admissions process.

Study Abroad: RIT encourages all students to consider a study abroad program. Students may study full time at a variety of host schools and are able to select courses that fulfill requirements in their academic field of study and/or RIT liberal arts general education requirements. RIT's Study Abroad Office has information about foreign study options and opportunities.

Minors: RIT offers students more than 90 minors to choose from to enhance their academic program or further develop a personal area of interest. For a detailed list of minors, including courses, please refer to the Minors section of this bulletin.

Research: Students have the opportunity to collaborate with faculty members on exciting research projects. Students are encouraged to work with faculty on projects and to present their findings at the college's annual Student Research Conference, which highlights students' research findings. The college also hosts the annual Conference for Undergraduate Research in Communication. This conference invites students from all over the Northeast to showcase their research pursuits with peers from other institutions.

Professional student organizations: The college maintains memberships in the following professional organizations: Lambda Pi Eta (National Honor Society for Communication), Omicron Delta Epsilon (International Honor Society for Economics), the Public Relations Student Society of America, and Sigma Iota Rho.

Special opportunities
Accelerated 4+1 MBA options: Some programs offer accelerated, five-year BS/MBA degree options. These degrees offer students the opportunity to earn a bachelor's degree and an MBA degree in less time than pursuing each degree individually. Please refer to individual programs, the *Graduate Bulletin,* or the college's website for more information.

Double majors: The college offers a number of double majors to assist students in obtaining two areas of expertise. Please refer to individual programs or the college's website for more information.

Graduate study: The college offers the following graduate degree programs: experimental psychology; communication and media technologies; criminal justice; science, technology, and public policy; and school psychology. Please refer to the *Graduate Bulletin* or the college's website for more information.

Part-time, evening and online options: Many of the college's programs may be completed on a part-time basis. Please refer to the Office of Graduate and Part-time Enrollment's or the college's website for more information.

Summer course offerings: The college offers a number of summer courses in English, foreign languages, science and humanities, and social sciences as well as degree program courses in the college's academic areas of study. Please contact the Liberal Arts Office of Student Services, the Offices of Part-time Enrollment Services, or visit the college's website for more information.

Liberal Arts Exploration, Undeclared

http://www.rit.edu/cla/exploration
John S. Smithgall, Program Director
(585) 475-2444, jssgla@rit.edu

Program overview

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		
	First Year LAS Elective	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
ITDL-101	Career Exploration Seminar	1
	LAS Perspectives	15
	LAS Electives	9
	Wellness Education*	0
Second Year		
	LAS Perspectives	6
	LAS Immersion 1, 2, 3	9
ISTE-105	Web Foundations	3
	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 Wellness courses.

Advertising and Public Relations, BS

http://www.rit.edu/apr
Andrea Hickerson, School Director
(585) 475-6129, aahgpt@rit.edu

Program overview

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 create messages. 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 are prepared to create persuasive messages for a variety of traditional and emerging media platforms. They learn to analyze audiences, write copy, select media, and manage campaigns. The major also features a senior thesis and one semester of work experience gained through an internship and/or cooperative education.

Plan of study

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.

Core courses

Students choose three core courses from the following:

INTB-320	Global Marketing
MKTG-320	Internet Marketing
MKTG-350	Buyer Behavior
MKTG-360	Professional Selling
MKTG-370	Advertising and Promotional Management
MKTG-489	Seminar in Marketing

Senior thesis

Students conduct original research on a subject of their choosing. Two faculty members serve as advisers 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.

Cooperative education

Students are required to complete one block of internship experience or cooperative education, giving students the opportunity to apply their classroom learning to a professional work environment. There are many opportunities, including positions with advertising agencies and public relations firms as well as businesses and nonprofit organizations. The Office of Career Services and Cooperative Education assists students in identifying and applying to internship or co-op positions.

Curriculum

Advertising and public relations, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
COMM-212	Public Relations	3
COMM-201	Public Speaking	3
	LAS Perspective 1, 2, 5	9
MATH 101	LAS Perspective 7A: College Algebra	3
	First Year LAS Elective	3
COMM-211	Principles of Advertising	3
COMM-223	Digital Design in Communication	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
COMM-202	Mass Communications	3
COMM-221	Public Relations Writing (WI)	3
	LAS Perspective 3, 4, 6	9
	LAS Electives	6
COMM-304	Intercultural Communication	3
	Communication Elective	3
STAT-145	LAS Perspective 7B: Introduction to Statistics	3
Third Year		
MKTG-230	Principles of Marketing	3
COMM-321	Copywriting and Visualization	3
	LAS Immersion 1, 2, 3	9
	LAS Elective	3
COMM-421	Media Planning	3
	Professional Core Course	3
COMM-301	Theories of Communication	3
COMM-401	Quantitative Research Methods	3
COMM-499	Cooperative Education	Co-op
Fourth Year		
COMM-402	Qualitative Research Methods	3
	Professional Core Courses	6
	LAS Electives	6
COMM-322	Campaign Management and Planning	3
COMM-501	Senior Thesis in Communication	3
COMM-497	Communication Portfolio	0
	Free Electives	9
Total Semester Credit Hours		**120**

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 Wellness courses.

Additional information

Advisers

Every student is assigned a professional academic adviser and a faculty mentor in the school of communication. The professional adviser assists 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.

Faculty

Nearly all of the school's 23 faculty members hold the highest degrees in their fields. Many have won awards for teaching, and all have been published within their areas of expertise.

Careers

Upon graduation, students are well-qualified for positions in business, government, and the not-for-profit sectors. The major also prepares students to pursue graduate studies in a variety of fields. The school of communication offers an MS degree in communication and media technologies. Visit the program website or refer to the Graduate Bulletin for more information.

Accelerated 4+1 MBA option

An accelerated 4+1 MBA option 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.

Communication, BS

http://www.rit.edu/communication
Andrea Hickerson, School Director
(585) 475-6129, aahgpt@rit.edu

Program overview

The communication major combines advanced education in the theory and practice of spoken, written, and technology-mediated communication with focused study in a communication track and instruction in a professional or technical program related to the selected track. This unique combination fosters an understanding of the central concepts and processes associated with the field of communication as well as a communication sub-discipline, and a working familiarity with the principles and practices of a particular professional/technical field. Graduates are qualified for a number of different functions as communication specialists within a specific professional area. Their career opportunities are numerous and varied. The degree also prepares them for graduate work in communication and related academic disciplines.

Plan of study

Students develop skills through a core of required communication courses, which cover communication theory, visual communication, public speaking, mass communication, communication law and ethics, technology-mediated communication, and research methods. Students then focus their studies by selecting a track in health communication; media, rhetoric, and culture; or technical communication. A professional core of four courses related to the selected track may be taken from minors within the colleges of Business, Imaging Arts and Sciences, or Science. Students may also customize a concentration using courses from other RIT colleges. With approval of an academic adviser, students may design their own professional core. Electives and liberal arts courses complete the curriculum.

Cooperative education

Students complete one semester of cooperative education. Co-op is paid, practical work experience that deepens students' knowledge of their academic fields, allows them to determine their suitability for a particular professional position, and increases their chances for employment upon graduation. Many students use the extra income earned on co-op to help offset college expenses.

There is a broad range of co-op opportunities, and there is no restriction on geographic location as long as the position is related to communication. The Office of Cooperative Education and Career Services assists students in identifying and applying to co-op and permanent positions with a large and diverse number of employers. Students have held co-ops across the United States at such organizations as Greenpeace, Bausch & Lomb, the Rochester Memorial Art Gallery, the Chicago Hearing Society, Eastman Kodak Co., City of New York Parks & Recreation, and the U.S. House of Representatives.

Curriculum

Communication, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
COMM-101	Human Communication	3
COMM-201	Public Speaking	3
	LAS Perspective 1, 2, 3, 5	12
MATH 101	LAS Perspective 7A: College Algebra	3
	First Year LAS Elective	3
COMM-202	Mass Communications	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
COMM-341	Visual Communication	3
COMM-342	Communication Law and Ethics	3
	Free Elective	3
	LAS Perspective 4, 6§	6
STAT-145	LAS Perspective 7B: Introduction to Statistics I	3
Choose one of the following:		3
COMM-302	Interpersonal Communication	
COMM-304	Intercultural Communication	
COMM-303	Small Group Communication	
COMM-343	Technology-Mediated Communication (WI)	3
	Professional Core‡	3
	LAS Immersion 1	3
Third Year		
	Track Courses	6
	LAS Immersion 2, 3	6
	Professional Core‡	6
	Free Elective	3
	Communication Elective	3
COMM-301	Theories of Communication	3
COMM-401	Quantitative Research Methods	3
COMM-499	Cooperative Education (summer)	Co-op
Fourth Year		
	Track Courses	6
	Professional Core‡	3
	LAS Electives	15
COMM-402	Qualitative Research Methods	3
COMM-501	Senior Thesis in Communication	3
COMM-497	Communication Portfolio	0
Total Semester Credit Hours		**120**

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 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.

Tracks

Health communication

Required Course	
COMM-344	Health Communication
Electives	
Choose two of the following	
COMM-142	Introduction to Technical Communication
COMM-212	Public Relations*
COMM-221	Public Relations Writing*
COMM-223	Digital Design in Communication
COMM-322	Campaign Management and Planning
COMM-361	Reporting in Specialized Fields: Health
Choose one of the following	
ECON-450	Health Care Economics
MEDG-105	Health Awareness
MEDS-201	Language of Medicine
PSYC-231	Death and Dying
SOCI-245	Gender and Health

* Students may choose only one of these courses, but not both.

Media, rhetoric and culture

Required Course	
Choose one of the following	
COMM-306	Rhetoric of Race Relations
COMM-304	Intercultural Communication
Electives	
Choose three of the following (at least two must be COMM courses)	
ANTH-370	Media and Globalization
COMM-223	Digital Design
COMM-305	Persuasion
COMM-356	Critical Practice in Social Media
COMM-357	Communication, Gender and Media
COMM-346	Global Media
DHSS-377/COMM-489	Media Narrative
ENGL-333	Rhetoric of Terrorism
ENGL-373	Media Adaptation

Technical communication

Required Course	
COMM-142	Introduction to Technical Communication
Electives	
Choose three of the following	
COMM-223	Digital Design in Communication
COMM-345	Ethics in Technical Communication
COMM-440	Visual Communication of Technical Information
COMM-441	Writing the Technical Manual
ENGL-361	Technical Writing

Additional information

Advisers

Every student is assigned a professional academic adviser and a faculty mentor in the school of communication. The professional adviser 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 communication students, are also available to answer questions about classes, clubs on campus, student-run activities, and other matters from the student's perspective.

Faculty

Nearly all 23 faculty members in the school of communication hold the highest degrees in their fields. All have proven teaching ability and are committed to professional growth in their areas of expertise. The department also offers students the opportunity to participate in specialized course work and research with faculty members.

Careers

Upon graduation, students are prepared for immediate employment and long-term professional growth within the broad field of communication. Graduates qualify for positions in business, government, and the not-for-profit sector, and are employed as technical editors and writers, sales and marketing coordinators, document specialists, broadcast news and segment researchers, public relations practitioners, and staff members for various federal and state government officials.

Graduate study

The major prepares students for graduate study in law, public relations, communication, health services, and management. The school of communication offers an MS degree in communication and media technologies. Please refer to the Graduate Bulletin or the department website for more information.

Criminal Justice, BS

http://www.rit.edu/cla/criminaljustice
John McCluskey, Department Chairperson
(585) 475-2666, jdmgcj@rit.edu

Program overview

The criminal justice major 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, and an intensive field experience where students blend knowledge gained in the classroom with a career-oriented internship.

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.

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.

Curriculum

Criminal Justice, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CRIM-100	Seminar in Criminal Justice	3
	Professional/Technical Elective	3
	First Year LAS Elective	3
	LAS Perspective 1, 2, 3, 4, 5‡	15
	First Year Writing Seminar	3
CRIM-110	Introduction to Criminal Justice	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
	Free Electives	6
	Criminal Justice Electives	6
	LAS Perspective 6, 7A, 7B	9
	LAS Elective	3
	LAS Immersion 1, 2	6
Third Year		
CRIM-300	Quantitative Methods for Criminal Justice	3
	Criminal Justice Electives	6
CRIM-350	Theories of Crime and Criminality	3
	LAS Electives	9
	LAS Immersion 3	3
CRIM-400	Research Methods	3
	Free Elective	3
Fourth Year		
CRIM-550	Field Experience	3
	Criminal Justice Electives	9
	LAS Electives	9
	Free Electives	6
CRIM-500	Seminar in Criminal Justice and Public Policy (WI)	3
Total Semester Credit Hours		**120**

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 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.

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.

Criminal Justice, BS/MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CRIM-100	Seminar in Criminal Justice	3
	First Year LAS Elective	3
	LAS Perspective 1, 2, 3, 4, 5‡	15
	First Year Writing Seminar	3
CRIM-110	Introduction to Criminal Justice	3
ACSC-010	Year One: College Experience	0
	Criminal Justice Elective	3
	Wellness Education*	0
Second Year		
	Free Electives	6
	Criminal Justice Electives	6
	LAS Perspective 6, 7A, 7B	9
	LAS Elective	3
	LAS Immersion 1, 2	6
Third Year		
CRIM-300	Quantitative Methods for Criminal Justice	3
	Criminal Justice Electives	6
CRIM-350	Theories of Crime and Criminality	3
	LAS Electives	9
	LAS Immersion 3	3
CRIM-400	Research Methods	3
	Free Electives	6
CRIM-500	Seminar in Criminal Justice and Public Policy (WI)	3
Fifth Year		
CRIM-701	Advanced Statistics	3
CRIM-702	Professional Seminar in Research Methods	3
CRIM-704	Crime, Justice, and Community	3
CRIM-705	Interventions and Change in Criminal Justice	3
CRIM-775	Capstone in Criminal Justice	3
	Electives	6
Total Semester Credit Hours		**150**

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 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.

Additional information

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 advisers and peers who are doing field placements in other agencies. Placements are individualized to fit a student's career objectives.

Cooperative education

Students 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.

Career planning

Students are assigned a faculty adviser 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.

Career opportunities

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 study

The major provides a solid undergraduate foundation for students wishing to pursue law school or other law-related fields. The American Bar Association cites strong analytical and problem-solving skills, critical reading abilities, and excellent communication and research skills as crucial for law school acceptance and success, while the Law School Admission Council encourages students to gain an understanding of the forces that have shaped human experience. Students build these skills by combining a broad liberal arts background with intensive study in criminal justice. During their senior year, pre law students spend one semester, working 10 hours-a-week, as interns working with attorneys in the office of the district attorney, public defender, or state attorney general; with private law firms; or in any number of public or private organizations dealing with litigation. RIT's Pre Law Association publishes student research papers each year in Legal Research at RIT.

Faculty

Eight full-time faculty members hold advanced degrees, have had professional experience in criminal justice, have proven teaching ability, and are committed to continuing professional growth in their areas of expertise. They spend many non-teaching hours in their offices with an open-door policy, in order to assist students with academic or personal concerns and questions. The full-time faculty members are supplemented by a strong cadre of adjunct instructors, many of whom are leading criminal justice practitioners in the region.

Graduate study

The criminal justice department offers a master of science degree that focuses on program analysis and evaluation.

Digital Humanities and Social Sciences, BS

www.rit.edu/cla/dhss/
Charles "Sandy" Baldwin, Director
(585) 475-4422, cabgsl@rit.edu

Program overview

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 new impact through engagement with digital technology. Course work combines humanities and social science with computational and design curriculum from the colleges of Computing and Information Science and Imaging Arts and Sciences in areas such as human computer interaction, database management, geographic information technologies, and interactivity in new media.

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.

Experiential education

Students 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.

Capstone experience

Students are required to complete a capstone experience.

Curriculum

Digital humanities and social sciences, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ISTE-140	Web and Mobile I	3
ISTE-120	Computational Problem Solving	4
DHSS-101	Computation and Culture	3
	First Year LAS Elective	3
DHSS-102	Industrial Origins of the Digital Age	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
NMDE-111, 112	New Media Design Digital Survey I, II	6
ISTE-240	Web and Mobile II	3
DHSS-103	Ethics and the Digital Age	3
ISTE-230	Introduction to Database and Data Modeling	3
	LAS Perspective 5, 7B	7
STAT-145	LAS Perspective 7A: Introduction to Statistics	3
	LAS Immersion 1, 2	6
	Cooperative Education (summer)	Co-op
Third Year		
	DHSS Professional Electives	6
ISTE-382	Introduction to Geospatial Technologies	3
DHSS-377	Media Narrative (WI)	3
	LAS Electives	6
	LAS Perspective 6	3
	LAS Immersion 3	3
	DHSS Project Courses	6
Fourth Year		
	DHSS Professional Electives	9
	LAS Electives	9
	Free Electives	6
DHSS-489, 490	Capstone I, II	6
Total Semester Credit Hours		**122**

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 Wellness courses.

Electives

COMM-223	Digital Design in Communication
COMM-263	Computer-Assisted Reporting
COMM-343	Technology-Mediated Communication
COMM-356	Critical Practice in Social Media
COMM-357	Communications, Gender, and Media
COMM-461	Multiplatform Journalism
CRIM-290	Computer Crime
DHSS-488	Special Topics in Digital Humanities and Social Sciences
ENGL-215	Text and Code
ENGL-315	Digital Literature
ENGL-351	Language Technology
ENGL-373	Media Adaptation
ENGL-374	Games and Literature
ENGL-375	Storytelling Across Media
ENGL-389	Digital Creative Writing Workshop
ENGL-450	Free and Open Source Culture
ENGL-581	Introduction to Natural Language Processing
HIST-324	Oral History
HIST-326	Digital History
HIST-480	Global Information Age
MUSE-225	Museums in the Digital Age
MUSE-359	Cultural Informatics
MUSE-360	Visitor Engagement and Museum Technology
PHIL-307	Philosophy of Technology
PHIL-314	Philosophy of Vision and Imaging
STSO-441	Cyborg Theory

Economics, BS

http://www.rit.edu/cla/economics
Jeffrey Wagner, Department Chairperson
(585) 475-5289, jeffrey.wagner@rit.edu

Program overview

The economics major 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 advisers 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.

Cooperative education

Cooperative education is optional. Students who participate in co-op may find positions with financial and brokerage institutions, government offices, and large corporations. Co-op can be completed during any semester, including summer, after the sophomore year. The Office of Career Services and Cooperative Education assists students in identifying and applying to co-op positions.

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: Innovation and Creativity Festival, or fulfill a comparable creative capstone requirement in the student's primary major (if economics is the secondary major).

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
MATH-171	LAS Perspective 7A: Calculus A	3
	First Year LAS Elective	3
	LAS Perspective 1, 2, 5†	9
STAT-145	Introduction to Statistics I	3
ECON-201	Principles of Macroeconomics	3
MATH-172	LAS Perspective 7B: Calculus B	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0

COURSE		SEMESTER CREDIT HOURS
Second Year		
ECON-402	Intermediate Macroeconomic Theory (WI)	3
	LAS Perspective 3, 4	6
Choose one of the following:		3
ECON-405	International Trade and Finance	
ECON-406	Global Economic Issues	
	Track Courses	6
ECON-403	Econometrics I	3
	Free Elective	3
	LAS Immersion 1	3
	LAS Elective	3
Third Year		
ECON-401	Intermediate Microeconomic Theory	3
ECON-404	Mathematical Methods: Economics	3
	Track Course	3
ISTE-105	Web Foundations	3
	LAS Immersion 2, 3	6
	Free Electives	6
	LAS Elective	3
	LAS Perspective 6	3
Fourth Year		
	Track Courses	9
	LAS Electives	12
	Free Electives	6
ECON-407	Industrial Organization	3
Total Semester Credit Hours		**120**

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 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.

Additional information

Double major

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.

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.

Academic enrichment

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.

International and Global Studies, BS

https://www.rit.edu/cla/socanthro/international-and-global-studies-bs/overview

Joe Henning
(585) 475-3311, jmhgsh@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 international and global studies major aims to transform students into global experts who can asses and analyze the salient issues of worldwide transformation, including consumer capitalism, media culture, economic development, gender and health, international migration, border wars, political violence, ethnic conflict, sustainable futures, human security, and the predicaments of democracy and civil society. Students are well-prepared for careers that demand an understanding of global cultural, social, economic, political, and environmental processes.

Plan of study

The international and global studies major offers an exciting range of courses from anthropology, economics, performing arts and visual culture, history, international business, linguistics, global literatures, 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.

Integrated international experience

The major encourages students to participate in a study abroad opportunity, an internship, or a cooperative (co-op) educational experience in the selected world region of study. 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 Croatia, Dubai, or Kosovo. Students can also seek a domestic co-op position with a government agency or the division of a U.S. corporation with international operations. Internships are 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		
INGS-101	Global Studies	3
ANTH-210	Culture and Globalization	3
ANTH-102	Cultural Anthropology	3
	First Year Writing Seminar	3
	LAS Perspective 1, 3, 7A	9
	LAS Electives	9
ACSC-010	Year One: College Experience	0
	Wellness Education*	0

COURSE		SEMESTER CREDIT HOURS
Second Year		
POLS-330	Human Rights in Global Perspective	3
	Modern Language Courses (intermediate level)‡	6
ANTH/SOCI-302	Qualitative Methods	3
	Field Specialization Elective	3
	Globalization Concentration Electives	6
STAT-145	LAS Perspective 7B: Introduction to Statistics I	3
ECON-101	LAS Perspective 4: Microeconomics	3
	LAS Immersion 1	3
Choose one of the following:		
INGS-597	Study Abroad§	
INGS-598	Internship§	
Third Year		
Choose one of the following:		3
ECON-201	Principles of Macroeconomics	
ECON-405	International Trade and Finance	
ECON-406	Global Economic Issues	
ECON-432	Open Economic Macroeconomics	
ECON-448	Development Economics	
ECON-449	Comparative Economic Systems	
	Modern Language Course (advanced level) 1‡	3
	Globalization Concentration Elective	3
	Field Specialization Electives	6
	Advanced Study Course	3
ISTE-105	Web Foundations	3
	LAS Immersion 2, 3	6
	LAS Perspective 5**	3
Fourth Year		
INGS-501x	Capstone Seminar (WI)	3
	Field Specialization Elective	3
	Advanced Study Course	3
	LAS Perspectives 2, 6	6
	LAS Electives	9
	Free Electives	6
Total Semester Credit Hours		**120**

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 Wellness courses.
‡ 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 required to complete an international experience by choosing either a study abroad experience or an internship or co-op. The requirement may be completed during the summer or during the academic year.
** 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.

Field specializations

African studies

ANTH-225	Globalizing Africa
ANTH-275	Global Islam
ANTH-310	African Film and Popular Culture
ANTH-345	Genocide and Post-conflict Justice
ANTH-410	Global Cities
SOCI-210	African American Culture
SOCI-315	Global Exiles of War and Terror
FNRT-323	Survey of African American Music
HIST-245	American Slavery and Freedom
INGS-210/HIST-210	Culture and Politics in Urban Africa
INGS-310/HIST-310	Global Slavery and Human Trafficking

Asian studies

ANTH-275	Global Islam
HIST-160	History of Modern East Asia
HIST-252	The U.S. and Japan
HIST-260	History of Pre-modern China
HIST-261	History of Modern China
HIST-265	History of Modern Japan
HIST-266	History of Pre-modern 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
MLJP-497	Languages in Japanese Society
PHIL-311	East Asian Philosophy
POLS-350	Politics of East Asia

European studies

ANTH-275	Global Islam
ANTH-380	Nationalism and Identity
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	20th Century Europe
HIST-270	History of Modern France
HIST-280	History of Modern Germany
HIST-369	Histories of Christianity
INGS-310/HIST-310	Global Slavery and Human Trafficking
MLFR-351	French Film and Hollywood
MLGR-351	German Culture Through Film
MLIT-449	Italian Cinema from Neorealism to the New Millennium
PHIL-201	Ancient Philosophy
PHIL-203	Modern Philosophy
PHIL-408	Critical Social Theory
PHIL-409	Existentialism
PHIL-410	Medieval Philosophy
PHIL-412	19th Century Philosophy
PHIL-417	Continental European Philosophy

Gender Studies

ANTH-290	Language and Sexuality
ANTH-325	Bodies and Culture
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
MLSP-351	Gender and Sexuality in Hispanic Studies
PHIL-309	Feminist Theory
SOCI-235	Women, Work, and Culture
SOCI-245	Gender and Health
STSO-342	Gender, Science, and Technology

Global justice, peace and conflict issues

ANTH-330	Cultural Images of War (WI)
ANTH-345	Genocide and Post-conflict Justice
HIST-251	Modern U.S. Foreign Relations
HIST-351	The Vietnam War
HIST-410	Terrorism, Intelligence, and War
HIST-470	Science, Technology, and Empire
INGS-310/HIST-310	Global Slavery and Human Trafficking
MLSP-352	Trauma and Survival in the First Person Narrative
PHIL-304	Philosophy of Law
PHIL-305	Philosophy of Peace
PHIL-403	Social and Political Philosophy
POLS-325	International Law and Organizations
POLS-440	War and the State
POLS-445	Terrorism and Political Violence
SOCI-250	Globalization and Security
SOCI-315	Global Exiles of War and Terror

Indigenous studies

ANTH-220	Language and Culture
ANTH-260	Native North Americans
ANTH-265	Native Americans in Film
ANTH-285	American Indian Languages
ANTH-310	African Film and Popular Culture
ANTH-335	Culture and Politics in Latin America
ANTH-375	Native American Cultural Resources and Rights
ANTH-420	Visual Anthropology
ANTH-455/ECON-452/ INGS-455	Economics of Native America

International Business

ECON-405	International Trade and Finance
ECON-406	Global Economic Issues
ECON-452	Economics of Native America
HIST-380	International Business History
INTB-225	Global Business Environment
INTB-300	Cross-cultural Management
INTB-310	Regional Business Studies
INTB-320	Global Marketing
INTB-489	Seminar in International Business
INTB-550	Global Entry and Competition Strategies
MKTG-230	Principles of Marketing

Latin American studies

ANTH-235	Immigration to the U.S.
ANTH-285	American Indian Languages
ANTH-315	Archaeology of Cities
ANTH-335	Culture and Politics in Latin America
ANTH-350	Global Economy and the Grassroots
ANTH-410	Global Cities
ENGL-416	Topics in Global Literatures: Caribbean Literature
ENGL-416	Topics in Global Literatures: Latin American Literature
ENGL-416	Topics in Global Literatures: Latino Experience in Literature
INGS-310/HIST-310	Global Slavery and Human Trafficking
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

Middle Eastern studies

ANTH-255	Regional Archaeology: Middle East
ANTH-275	Global Islam
ANTH-310	Archaeology of Cities
ANTH-365	Culture and Politics in the Middle East
ENGL-425	Global Cinema: Iranian Literature and Film
POLS-335	Politics in Developing Countries

Sustainable futures

ANTH-270/INGS-270	Cuisine, Culture, and Power
ANTH-280	Sustainable Development
ANTH-285	American Indian Languages
ANTH-360	Humans and their Environment
ANTH-410	Global Cities
ECON-448	Development Economies
ISTE-348	Geographic Information Systems
ISTE-383	Introduction to Geospatial Technologies
PHIL-308	Environmental Philosophy
POLS-335	Politics in Developing Countries
SOCI-250	Globalization and Security
SOCI-255	Global Public Health Crisis
SOCI-315	Global Exiles of War and Terror
SOCI-322	Society, Environment, and Health
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		
INGS-101	Global Studies	3
POLS-110	American Politics	3
	First Year LAS Elective	3
	LAS Perspective 1, 3, 7A	9
	First Year Writing Seminar	3
ANTH-210	Culture and Globalization	3
ACSC-010	Year One: College Experience	0
	LAS Elective	3
	Wellness Education*	0
Second Year		
POLS-330	Human Rights in Global Perspective	3
	Modern Language Intermediate I, II	6
SOCI-302	Qualitative Methods	3
ECON-101	Principles of Microeconomics	3
	Globalization Concentration Courses	6
STAT-145	LAS Perspective 7B: Introduction to Statistics I	3
	Field Specialization Course	3
	LAS Immersion 1	3
Third Year		
ECON-449	Comparative Economic Systems	3
ISTE-105	Web Foundations	3
	Modern Language Advanced I	3
	LAS Immersions 2, 3	6
	Field Specialization Electives	6
	Globalization Concentration Course	3
	LAS Perspective 5	3
	Advanced Study Option	3
Fourth Year		
INGS-501	Capstone Seminar (WI)	3
	Advanced Study Option	3
	LAS Perspective 2, 6	6
	Field Specialization Elective	3
PUBL-700	Readings In Public Policy	3
PUBL-701	Graduate Policy Analysis	3
PUBL-702	Graduate Decision Analysis	3
STSO-740	Science, Technology and Policy	
PUBL-703	Program Evaluation and Research Design	
Fifth Year		
	Public Policy Electives	9
	LAS Elective	3
	Free Electives	6
Choose one of the following:		6
	Thesis Research	
	Graduate Electives, Comprehensive Exam	
Total Semester Credit Hours		**144**

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 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.

Additional information

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 majors are well prepared for graduate studies in fields like international law, international development, global education, administration, public policy, and the social sciences.

Faculty

Faculty members have distinguished records of research in Latin America, the Caribbean, China, Japan, Korea, West and North Africa, the Middle East, Native North America, and Europe. A number have teaching experience abroad; collaborate with transnational teams on issues of human trafficking, genocide, political violence, environmental sustainability, and global justice; and have achieved international recognition through prestigious grants, fellowships, and publications.

Journalism, BS

http://www.rit.edu/journalism

Andrea Hickerson, Department Chairperson
(585) 475-6129, aahgrt@rit.edu

Program overview

The journalism major 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 major 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 from the colleges of Business, Computing and Information Sciences, and Imaging Arts and Sciences.

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 Business, Computing and Information Sciences, or Imaging Arts and 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.

Cooperative education

Students are required to complete one semester of cooperative education or an internship experience. This experience gives students the opportunity to apply their classroom learning to a professional work environment. Past co-op positions have been at newspapers, including the Democrat and Chronicle, Rochester's daily newspaper. The Office of Career Services and Cooperative Education assists students in identifying and applying to co-op and internship positions as well as permanent placement upon graduation.

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)	3
	LAS Perspective 1, 2, 3, 4	12
	First Year LAS Elective	3
	Professional Core Course	3
COMM-273	Reporting and Writing II	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
COMM-301	Theories of Communication	3
COMM-274	News Editing	3
	LAS Perspective 5‡, 6, 7A, 7B	12
COMM-263	Computer Assisted Reporting	3
	Professional Core Course	3
	LAS Immersion 1, 2	6
Third Year		
COMM-361	Reporting in Specialized Fields	3
COMM-461	Multiplatform Journalism	3
	Professional Core Course	3
	Free Electives	6
	LAS Immersion 3	3
	LAS Electives	9
COMM-362	Law and Ethics of the Press	3
	Cooperative Education (summer)	Co-op
Fourth Year		
COMM-561	Senior Project	3
	Professional Core Courses	6
	Free Electives	9
	LAS Electives	12
COMM-497	Communication Portfolio	0
Total Semester Credit Hours		**120**

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 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	Special Topics in Communication
MGIS-360	Building a Web Business
MGMT-360	Digital Entrepreneurship

Additional information

Advisers

Every student is assigned a professional academic adviser and a faculty mentor in the department of communication. The professional adviser 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.

Faculty

Nearly all 18 faculty members in the department of communication hold the highest degrees in their fields. Many have won awards for teaching, and all have been published within their areas of expertise.

Careers

Journalism majors have a wide range of career options to choose from. It is expected that the market for writers and editors will increase by nearly 20 percent in the next few years, and graduates with experience in new media technologies will have a significant edge. The major also is ideal for those interested in pursuing graduate study in journalism or communication. The department of communication offers an MS degree in communication and media technologies. Please consult RIT's Graduate Bulletin for more information.

Museum Studies, BS

http://www.rit.edu/cla/museumstudies/
Tina Olsin Lent, Program Director
(585) 475-2460, tnlgsh@rit.edu

Program overview

Museum studies is an innovative, interdisciplinary, technically-based major that prepares students for careers in museums, archives, photo collections, and libraries.

Plan of study

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.

Internship

The major requires students to complete a 200-hour internship in a cultural institution. This experience gives students the opportunity to apply what they've learned in the classroom to a professional setting and gain valuable work experience before they graduate.

Professional tracks

The professional tracks–in management and 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 management, leadership, information technology, fundraising, and grant writing skills—all of which are included in the management 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.

Curriculum

Museum studies (management track), BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MUSE-220	Introduction to Museums and Collecting	3
ARTH-135	History of Western Art: Ancient to Medieval	3
ARTH-136	History of Western Art: Renaissance to Modern	3
	LAS Perspective 1, 2, 3, 4, 7A	15
MUSE-221	Introduction to Public History	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MUSE-358	Legal and Ethical Issues for Collecting Institutions	3
MUSE-341	Museum Education and Interpretation	3
MUSE-225	Museum and the Digital Age	3
MGMT-215	Organizational Behavior	3
MGMT-310	Leadership in Organization	3
	LAS Immersion 1	3
	LAS Perspective 5‡, 6, 7B	10
MUSE-224	History and Theory of Exhibitions	3
Third Year		
MUSE-355	Fundraising, Grant Writing, and Marketing for Nonprofit Institutions	3
MGMT-360	Digital Entrepreneurship	3
MUSE-340	Introduction to Archival Studies	3
MUSE 354	Exhibition Design	3
MUSE 360	Visitor Engagement and Museum Technologies	3
	LAS Immersion 2, 3	6
	LAS Elective	3
MUSE-357	Collections Management and Museum Administration	3
MUSE-359	Cultural Informatics	3
MUSE-499	Museum Studies Co-op	Co-op
Fourth Year		
MUSE-489	Research Methods	3
MUSE-490	Senior Thesis	3
	Free Electives	6
	MUSE Electives	6
	LAS Electives	12
Total Semester Credit Hours		**121**

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 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		
MUSE-220	Introduction to Museums and Collecting	3
MUSE-221	Introduction to Public History	3
HIST-101	Making History	3
	LAS Perspective 1, 2, 3, 4, 6, 7A	19
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MUSE-215	Museums and the Digital Age	3
HIST-125	Public History, Public Debates	3
	LAS Perspective 5, 7B	6
	LAS Immersion 1, 2	6
MUSE-224	History and Theory of Exhibitions	3
MUSE-341	Museum Education	3
HIST-324	Oral History	3
MUSE-358	Legal and Ethical Issues	3
Third Year		
MUSE-354	Exhibition Design	3
MUSE-355	Fundraising, Grant Writing, and Marketing	3
MUSE-359	Cultural Informatics	3
	History Elective	3
HIST-325	Museums and History	3
	LAS Immersion 3	3
MUSE-357	Collections Management and Museum Administration	3
MUSE-310	Visitor Engagement and Technologies	3
	LAS Electives	6
MUSE-499	Museum Studies Co-op	Co-op
Fourth Year		
MUSE-489	Research Methods	3
MUSE-490	Senior Thesis	3
	LAS Electives	18
	Free Electives	6
Total Semester Credit Hours		**121**

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 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.

Additional information

Career opportunities

Upon graduation students are 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 an MBA.

Advisers

Every student is assigned a faculty adviser 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.

Philosophy, BS

http://www.rit.edu/philosophy
John T. Sanders, Program Director
(585) 475-2465, jts@rit.edu

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 philosophical training. 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 major 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
This specialization covers 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
This specialization examines 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
This specialization examines 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
This specialization examines philosophical issues arising from social and political life as well as the disciplines that study them.

Philosophy of art and aesthetics
This specialization examines how different philosophical frameworks conceive of the various arts and crafts and the forms of creative 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
This specialization 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
This specialization prepares students 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.

Curriculum

Philosophy, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
PHIL-201	Ancient Philosophy	3
	Professional/Technical Core Courses	6
	First Year LAS Elective	3
	LAS Perspective 1, 2, 7A	9
PHIL-203	Modern Philosophy	3
PHIL-205	Symbolic Logic	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
PHIL-202	Foundations of Moral Philosophy	3
	Program Electives	9
	Professional/Technical Core Courses	6
	LAS Perspective 3, 4, 5‡, 7B	12
Third Year		
	Program Electives	6
	Free Electives	6
	Professional/Technical Core Course	3
	LAS Electives	6
	LAS Perspective 6	3
	Specialization Course	3
	LAS Immersion 1	3

COURSE		SEMESTER CREDIT HOURS
Fourth Year		
	Specialization Courses	9
PHIL-416	Seminar in Philosophy	3
	LAS Immersion 2, 3	6
	LAS Electives	9
PHIL-595	Senior Thesis in Philosophy†	3
Total Semester Credit Hours		**120**

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 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-404	Philosophy of Mind
PHIL-407	Philosophy of Action
PHIL-414	Philosophy of Language
PHIL-401	Great Thinkers*
PHIL-416	Seminar in Philosophy*
PHIL-449	Special Topics*

Philosophy of science and technology

COURSE	
Electives	
Choose four of the following	
PHIL-315	Responsible Knowing
PHIL-316	Bioethics and Society
PHIL-307	Philosophy of Technology
PHIL-310	Theories of Language
PHIL-314	Philosophy of Vision and Imaging
PHIL-402	Philosophy of Science
PHIL-401	Great Thinkers*
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-403	Social and Political Philosophy
PHIL-405	Philosophy of Social Sciences
PHIL-401	Great Thinkers*
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-413	Philosophy and Literary Theory
PHIL-401	Great Thinkers*
PHIL-416	Seminar in Philosophy*
PHIL-417	Continental European 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 european 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 403	Social and Political Philosophy
PHIL-401	Great Thinkers*
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.

Additional information

Advising

Each student is assigned a faculty adviser who assists in planning course schedules, professional/technical core requirements, and a philosophy specialization area.

Faculty

The philosophy department's faculty are outstanding teachers. They are active scholars, publishing regularly in journals, editing and authoring books, and organizing and delivering papers at conferences at RIT and elsewhere in the United States and abroad.

Political Science, BS

http://www.rit.edu/cla/politicalscience

Sean Sutton, Department Chairperson
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Program overview

The political science major tightly integrates the traditional fields of American government and international relations in order to prepare students for a life and career in an increasingly globalized world. Moreover, the major includes three tracks for students to choose from: politics and life sciences, digital politics and organization, and political institutions. Through these tracks 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. The major prepares principled leaders and responsible citizens for fruitful careers in the public and private sectors.

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 a 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 for 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.

Program 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. This requirement recognizes the increasing interdependence of domestic and international politics in this era of globalization. Students focus their studies on American politics, international relations, and comparative politics to provide an integrated national and global political perspective.

Curriculum

Political science, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
POLS-110	American Politics	3
	First Year LAS Elective	3
	LAS Perspectives 1, 2, 6, 7A, 7B	15
POLS-120	Introduction to International Relations	3
	Political Science Elective	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
POLS-290	Politics and the Life Sciences	3
	Political Science Electives	6
	LAS Perspectives 3, 4, 5‡	9
	LAS Immersion 1, 2	6
POLS-295	Cyberpolitics	3
	Free Elective	3
Third Year		
	Political Science Track Courses	6
	Political Science Electives	6
	Free Electives	6
	LAS Immersion 3	3
	LAS Electives	9
Fourth Year		
POLS-530	Political Science Capstone (WI)	3
	Political Science Track Course	3
	Political Science Electives	6
	LAS Electives	12
	Free Electives	6
Total Semester Credit Hours		**120**

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 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	Cell Biology and Molecular Biology
BIOL-265	Evolutionary Biology
BIOL-293	Evolution, Creationism and Intelligent Design
BIOL-321	Genetics
POLS-215	Technology, Ethics, and Global Policy
POLS-285	Environmental Ethics and Political Ecology
POLS-410	Evolutionary International Relations
POLS-415	Evolution and Law
POLS-420	Primate Politics
STSO-421	Environmental Policy

Digital politics and organization

COMM-410	Technology Mediated Communication
ISTE-140	Web I
ISTE-230	Introduction to Database and Data Modeling
ISTE-240	Web 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-370	Cyberwar, Robots, and the Future of Conflict

Political institutions

POLS-210	Comparative Politics
POLS-220	Global Political Economy
POLS-310	The Congress
POLS-315	The American Presidency
POLS-325	International Law and Organizations
POLS-425	Constitutional Law

Additional information

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.

Accelerated 4+1 MBA option

An accelerated 4+1 option is available for students who wish to earn a BS in political 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.

Experiential education

Beginning in the third year, students may participate in optional learning experiences that may include an internship and/or cooperative education (co-op), which provides students with hands-on experience in a variety of environments, from government agencies, non-profits, 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

A study abroad opportunity enhances 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. To learn more about the Study Abroad program, please visit studyabroad.rit.edu.

Career opportunities

A degree in political science prepares students for careers in law; local, state, and national government; foreign service; business; government relations; and other areas of the private and public sector in which knowledge of the political process and the strengths and limitations of modern democracy and modern society is appropriate. In addition, students are well-prepared for graduate study in a variety of fields, ranging from business and law to political science and public policy.

Advising

Each student is assigned a faculty adviser who assists with course registration, scheduling, course selection, academic concerns, and career counseling.

Faculty

The political science faculty have extensive experience in the classroom and are well-published in their fields of expertise. Faculty members have broad backgrounds in addition to their political science training, including criminal justice, literature, philosophy, political campaigning, political polling, and public policy. Several members have worked for the United Nations and in Washington, D.C., think tanks.

Psychology, BS

http://www.rit.edu/cla/psychology

Joseph Baschnagel, Department Chairperson
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Caroline Delong, Undergraduate Program Director
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Program overview

The psychology major provides students with a strong grounding in the discipline of psychology, integrated with a technological focus. Upon entry, students are assigned a faculty adviser to mentor their progress through the program. 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 cooperative education requirement.

Interdisciplinary tracks

Students choose two of the following interdisciplinary tracks: biopsychology, clinical psychology, cognitive psychology, developmental psychology, or social psychology. 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.

The biopsychology track studies brain function as the basis of behavior. It focuses on topics such as lateralization, cortical specialization, brain injury, and psychopharmacology. Psychophysiological measures (including EEG, EMG, and skin conductance) are covered in depth along with the relationship between brain chemistry and behavior. Students perform related laboratory work relating nervous system activity to attention, memory, language, perception, and psychological disorders.

The clinical psychology track emphasizes the empirical foundations of clinical and applied mental health care. Empirically based methods are introduced to understand, assess and treat human behavioral and psychological problems. This track prepares students for graduate programs in mental health.

The cognitive psychology track uses an interdisciplinary approach to study processes such as judgment, decision making, memory, learning, language, problem solving, and attention. The track explores the interaction of human factors, psychology, and technology.

The developmental psychology track focuses on human development over the lifespan. Areas of focus include cognitive and perceptual development, social and emotional development, and developmental psychopathology.

The social psychology track introduces students to the complexity of human behavior in groups. Behavior in pairs, small groups and larger aggregates is covered in different classes. Like the other tracks, students learn by doing studies and reading relevant literature.

Cooperative education

The major requires students to complete one semester of cooperative education. 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 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	LAS Perspective 7A: Introduction to Statistics I	3
	First Year LAS Elective	3
	LAS Perspective 1, 2	6
	Free Elective	3
	Breadth Course†	3
	Pre-track Course§	3
	First Year Writing Seminar	3
STAT-146	LAS Perspective 7B: Introduction to Statistics II	4
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
PSYC-250	Research Methods I (WI)	3
	Pre-track Courses§	6
	Breadth Course†	3
	LAS Perspective 3, 4	6
MEDG-101, 103	LAS Perspective 5: Human Biology I and Lab	4
PSYC-251	Research Methods II (WI)	3
MEDG-102, 104	LAS Perspective 6: Human Biology II and Lab	4
	LAS Elective	3

COURSE		SEMESTER CREDIT HOURS
Third Year		
	Breadth Course†	3
	Track Courses	9
	LAS Immersion 1, 2, 3	9
	LAS Electives	9
Fourth Year		
	Psychology Capstone‡	6
	Track Course	3
	LAS Electives	9
	Free Electives	12
Total Semester Credit Hours		**123**

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 Wellness courses.
† Please see an adviser for a list of approved breadth courses.
‡ Students may choose one of the following courses to fulfill the psychology capstone: Philosophy of Science (PSYC-402) (WI), PSYC-501, or PYSC-510 (WI).
§ Students may choose three of the following courses to fulfill the pre-track course requirement: Abnormal Psychology (PSYC-221), Biopsychology (PSYC-222), Cognitive Psychology (PYSC-223, Perception (PYSC-224), or Social Psychology (PSYC-225).

Tracks

Biospychology

PSYC-310	Psychophysiology
PSYC-311	Psychopharmacology
PSYC-312	Biological Bases of Mental Disorders

Clinical Psychology

PSYC-320	Clinical Psychology
PSYC-321	Psychological Testing
PSYC-322	Psychotherapy

Cognitive

PSYC-330	Memory and Attention
PSYC-3331	Language and Thought
PSYC-332	Decision Making, Judgment and Problem Solving

Social Psychology

PSYC-340	Interpersonal Relationships
PSYC-341	Group Processes
PSYC-342	Attitudes and Social Cognition

Visual

PSYC-350	Visual Systems and Psychophysics
PSYC-351	Color, Form, and Object Perception
PSYC-352	Depth, Motion, and Space Perception

Additional information

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.

Public Policy, BS

http://www.rit.edu/cla/publicpolicy

Sandra Rothenberg, Department Chairperson
(585) 475-6032, srothenberg@saunders.rit.edu

Program overview

Policy plays a critical role in addressing the many environmental, social, economic, and technological challenges facing society. The public policy major 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 major 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 one of the following areas: biotechnology policy, computer crime policy, computer software policy, energy policy, engineering policy, environmental policy, or 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.

Curriculum

Public policy, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
PUBL-101	Foundations of Public Policy	3
ECON-101	Microeconomics	3
	LAS Perspective 1, 2, 5‡, 7A§	13
	First Year LAS Elective	3
STSO-201	Science, Technology, and Policy	3
ECON-201	Macroeconomics	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
PUBL-201	Ethics, Values, and Public Policy	3
STAT-145	LAS Perspective 7B: Statistics I	3
	LAS Perspective 3, 4, 6	9
	LAS Immersion 1	3
	Free Electives	6
PUBL-210	Qualitative Methods and Analysis	3
	Concentration Course	3
Third Year		
PUBL-301	Public Policy Analysis	3
	LAS Immersion 2, 3	6
	Free Electives	6
	Public Policy Elective	3
	LAS Elective	3
PUBL-302	Decision Analysis	3
POLS-455	Comparative Public Policy	3
	Concentration Course	3
Fourth Year		
PUBL-500	Senior Project (WI)	3
	Concentration Courses	9
	Free Electives	6
	LAS Electives	9
PUBL-510	Technology Innovation and Public Policy	3
Total Semester Credit Hours		**121**

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 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 choose one of the following calculus options Elementary Calculus (MATH-161) or Project-based Calculus I (MATH-181).

Concentrations

Biotechnology policy

STSO-240	Social Consequences of Technology
STSO-421	Environmental Policy
BIOL-101	General Biology I
BIOL-102	General Biology II
MEDG-106	Microbiology of Health and Disease

Computer crime policy

PUBL-520	Information and Communications Policy
STSO-240	Social Consequences of Technology
CRIM-110	Introduction to Criminal Justice
CRIM-210	Technology in Criminal Justice
CRIM-290	Computer Crime
NSSA-101	NSSA Themes

Computer software policy

PUBL-520	Information and Communications Policy
STSO-240	Social Consequences of Technology
MATH-190	Discrete Mathematics for Computing
CSCI-141	Computer Science I
CSCI-142	Computer Science II
SWEN-261	Introduction to Software Engineering

Energy policy

STSO-330	Energy and the Environment
STSO-550	Sustainable Communities
ECON-520	Environmental Economics
ECON-421	Natural Resource Economics
PUBL-530	Energy Policy

Engineering policy

EEEE-120	Digital Systems I
EEEE-220	Digital Systems II
EEEE-281	Circuits I
EEEE-381	Electronics I with Lab
ISEE-345	Engineering Economy
MECE-104	Engineering Design Tools
MECE-103	Statics
MECE-110	Thermodynamics I
MECE-210	Thermal Mechanics I
MECE-305	Materials Science with Applications
MECE-352	Thermodynamics II
PHYS-211	University Physics I
PHYS-212	University Physics II

Environmental policy

STSO-220	Environment and Society
STSO-422	Great Lakes
STSO-330	Energy and the Environment
STSO-421	Environmental Policy
STSO-325	History of Environmental Sciences
STSO-521	Biodiversity and Society
PHIL-308	Environmental Philosophy
ECON-520	Environmental Economics
ECON-421	Natural Resource Economics
ESHS-150	Principles of Environmental Sustainability, Health and Safety
ESHS-310	Solid and Hazardous Waste Management
ESHS-480	Environmental Health and Safety Law
BIOL-211	Invertebrate Zoology
BIOL-212	Vertebrate Zoology
CHMG-142	General and Analytical Chemistry II
CHMG-146	General and Analytical Chemistry II Lab
CHMO-231	Organic Chemistry

Information and communications policy

MGMT-215	Organizational Behavior
MGMT-420	Managing Innovation and Technology
MGIS-120	Business Computer Applications
MGIS-201	Business Information Systems Processes
STSO-240	Social Consequences of Technology
STSO-550	Sustainable Communities
PUBL-510	Technological Innovation and Public Policy
PUBL-520	Information and Communications Policy
COMM-101	Human Communication
COMM-202	Mass Communications
COMM-362	Law and Ethics of the Press
ENVS-250	Applications of Geographic Information Systems
ISTE-105	Web Foundations
ISTE-120	Computational Problem Solving in the Information Domain I
ISTE-121	Computational Problem Solving in the Information Domain 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 adviser for more information.

Public policy, BS degree/Science, technology and public policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
PUBL-101	Foundations of Public Policy	3
ECON-101	Microeconomics	3
	LAS Perspective 6‡, 7A	6
	LAS Perspective 1, 2	6
	First Year LAS Elective	3
STSO-201	Science, Technology, and Policy	3
ECON-201	Macroeconomics	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
PUBL-201	Values and Public Policy	3
STSO-220	Environment and Society	3
STAT-145	LAS Perspective 7B: Statistics I	3
	LAS Perspective 3, 4, 5	9
	Free Electives	6
PUBL-210	Qualitative Methods and Analysis	3
	Concentration Course	3
Third Year		
PUBL-301	Public Policy Analysis	3
	LAS Immersion 1, 2	6
	Free Electives	6
	LAS Elective	3
PUBL-302	Decision Analysis	3
POLS-455	Comparative Public Policy	3
	Concentration Courses	6
Fourth Year		
PUBL-500	Senior Project (WI)	3
	LAS Immersion 3	3
	Concentration Courses	6
	Free Electives	6
	LAS Electives	9
PUBL-510	Technology Innovation and Public Policy	3
PUBL-700	Readings in Public Policy	3
STSO-710	Science and Technology Policy Seminar	3
Fifth Year		
PUBL-701	Graduate Policy Analysis	3
PUBL-703	Program Evaluation and Research Design	3
	Graduate Electives	9
PUBL-702	Graduate Decision Analysis	3
Choose one of the following:		6
PUBL-799	Thesis	
	Comprehensive Exam§	
Total Semester Credit Hours		**150**

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 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.

Additional information

Cooperative education

Students may complete a co-op or internship within the private, public, or nonprofit sectors. The co-op experience makes our students attractive to a wide range of agencies, businesses, and organizations.

Employment opportunities

Exciting career opportunities await professionals who can integrate an understanding of science and technology with public policy decision making. Graduates are uniquely positioned to take advantage of the growing job market in public policy, with career options in a range of fields within the private, government, and nonprofit sectors.

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.

Sociology and Anthropology, BS

http://www.rit.edu/cla/socanthro
Christine Kray, Program Director
(585) 475-4686, cakgss@rit.edu

Program overview

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 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.

Cooperative education and field experience

Students apply their classroom knowledge with opportunities for hands-on learning through cooperative education assignments, internships, archaeological, ethnographic, or linguistic fieldwork, laboratory analysis, and study abroad.

Curriculum

Sociology and anthropology (archaeology track), BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	First Year Writing Seminar	3
ANTH-103	Archaeology and the Human Past	3
SOCI-102	Foundations of Sociology	3
	First Year LAS Elective	3
	LAS Perspective 1, 2, 3, 4, 5‡	15
	Program Elective	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
ANTH/SOCI-201	Ethnographic Imagination: Writing About Society and Culture (WI)	3
ANTH/SOCI-301	Social and Cultural Theory	3
ANTH/SOCI-302	Qualitative Research	3
ANTH-215	Field Methods in Archaeology	3
	Track Elective	3
ANTH-250	Themes in Archaeological Research	3
	LAS Perspective 6, 7A, 7B	9
	LAS Immersion 1	3
Third Year		
ANTH/SOCI-303	Quantitative Research	3
ANTH-255	Regional Archaeology	3
	Track Electives	15
	LAS Immersion 2, 3	6
	LAS Elective	3
Choose one of the following:		
ANTH-498	Practicum	0
ANTH-499	Cooperative Education	Co-op

COURSE		SEMESTER CREDIT HOURS
Fourth Year		
Choose one of the following:		3
	Track Elective	
ANTH-502	Scholar's Thesis I	
Choose one of the following:		3
ANTH-501	Senior Research Project	
ANTH-503	Scholar's Thesis II	
	Free Electives	6
	LAS Electives	18
Total Semester Credit Hours		**120**

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 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.

Archaeology track electives

ANTH-230	Archaeology and Cultural Imagination: History, Interpretation and Pop Culture
ANTH-260	Native North Americans
ANTH-312	People Before Cities
ANTH-315	Archaeology of Cities
ANTH-328	Heritage and Tourism
ANTH-355	Historic Archaeology
ANTH-360	Humans and their Environment
ANTH-365	Culture and Politics in the Middle East
ANTH-375	Native American Cultural Resources and Rights
ANTH-415	Archaeological Science
ANTH-420	Exploring Ancient Technology
ANTH-435	The Archaeology of Death
ENVS-250	Applications Geographic Information System

Sociology and anthropology (cultural anthropology track), BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	First Year LAS Elective	3
	First Year Writing Seminar	3
	Program Elective	3
ANTH-102	Cultural Anthropology	3
Choose two of the following:		6
ANTH-103	Archaeology and the Human Past	
SOCI-102	Foundations of Sociology	
	LAS Perspective 1, 2, 3, 4, 5‡	15
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
ANTH/SOCI-201	Ethnographic Imagination: Writing About Society and Culture (WI)	3
ANTH/SOCI-301	Social and Cultural Theory	3
ANTH/SOCI-302	Qualitative Research	3
	Track Electives	9
	LAS Perspective 6, 7A, 7B	9
	LAS Immersion 1	3
Third Year		
ANTH/SOCI-303	Quantitative Research	3
	Track Electives	18
	LAS Immersion 2, 3	6
	LAS Elective	3
Choose one of the following:		
ANTH-498	Practicum	0
ANTH-499	Cooperative Education	Co-op
Fourth Year		
Choose one of the following:		3
	Track Elective	
ANTH-502	Scholar's Thesis I	
Choose one of the following:		3
ANTH-501	Senior Research Project	
ANTH-503	Scholar's Thesis II	
	Free Electives	6
	LAS Electives	18
Total Semester Credit Hours		**120**

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 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.

Cultural anthropology track electives

ANTH-104	Languages and Linguistics
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-240	Muslim Youth Cultures
ANTH-245	Ritual and Performance
ANTH-260	Native North Americans
ANTH-265	Native Americans in Film
ANTH-270/INGS-270	Cuisine, Culture, and Power
ANTH-275	Global Islam
ANTH-280	Sustainable Development
ANTH-285	American Indian Languages
ANTH-290	Language and Sexuality
ANTH-305	Comparative and Historical Linguistics
ANTH-310	African Film and Popular Cultures
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-340	Divided Europe
ANTH-345	Genocide and Post-Conflict Justice
ANTH-350	The Global Economy and the Grassroots
ANTH-365	Culture and Politics in the Middle East
ANTH-370	Media and Globalization
ANTH-375	Native American Cultural Resources and Rights
ANTH-380	Nationalism and Identity
ANTH-385	Anthropology and History
ANTH-390/SOCI-390	Marxist Perspectives
ANTH-410	Global Cities
ANTH-425	Global Sexualities
ANTH-430	Visual Anthropology
ANTH-455/ECON-452/ INGS-455	Economics of Native America
INGS-101	Global Studies

Sociology and anthropology (sociology track), BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	First Year Writing Seminar	3
SOCI-102	Foundations of Sociology	
Choose one of the following:		6
ANTH-102	Cultural Anthropology	
ANTH-103	Archaeology and the Human Past	
	First Year LAS Elective	3
	LAS Perspective 1, 2, 3, 4, 5‡	15
	Program Elective	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
ANTH/SOCI-201	Ethnographic Imagination: Writing About Society and Culture (WI)	3
ANTH/SOCI-301	Social and Cultural Theory	3
ANTH/SOCI-302	Qualitative Research	3
SOCI-225	Social Inequality	3
SOCI-235	Women, Work and Culture	3
SOCI-220	Minority Group Relations	3
	LAS Perspective 6, 7A, 7B	9
	LAS Immersion 1	3
Third Year		
ANTH/SOCI-303	Quantitative Research	3
	Track Electives	18
	LAS Immersion 2, 3	6
	LAS Elective	3
Choose one of the following:		
SOCI-498	Practicum	0
SOCI-499	Cooperative Education	Co-op

COURSE		SEMESTER CREDIT HOURS
Fourth Year		
Choose one of the following:		3
	Track Elective	
SOCI-502	Scholar's Thesis I	
Choose one of the following:		3
SOCI-501	Senior Research Project	
SOCI-503	Scholar's Thesis II	
	LAS Electives	18
	Free Electives	6
Total Semester Credit Hours		**120**

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 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.

Sociology track electives

ANTH-390/SOCI-390	Marxist Perspectives
ECON-451/SOCI-451/ WGST-451	Economics of Women and the Family
SOCI-210	African American Culture
SOCI-215	Changing Family
SOCI-230	Sociology of Work
SOCI-240	Deaf Culture in America
SOCI-245	Gender and Health
SOCI-250	Globalization and Security
SOCI-255	Disaster, Public Health Crises, and Global Responses
SOCI-310	Housing Policies in the U.S.
SOCI-315	Global Exiles of War and Terror
SOCI-322	Society, Environment, and Health
SOCI-330	Urban (In)Justice
SOCI-340	Urban Planning and Policy
SOCI-345	Urban Poverty
SOCI-350	Social Change

James J. Winebrake, BS, Lafayette College; MS, Massachusetts Institute of Technology; Ph.D., University of Pennsylvania—Dean; 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—Associate Dean; Professor

Andrew M. Herbert, BS, McGill University (Canada); MA, Ph.D., University of Western Ontario (Canada)—Associate Dean; Professor

John S. Smithgall, BA, Roberts Wesleyan College; MS, University of Rochester—Assistant Dean for Student Services

School of Communication

Andrea Hickerson, BA, Syracuse University; MA, University of Texas at Austin; Ph.D., University of Washington—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—Senior Lecturer

Kari Cameron, BS, M.Ed., Nazareth College of Rochester; MS, Rochester Institute of Technology—Lecturer

Grant C. Cos, BA, University of Massachusetts at Amherst; MA, Emerson College; Ph.D., Kent State University—Director of Graduate Programs; Professor

Babak Elahi, BA, San Diego State University; MA, University of California at San Diego; Ph.D., University of Rochester—Professor

Keith B. Jenkins, BA, University of Arkansas; MA, Ph.D., Florida State University—Professor

Mike Johansson, MA, Syracuse University—Senior Lecturer

Ammina Kothari, BA, North Central College; MA, University of Oregon; Ph.D., Indiana University—Director of Undergraduate Studies: Journalism; Assistant Professor

Eun Sook Kwon, BA, Hannam University (Korea); MA, University of Texas at Austin; Ph.D., University of Georgia—Assistant Professor

Hinda Mandell, BA, Brandeis University; MA, Harvard University; Ph.D., Syracuse University—Associate Professor

Lori Marra, BS, Nazareth College; MA, University of Rochester—Senior Lecturer

Kelly Norris Martin, BA, John Carroll University; MS, Ph.D., North Carolina State University—Associate Professor

David R. Neumann, BA, Ithaca College; MA, Ph.D., Bowling Green State University—Professor

Rudolph 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—Director of Undergraduate Studies, Advertising and Public Relations, Comunication; Principal Lecturer

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

Xiao Wang, BA, Beijing University of Aeronautics and Astronautics (China); MA, Marquette University; Ph.D., Florida State University—Associate Professor

Tracy R. Worrell, BA, Otterbein University; MA, University of Cincinnati; Ph.D., Michigan State University—Associate Professor

Criminal Justice

John McCluskey, BA, MA, Ph.D., State University of New York at Albany—Department Chair; Professor

Irshad Altheimer, BA, Alabama State; MA, Ph.D., Washington State University—Associate Professor

John M. Klofas, BA, College of the Holy Cross; 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—Associate Dean; Professor

Judy Porter, BA, University of Northern Colorado; MA, New Mexico State University; Ph.D., University of Nebraska at Omaha—Undergraduate Program Director; Associate Professor

O. Nicholas Robertson, BA, State University College at Geneseo; MA, State University College at Brockport; Ph.D., State University of New York at Buffalo—Assistant Professor

Christopher Schreck, BA, University of Florida; MA, University of Arizona; Ph.D., Pennsylvania State University—Professor

Jason Scott, BS, Roberts Wesleyan College; MA, Ph.D., State University of New York at Albany—Graduate Program Director; Associate Professor

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, Lecturer

Economics

M. Jeffrey Wagner, AB, University of Missouri; MS, Ph.D., University of Illinois—Department Chair; 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

Javier Espinosa, BS, Miami University; MA, Ph.D., University of Maryland at College Park—Undergraduate Program Director; 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

Eddery Lam, BA, MA, Boston University; MA, University of Massachusetts at Amherst; Ph.D., Kansas State University—Assistant Professor

Jeannette C. Mitchell, BA, Westminster College; Ph.D., University of Utah—Associate Professor

Nikolaus Robalino, BA, MA, Ph.D., Simon Fraser University—Assistant Professor

Selhan Sahin, BSc., Middle East Technical University (Turkey); ABD, Virginia Polytechnic Institute and State University—Lecturer

Michael J. Vernarelli, AB, University of Michigan; MA, Ph.D., State University of New York at Binghamton—Professor

Ye Wang, BS, Beijing University of Technology (China); MS, University of International Business and Economics (China); MS, Ph.D., Texas Tech University—Visiting Lecturer

English

Sharon M. Beckford-Foster, BA, MA, Ph.D., York University (Canada)—Department Chair; Associate Professor

Charles (Sandy) A. Baldwin, BA, Harvard University; MA, State University of New York at Albany; M.Phil, Ph.D., New York University—Undergraduate Program Director for Digital Humanities and Social Sciences; Associate Professor

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Katherine Mayberry, BA, Smith College; MA, Ph.D., University of Rochester—Professor

David S. Martins, BA, St. Olaf College; MA, Northern Arizona University; Ph.D., Michigan Technological University—Director, University Writing Program; Associate Professor

Cecillia Ovesdotter Alm, BA, Universitat Wien (Austria); MA, Ph.D., University of Illinois—Associate Professor

Emily T. Prud'hommeaux, AB, Harvard College; MA, University of California; Ph.D., Oregon Health & Science University—Assistant Professor

Amit Ray, BA, State University of New York at Buffalo; MA, Ph.D., University of Michigan—Associate Professor

John Roche, BA, University of Connecticut; MA, University College Dublin (Ireland); Ph.D., State University of New York at Buffalo—Associate Professor

Anne M. Royston, BA, Williams College; MA, Ph.D., University of Utah—Visiting Assistant Professor

Richard Santana, AA, LaGuardia Community College; BA, City College of New York; MA, Hunter College; Ph.D., City University of New York Graduate School and University Center—Associate Professor

Laura Shackelford, BA, University of Minnesota-Minneapolis; MA, Ph.D. Indiana University—Director of Women's & Gender Studies Program, Associate Professor

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

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Paulette Swartzfager, BA, St. Mary's Dominican College; MA, Louisiana State University—Lecturer

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Performing Arts and Visual Culture

Jonathan Kruger, BA, Carthage College; MM, DMA, Eastman School of Music—Department Chair; Professor

Carl J. Atkins, BM, Indiana University; MM, New England Conservatory; DMA, Eastman School of Music—Professor

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Modern Languages and Cultures

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History

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Rebecca A. R. Edwards, BA, College of the Holy Cross; Ph.D., University of Rochester—Professor

Joseph M. Henning, BA, Colorado College; MIA, Columbia University; Ph.D., American University—International & Global Studies Undergraduate Program Director, Associate Professor

Christine Keiner, BA, Western Maryland College; Ph.D., Johns Hopkins University—Associate Professor

Richard Newman, BA, State University of New York at Buffalo; MA, Brown University; Ph.D., State University of New York at Buffalo—Associate Professor

Rebecca Scales, BA, Hollins College; MA, University of Georgia; Ph.D., Rutgers University—Associate Professor

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Philosophy

Brian Schroeder, BA, Edinboro College; M.Div., Princeton Theological Seminary; MA, Ph.D., State University of New York at Stony Brook—Department Chair; Professor

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Silvia Benso, Laurea, University of Torino (Italy); MA, Ph.D., Pennsylvania State University—Professor

Evelyn Brister, BA, Austin College; Ph.D., Northwestern University—Associate 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

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John T. Sanders, BA, Purdue University; MA, Ph.D., Boston University—Undergraduate Degree Program Director; Professor

Evan Selinger, BA, Binghamton University; MA, University of Memphis; Ph.D., State University of New York at Stony Brook—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 Co-Director; Assistant Professor

Sarah Burns, BA, University of Toronto (Canada); MA, Ph.D., Claremont Graduate University—Assistant Professor

Nathan M. Dinneen, BA, MA, University of North Texas; Ph.D., Northern Illinois University—Undergraduate Program Co-Director; Associate Professor

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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Dongryul Kim, BA, MA, Seoul University (South Korea); Ph.D., University of Virginia—Associate Professor

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Psychology

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Suzanne Bamonto, AA, Finger Lakes Community College; BA, State University College at Geneseo; Ph.D., University of Oregon—Graduate Program Director; Associate Professor

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Jessamy Comer, BA, Baylor University; MA, Ph.D., University of Rochester—Visiting Lecturer

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Rebecca Houston, BS, University of Arkansas at Little Rock; MA, Ph.D., University of New Orleans, Louisiana—Assistant Professor

Jennifer Lukomski, BA, Williams College; MA, Gallaudet University; Ph.D., University of Arizona—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

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Public Policy

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Eric Hittinger, BS, MS, Case Western Reserve University; Ph.D., Carnegie Mellon University—Assistant Professor

Qing Miao, BA, Nanjing University (China); MS, University of Michigan; Ph.D., Syracuse University—Assistant Professor

James J. Winebrake, BS, Lafayette College; MS, Massachusetts Institute of Technology; Ph.D., University of Pennsylvania—Dean; Professor

Josephine Wolff, AB, Princeton University; Ph.D., Massachusetts Institute of Technology—Assistant Professor

Science, Technology, and Society

Deborah Blizzard, BA, Smith College; MS, Ph.D., Rensselaer Polytechnic Institute—Department Chair; Professor

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

M. Ann Howard, BS, Cornell University; JD, Rutgers University—Professor

Christine Keiner, BA, Western Maryland College; Ph.D., Johns Hopkins University—Associate Professor

Jessica W. Pardee, BA, MA, Ph.D., Tulane University—Associate Professor

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Sociology and Anthropology

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Kijana Crawford, BA, Tougaloo College; MSW, Atlanta University; MA, Ed.D., University of Rochester—Professor

J. Vincent Jappah, M.Phil., New York University; MS, University College London (United Kingdom); MD, People's Friendship University of Russia (Russia)—Visiting Assistant Professor

Christine Kray, BA, New Mexico State University; Ph.D., University of Pennsylvania—Sociology and Anthropology Undergraduate Program Director; Associate Professor

Benjamin N. Lawrance, BA, MA, University of London (United Kingdom); MA, Ph.D., Stanford University—Barber B. Conable Jr. Professor in International Studies

David C. Meiggs, BA, University of Colorado at Boulder; MA, Ph.D., University of Wisconsin at Madison—Assistant 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

Wilson De Lima Silva, BA, The Federal University of Amazonas (Brazil); MA, University of Rochester; Ph.D., University of Utah—Assistant Professor

Danielle Taana Smith, BA, Dartmouth College; MBA, Saint Martin's College; Ph.D., University of South Carolina—University Director, Honors Program; 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

Arthur J. Gosnell Professorship in Economics

Established: 1985

Donor: Family and friends of Arthur J. Gosnell

Purpose: To perpetuate the memory of Arthur J. Gosnell through recognition of the importance of good teaching in economics and by facilitating research into public policy questions

Held by: Amit Batabyal

Ezra A. Hale Professorship in Applied Ethics

Established: 1989

Donors: William B. and Patricia F. Hale and Lawyers Cooperative

Publishing Company

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

Held by: Wade L. Robison

William A. Kern Professorship in Communication

Established: 1971

Donor: Rochester Telephone Corporation

Purpose: To commemorate the 100th anniversary of that company and to provide a memorial for a former president of the company and a man who served as an RIT trustee from 1959 to 1964

Held by: Jonathan E. Schroeder

Barber B. Conable Jr. Professorship in International Studies

Established: 2004

Donor: The Starr Foundation

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: Benjamin N. Lawrance

National Technical Institute for the Deaf

Gerard Buckley, President, NTID; Vice President and Dean, RIT
ntid.rit.edu

Programs of study

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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. More than 1,200 deaf and hard-of-hearing students from across the United States, several U.S. territories, and other countries, study and reside at RIT with more than 14,000 hearing undergraduate students. 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 or master's degrees in professional programs offered by RIT's other colleges–Applied Science and Technology, Business, Computing and Information Sciences, Engineering, Health Sciences and Technology, Imaging Arts and Sciences, Liberal Arts, and Science.

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, 94 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 hospitality and service management provide a transition to baccalaureate programs in the colleges of Applied Science and Technology, Business, Computing and Information Sciences, and Liberal Arts. 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, 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 tech-

nology, administrative support technology, applied computer technology, business technology, computer aided drafting technology, computer integrated machining technology, design and imaging technology, laboratory science technology, and mobile application development. 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 degree in applied science and the associate degree in occupational studies. All career-focused programs require one cooperative education experience, typically a minimum of 350 hours scheduled over a ten-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 Applied Science and Technology, Business, Computing and Information Sciences, and Liberal Arts. Admission to these programs is available in the fall semester only.

Pre-baccalaureate studies: The pre-baccalaureate studies program is 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.

The pre-baccalaureate studies program is 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.

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, social and physical sciences, the humanities, and Deaf cultural studies/American Sign Language (ASL). Some students also may take introductory courses in specific programs of study and general education courses and be involved in extracurricular or other college-oriented activities.

An counselor/academic adviser is assigned to help students evaluate the information and make career decisions. Students can remain in the career exploration studies program for two academic semesters. Additional semesters in the program are possible with the approval of the program director.

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 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.

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 Applied Science and Technology, Saunders College of Business, B. Thomas Golisano College of Computing and Information Sciences, Kate Gleason College of Engineering, College of Health Sciences and Technology, College of Imaging Arts and Sciences, 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 Imaging Arts and Sciences	**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 Applied Science and Technology	• Applied Arts and Science • Manufacturing Engineering Technology	• Mechanical Engineering Technology	
Business	College of Business	• Accounting • Finance • International Business	• Management • Management Information Systems	• Marketing • New Media Marketing
Business Technology Concentrations: • Accounting Technology • Administrative Support Technology				
Civil Technology	College of Applied Science and Technology	• Civil Engineering Technology		
Computer Aided Drafting Technology	College of Applied Science and Technology	• Civil Engineering Technology		
	College of Imaging Arts and Sciences	• Interior Design		
Computer Integrated Machining Technology	College of Applied Science and Technology	• Manufacturing Engineering Technology		
Design and Imaging Technology Concentrations: • Graphic Design • Graphic Production	College of Imaging Arts and Sciences	**School for American Crafts** • Ceramics • Furniture Design • Glass • Metals and Jewelry Design • Undeclared Crafts **School of Art** • Fine Arts Studio • Illustration • Medical Illustration • Undeclared Art and Design	**School of Design** • Graphic Design • Industrial Design • Interior Design • New Media Design **School of Film and Animation** • Film and Animation • Motion Picture Science **School of Media Sciences** • Media Arts and Technology	**School of Photographic Arts and Sciences** • Photography and Imaging Arts (Advertising Photography option, Fine Art Photography option, Photojournalism option, Visual Media option) • Photographic and Imaging Technologies (Biomedical Photographic Communication option, Imaging and Photographic Technology option) • Undeclared Photography
Hospitality and Service Management Concentrations: • Hotel and Resort Management • Food and Beverage Management	College of Applied Science and Technology	• International Hospitality and Service Management (concentrations in International Hotel and Resort Management or Food and Beverage Management)		
Laboratory Science Technology	College of Science, College of Health Sciences and Technology, School of Individualized Study	• Applied Arts and Science • Environmental Management and Technology	• Biology • Biomedical Sciences • Biotechnology and Molecular Bioscience	• Chemistry • Environmental Science • Biochemistry
Mobile Application Development	College of Computing and Information Sciences	• Web and Mobile Computing		

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 adviser 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 Year One: College Experience (ACSC-010) course during the first semester
- participate in opportunities to explore and select a major, if needed
- work with an academic adviser and counselor

NTID General Education Curriculum–Liberal Arts and Sciences (LAS)

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 First Year LAS 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 can be a course approved for AASASLDCS and an LAS Perspective, or it can be used in some programs as a free elective.

§ One course from each RIT LAS perspective category: ethical (P1), artistic (P2), global (P3), social (P4), and scientific principles (P6). P6 should be NSCI-250 level or higher for AS; NSCI-120 level or higher for AAS.

*** Two courses from NTID LAS 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: First Year LAS Elective and a First Year Writing (FYW) course approved by the RIT University Writing Program. 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 additional 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 general education courses that satisfy RIT's LAS perspectives 1-ethical, 2-artistic, 3-global, 4-social and 6-scientific 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 LAS 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 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 an LAS 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.ntid.rit.edu/students/resources/academic

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.ntid.rit.edu/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;
- 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.

ASL Learning Center

ntid.rit.edu/aslie/sil.php

The ASL Learning Center serves as a collaborative learning environment where faculty, staff, and students from all ASL programs can gather to play with the language and have fun using ASL. The center emphasizes engaging with ASL in creative and fun ways that: enhance incidental learning; improve conversational fluency; and foster positive attitudes towards language learning, appreciation of Deaf culture, and respect for the visual language preferences of our Deaf and hard-of-hearing community members.

The center offers facilities and programming that foster group interaction and collaboration. Since language learning is most effective when students interact with native users of the language, the center offers a comfortable space where people can interact in ASL with intriguing programming designed to attract both ASL learners and ASL native users. It provides faculty a venue for experimenting with various out of class activities designed to enhance ASL skill development. It supports student learning outcomes by providing guided group activities that complement the curriculum by providing students a space to collaborate on assignments, establish mentoring relationships, and form study groups—with recording technology readily available to support their work..

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: Faculty and staff who work in speech and language services 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 faculty or staff or on a walk-in basis through the Speech & Language Center. 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 is committed to helping students 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 adviser who is professionally trained in providing a full complement of counseling, advising, 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 adviser in their college. Counselor/academic advisers are trained in career development theory and techniques. Some hold individual certifications from the National Board for Certified Counselors. All counselor/academic advisers follow the guidelines for ethical standards set forth by the American Counseling Association. Counselor/academic advisers assist with student orientation, educational and career planning, adjustment to college life, study-skills development, access and referral to on-campus and community resources, and a wide range of personal and interpersonal concerns.

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

rit.edu/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

http://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 deaf and hard-of-hearing athletes' experience as key members of their respective varsity athletic programs. Services offered for deaf and hard-of-hearing athletes and members of the athletic department include: academic support, educational workshops, mentoring, leadership training, and access services.

NTID Summer Vestibule Program

www.ntid.rit.edu/svp

The Summer Vestibule Program is NTID's required orientation program for new deaf and hard-of-hearing students 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 Service Orientation Workshops

www.ntid.rit.edu/svp/ntidbsstudents

The NTID Support Service Orientation (NSSO) 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.ntid.rit.edu/theatre

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.ntid.rit.edu/theatre.

Lab Theater: Lab Theater features experimental, new, or unusual productions. New directors and student writers also use the space for developing their skills. For information, call (585) 475-6250 (voice).

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 Program, (585) 475-6250 (voice).

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 2017-18 academic year is $1,066.

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 2017-18 is $1,856.

For information about NTID tuition, room and board, and fees, please see the RIT/NTID website www.rit.edu/emcs/financialaid/costs-ntid1718.html.

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.

NATIONAL TECHNICAL INSTITUTE FOR THE DEAF FIXED CHARGES 2017-2018 (DOMESTIC STUDENTS)

	Summer Vestibule Program Aug. 13-27, 2017	NSSO* Aug. 22, 2017	Fall Semester Aug. 28-Dec. 19, 2017	Spring Semester Jan. 16-May 8, 2018
Tuition	$725	0	$7,865	$7,865
Room	$259	0	$3,688	$3,688
Board (standard meal plan)	$227	0	$2,645	$2,645
Student fees†	0	0	$281	$281
Orientation fee‡	0	0	$225	0
Student health insurance fee	0	0	$1,856	0
Total	**$1,211**	**0**	**$16,335**	**$14,479**

** NSSO (NTID Support Service Orientation) workshops for NTID-supported students accepted to other RIT colleges.*

† Student fees are required of all full-time students and include: student health fee ($141 per semester) and student activities fee ($140 per semester).

‡ Charge to defray cost of fall Orientation program, for freshmen and new students only.

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.

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. 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. Campus cable connections are provided in residence hall rooms, classrooms, and various other locations. The system supports 22 channels of basic service, which includes ABC, CBS, NBC, Fox, WB, PBS, a local news channel, a local public access channel, and several channels used on campus for distribution of educational programming. This basic service is free, although students may elect to purchase full cable service from the Rochester cable system provider.

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, and cochlear implants. Students may visit the center to receive information or to schedule clinical appointments, obtain new ear molds and batteries, have hearing aids repaired and other services. The center is located in Johnson 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 adviser in the NTID counseling and academic advising services department. Counselor/academic advisers 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. In addition, counselor/academic advisers work closely with students and faculty in students' academic programs to help students achieve academic success. Counselor/academic advisers also consult and network extensively with families and internal and external resources with the goal of helping students achieve personal, career, and educational success. Most counselor/academic advisers serve as guest lecturers in the Freshman Seminar courses and lead career-counseling groups. Students can contact their assigned counselor/academic advisers 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 adviser 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 adviser 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 advisers are in constant contact with potential employers throughout the United States. In addition, the center hosts an annual job 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, 93 percent of deaf and hard-of-hearing graduates who chose to enter the workforce have found employment.

Research

NTID is a nationally known center on deafness. Faculty and staff at NTID conduct state-of-the-art research to better understand factors associated with deaf and hard-of-hearing students in a number of areas, such as teaching and learning, language and communication, technology access support, and employment, including career growth and success. The dual mission of the NTID research enterprise is to conduct scientific research investigations and to make the findings available to students, parents, teachers, researchers, and other professionals. Students may become involved in NTID research by volunteering to participate in a research study, becoming a research assistant, or conducting their own research under the supervision of NTID faculty and staff.

3D Graphics Technology, AAS

http://www.ntid.rit.edu/vcs
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Program overview

The AAS degree in 3D graphics technology introduces concepts related to three dimensional (3D) graphics, and teaches students 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 students for one of two options: entering the 3D graphics industry after graduation or continuing their studies in the 3D digital design BFA program offered by the College of Imaging Arts and Sciences.

The 3D graphics technology program consists of 72 credits taken over five semesters with a required cooperative work experience taken after the fourth semester. There are 48 credits of technical courses, 24 credits of liberal arts and sciences courses, a non-credit Freshman Seminar course, plus wellness.

The program's curriculum prepares and trains students for entry-level employment in the 3D graphics industry. The 3D graphics technology program covers the artistic and technical sides of the industry, with a specific focus on the modeling, animation, and visualization processes in 3D graphics. Students 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 students 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. Students acquire computer-based skills in 2D and 3D graphics software. In addition, students learn skills related to project management and teamwork.

The Capstone course (N3DG-270) offered in the final semester provides students with an opportunity to utilize their 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.

All students gain real work experience through one term of required cooperative education employment. They also complete a required portfolio workshop course in which they refine and complete their portfolio as needed for application to the BFA program in 3D digital design in the College of Imaging Arts and Sciences, or for an employment search.

STEM and the 3DGT 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.

On-the-job responsibilities

Graduates from the 3DGT program create 3D graphics, 3D printouts, environmental visualization graphics, and 3D models used in multimedia and animation on the job. Graduates will also be responsible for creating traditional media drawings and paintings, as well as animating 3D graphics, modeling, 3D printing, reading and understanding design plans and blueprints to translate into 3D models, and applying computer-based skills in 2D and 3D graphics software.

Places of employment

Students in the 3D graphics technology program will be prepared and qualified for obtaining entry-level employment in the industry, finding jobs with titles such as: junior computer graphic designer, junior computer animator, technical illustrator, 3D illustrator, 3D animator, junior environment artist, junior animator, 3D generalist, modeler, animator, texture artist, 3D visualization artist, and rigger. Graduates usually find employment in a variety of commercial, corporate, government, and educational settings. Examples include computer graphics firms, advertising agencies, art studios, architectural firms, film and video studios, animation studios, government agencies, industrial training or media departments, educational media centers, and educational institutions.

Prerequisites

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.

ACT: Composite test score of 18 or better

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.

Curriculum

3D graphics technology, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	ASL-Deaf Cultural Studies†	0
NAIS-130	Raster and Vector Graphics	3
N3DG-100	Design Drawing	3
N3DG-110	Basic 3D Modeling	3
NCAR-010	Freshman Seminar	0
NAIS-120	Principles of Design and Color	3
N3DG-115	Intermediate 3D Modeling and Techniques	3
N3DG-140	3D Lighting and Materials	3
UWRT-150	First Year Writing: Writing Seminar	3
	First Year LAS Elective‡	3
	Wellness Education*	0
Second Year		
	NGRD or NGRP Electives	6
N3DG-210	Advanced 3D Modeling and Techniques	3
N3DG-220	Principles of 4D Design	3
NAIS-201	Employment Seminar	3
ARTH-135	LAS Perspective 2: Survey of Western Art and Architecture I	3
N3DG-225	3D Motion	3
N3DG-230	3D Printing	3
N3DG-260	Professional Practices	3
ARTH-136	LAS Perspective 3: Survey of Western Art and Architecture II	3
NAIS-299	Cooperative Education	co-op
Third Year		
N3DG-270	Capstone	3
NAIS-292	Portfolio Workshop	3
	LAS Perspective 1, 4, 6§	9
Total Semester Credit Hours		**72**

Please see the NTID General Education Curriculum–Liberal Arts and Sciences (LAS) 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 an LAS Perspective or LAS Elective.
‡ Any mathematics course numbered NMTH-120 or higher.
§ Any science course numbers NSCI-120 or higher.

Accounting Technology, AAS

http://www.ntid.rit.edu/businessstudies
Mark Pfuntner, Chairperson
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Program overview

The AAS degree in accounting technology prepares students for entry-level employment in accounting-related occupations. Students learn the functions of the complete accounting cycle for service, merchandising, and manufacturing businesses. Graduates use computers to maintain and reconcile various financial records, verify business records, and perform other clerical and administrative duties.

The Associate+Bachelor's degree program provides students with the foundation needed for transfer into a bachelor's degree program. Students begin their studies in the associate of applied science program in accounting technology. Upon successful completion of five semesters of the AAS program, and with a minimum GPA of 2.5, students may enroll in RIT's School of Individualized Studies to pursue a bachelor's degree in applied arts and science. More information is available at www.ntid.rit.edu/businessstudies/accaplusb.

Places of employment

Graduates find employment in a variety of settings, including business, industry, and government, as well as self-employment. Positions for which graduates qualify include junior accounting technician, cost accounting clerk, accounts receivable/payable clerk, payroll clerk, general accounting clerk, and microcomputer accounting clerk.

Prerequisites

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 10.0 on the California Reading Test. However, students who complete AAS degrees typically enter NTID with reading scores equivalent to 9.0 on the California Reading 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.

Curriculum

Accounting technology, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	ASL-Deaf Cultural Studies†	0
NCAR-010	Freshman Seminar	0
	First Year LAS Elective	3
	LAS Perspective 1	3
NAST-160	Spreadsheet Applications for Business	3
NACC-130	Personal Finance	3
NAST-140	Essential Document Production	3
	First Year Writing	3
NMTH-120	Mathematics‡	3
NACC-201	Accounting 1	3
NBUS-200	Orientation to Business	3
NAST-150	Advanced Document Production	3
	Wellness Education*	0
Second Year		
	LAS Perspective 2, 3, 4	9
NAST-210	Essentials of Business Communication	3
NACC-202	Accounting 2	3
NAST-215	Integrated Document Production	3
NAST-220	Database Applications for Business	3
NACC-203	Accounting 3	3
NBUS-217	Fundamentals of Management	3
NBUS-213	Applied Ethics for Business	3
NACC-299	Cooperative Education	Co-op
Third Year		
	LAS Perspective 6	3
NACC-204	Accounting Capstone	3
NBUS-223	Fundamentals of Marketing	3
NBUS-220	Introduction to Economics	3
	Free Elective	3
Total Semester Credit Hours		**75**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) 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 an LAS Perspective or LAS Elective or it can be used to fulfill an Open Elective.
‡ Any mathematics course numbered NMTH-120 or higher.

Additional information

Microsoft certification

The department operates an authorized testing center for Microsoft Office Specialist. Preparatory courses are offered for several exams each semester.

Administrative Support Technology, AAS

http://www.ntid.rit.edu/businessstudies
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Program overview

The AAS degree program in administrative support technology 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 Associate+Bachelor's degree program provides students with the foundation needed for transfer into a bachelor's degree program. Students begin their studies in the associate of applied science program in administrative support technology. Upon successful completion of five semesters of the AAS program, and with a minimum GPA of 2.5, students may enroll in RIT's School of Individualized Study to pursue a bachelor's degree in applied arts and science. More information is available at www.ntid.rit.edu/businessstudies/asbs-ast.

Places of employment

Graduates find employment in a variety of settings, including business, industry, government, and education. Positions for which graduates qualify includeadministrative assistant, office assistant, word processor, and secretary.

Prerequisites

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 10.0 on the California Reading Test. However, students who complete AAS degrees typically enter NTID with reading scores equivalent to 9.0 on the California Reading 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.

Curriculum

Administrative support technology, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
	ASL-Deaf Cultural Studies§	0
	First Year LAS Elective	3
	LAS Perspective 1	3
NAST-140	Essential Document Production	3
NACC-130	Personal Finance	3
NAST-160	Spreadsheet Applications for Business	3
	First Year Writing Seminar	3
NMTH-120	Mathematics‡	3
NAST-150	Advanced Document Production	3
NBUS-200	Orientation to Business	3
NACC-201	Accounting 1	3
	Wellness Education*	0
Second Year		
	LAS Perspective 3, 4, 6	9
NAST-220	Database Applications for Business	3
NAST-215	Integrated Document Production	3
NAST-210	Essentials of Business Communication	3
NBUS-213	Applied Ethics for Business	3
NAST-225	Business Graphics	3
NAST-240	Administrative Support Technology Seminar	3
NBUS-217	Fundamentals of Management	3
NAST-299	Cooperative Education	Co-op
Third Year		
	LAS Perspective 2	3
NBUS-223	Fundamentals of Marketing	3
NAST-230	Desktop Publishing for Business	3
NBUS-221	Essentials of Human Resource Management	3
	Free Elective	3
Total Semester Credit Hours		**75**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) 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 LAS Perspective or LAS Elective or it can be used to fulfill an Open Elective.
‡ Any mathematics course numbered NMTH-120 or higher.

Additional information

Microsoft certification

As an authorized testing center for Microsoft Office Specialist, preparatory courses are offered to prepare students for several exams each semester.

Applied Computer Technology, AAS

http://www.rit.edu/NTID/act
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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 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.

Program concentrations

Students will select a concentration in computer technical support or networking and cyber security in the second year.

Computer technical support: This concentration develops skills specific to working with office professionals to solve computer-related

problems. These skills prepare students to work at a help desk responding to a client's computer problems and performing setup, upgrades, and repairs to computers and computer peripherals.

Networking and cyber security: Students in this concentration develop skills specific to network and network security support. The skills include server setup, support and administration, network setup, troubleshooting and repair, identifying and implementing security policies, and installing appropriate hardware and software to support a secure and robust network.

On-the-job responsibilities

Students work as computer technicians, computer support specialists, network technicians, network security technicians, and network administrators.

Places of employment

Graduates can expect to work in a variety of environments, including banks, insurance companies, large stores, manufacturing companies, public utilities, government agencies, health care agencies, hospitals, and many other kinds of departments and businesses that use computers and networks.

Prerequisites

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 10.0 on the California Reading Test. However, students who complete AAS degrees typically enter NTID with reading scores equivalent to 9.0 on the California Reading 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.

Curriculum

Applied computer technology (computer technical support concentration), AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
	ASL-Deaf Cultural Studies‡	0
NACT-150	Introduction to PC Hardware	3
NACT-160	Networking Essentials	3
NACT-170	Introduction to Web Development	3
	First Year LAS Elective	3
	LAS Elective§	3
NACT-151	Windows Operating Systems	3
NACT-161	Client-Server Networks	3
NACT-155	Non-Windows Operating Systems	3
	First Year Writing Seminar	3
	LAS Perspective 1	3
	Wellness Education*	0
Second Year		
NACT-200	Help Desk Support	3
NACT-250	Computer and Data Security	3
NACT-230	Introduction to Programming	3
NACT-240	World of Work	3
NACT-251	Digital Systems Integration	3
NACT-295	ACT Technical Capstone	3
NACT-235	Introduction to Database Applications	3
	LAS Perspective 2, 3, 4	9
NACT-299	Cooperative Education	Co-op
Third Year		
NACT-252	Server Management and Security	3
	ACT Program Electives**	6
	LAS Perspective 6	3
Total Semester Credit Hours		**72**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) 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 an LAS Perspective.
§ 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		
NCAR-010	Freshman Seminar	0
	ASL-Deaf Cultural Studies‡	0
NACT-150	Introduction to PC Hardware	3
NACT-160	Networking Essentials	3
NACT-170	Introduction to Web Development	3
	First Year LAS Elective	3
	LAS Elective§	3
NACT-151	Windows Operating Systems	3
NACT-161	Client-Server Networks	3
NACT-155	Non-Windows Operating Systems	3
	First Year Writing Seminar	3
	LAS Perspective 1	3
	Wellness Education*	0
Second Year		
NACT-200	Help Desk Support	3
NACT-260	LAN WAN Design	3
NACT-230	Introduction to Programming	3
NACT-240	World of Work	3
NACT-261	Network Security	3
NACT-295	ACT Technical Capstone	3
NACT-235	Introduction to Database Applications	3
	LAS Perspective 2, 3, 4	9
NACT-299	Cooperative Education	Co-op
Third Year		
NACT-262	Fundamentals of Systems Administration	3
	ACT Program Electives**	6
	LAS Perspective 6	3
Total Semester Credit Hours		**72**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) 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 an LAS Perspective.
§ 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

NAIS-130	Raster and Vector Graphics
NAIS-160	Web Design I
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
NBUS-200	Orientation to Business
NBUS-227	Principles of Marketing
NGRP-200	Videography

Applied Computer Technology, AOS

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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 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.

Program concentrations

Students select a concentration in computer technical support or networking cyber security in their second year.

Computer technical support: This concentration develops skills specific to working with office professionals to solve computer-related problems. These skills prepare students to work at a help desk responding to a client's computer problems and performing setup, upgrades, and repairs to computers and computer peripherals.

Networking and cyber security: Students in this concentration develop skills specific to network and network security support. The skills include server setup, support and administration, network setup, troubleshooting and repair, identifying and implementing security policies, and installing appropriate hardware and software to support a secure and robust network.

On-the-job responsibilities

Students work as computer technicians, computer support specialists, network technicians, network security technicians, and network administrators.

Places of employment

Graduates can expect to work in a variety of environments, including banks, insurance companies, large stores, manufacturing companies, public utilities, government agencies, health care agencies, hospitals, and many other kinds of departments and businesses that use computers and networks.

Prerequisites

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 major, 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 equivalent to 8.0 on the California Reading 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.

Curriculum

Applied computer technology (computer technical support concentration), AOS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
NACT-150	Introduction to PC Hardware	3
NACT-160	Networking Essentials	3
NACT-170	Introduction to Web Development	3
NENG-212	NTID LAS Foundation: Career English I	3
	NTID LAS Foundation: Mathematics†	3
NACT-151	Windows Operating Systems	3
NACT-161	Client-Server Networks	3
NACT-155	Non-Windows Operating Systems	3
NENG-213	NTID LAS Foundation: Career English II	3
	Wellness Education*	0
Second Year		
NACT-200	Help Desk Support	3
NACT-250	Computer and Data Security	3
NACT-230	Introduction to Programming	3
NACT-240	World of Work	3
NACT-251	Digital Systems Integration	3
NACT-295	ACT Technical Capstone	3
NACT-235	Introduction to Database Applications	3
	NTID LAS Perspective‡	3
NACT-299	Cooperative Education	Co-op
Third Year		
NACT-252	Server Management and Security	3
	ACT Program Electives§	6
	NTID LAS Perspective‡	3
Total Semester Credit Hours		**63**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) 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 LAS 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	Introduction to PC Hardware	3
NACT-160	Networking Essentials	3
NACT-170	Introduction to Web Development	3
NCAR-010	Freshman Seminar	0
NENG-212	NTID LAS Foundation: Career English I	3
	NTID LAS Foundation: Mathematics†	3
NACT-151	Windows Operating Systems	3
NACT-161	Client-Server Networks	3
NACT-155	Non-Windows Operating Systems	3
NENG-213	NTID LAS Foundation: Career English II	3
	Wellness Education*	0
Second Year		
NACT-200	Help Desk Support	3
NACT-260	LAN WAN Design	3
NACT-230	Introduction to Programming	3
NACT-240	World of Work	3
NACT-261	Network Security	3
NACT-295	ACT Technical Capstone	3
NACT-235	Introduction to Database Applications	3
	NTID LAS Perspective‡	3
NACT-299	Cooperative Education	Co-op
Third Year		
NACT-262	Fundamentals of Systems Administration	3
	ACT Program Electives§	6
	NTID LAS Perspective‡	3
Total Semester Credit Hours		**63**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) 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 LAS 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

NAIS-130	Raster and Vector Graphics
NAIS-160	Web Design I
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
NBUS-200	Orientation to Business
NBUS-227	Principles of Marketing
NGRP-200	Videography

Applied Computer Technology, AS

http://www.ntid.rit.edu/ics/a-plus-b-act
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Program overview

The associate in science 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 the B. Thomas Golisano College of Computing and Information Sciences. NTID's AS degree is a program specifically designed so that students can enroll in one of the following majors in the Golisano College: computing and information technologies or web and mobile computing. Coordination between the two colleges maximizes the number of credits a student may apply toward the baccalaureate degree. Admission to the applied computer technology major is available for the fall semester only.

Prerequisites

The following prerequisites are necessary for admission into the applied computer technology AS major:

ACT: Composite test score of 18 or better

English: Placement into a First Year Writing course, such as FYW: Writing Seminar (UWRT-150).

Mathematics: Entrance into NTID's NMTH-275 Advanced Math.

To transfer into the Golisano College, students must possess a GPA of 2.8 or higher upon graduating with the AS degree in applied computer technology.

Students in the applied computer technology major receive a foundation in computer hardware, networking, and computer applications.

Curriculum

Applied computer technology, AS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
	First Year LAS Elective	3
NMTH-275	Advanced Math	3
NACA-172	Website Development	3
NACA-160	Programming Fundamentals I	3
	First Year Writing Seminar	3
MATH-131	Discrete Mathematics	4
NACA-161	Programming Fundamentals II	3
Choose one of the following:		3
NMDE-111	Digital Design Survey I	
NSSA-102	Computer System Concepts	
	LAS Perspective 1, 4	6
	Wellness Education*	0
Second Year		
ISTE-121	Computational Problem Solving in the Information Domain II	4
MATH-161	Applied Calculus	4
ISTE-190	Foundations of Modern Information Processing	3
	LAS Perspective 2, 3, 6	9
ISTE-240	Web and Mobile II	3
ISTE-230	Introduction to Database and Data Modeling	3
Choose one of the following:		3
ISTE-260	Designing the User Experience	
NSSA-220	Task Automation	
Choose one of the following:		3
NSSA-290	Networking Essentials for Developers	
NSSA-241	Routing and Switching	
Total Semester Credit Hours		**63**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) for more information.
* Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.

Applied Liberal Arts, AS

http://www.ntid.rit.edu/liberalstudies/asbs
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Program overview

The associate in science 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 the College of Liberal Arts, which offers majors 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, and sociology and anthropology.

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 their AS course work, students complete one mathematics and once science course to meet the graduation requirements of their major.

The AS degree maximizes the number of credits a student may transfer toward a baccalaureate degree within the College of Liberal Arts. Admission to this major is available throughout the academic year.

Prerequisites

ACT: Composite test score of 18 and above.

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, COS 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, COS or another RIT college. Students will enroll in the science course required by their prospective baccalaureate program. Typically, students entering this major will have completed at least two years of high school science.

Enrollment requirements

To enroll in the College of Liberal Arts, students must have a grade-point average of 2.5 or higher upon graduating with the AS degree in applied liberal arts.

Curriculum

Applied liberal arts, AS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
UWRT-100	Critical Reading and Writing	3
NSCI-250	LAS Perspective 6†	3
	NTID LAS: NTID Mathematics‡	3
	NTID LAS Elective§	3
	First Year LAS Elective	3
	First Year Writing Seminar	3
	LAS Perspective 1, 3, 4	9
NMTH-250	Elementary Statistics	3
	Wellness Education*	0
Second Year		
	Professional/Technical Electives**	12
	LAS Perspective 2	3
	LAS Electives‡	6
	LAS Immersion 1, 2, 3	9
Total Semester Credit Hours		**60**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) 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.
§ NTID course numbered NCOM-201 or higher, or NHSS-260 or higher.
** Four courses in a College of Liberal Arts professional area of study.

Applied Mechanical Technology, AAS

http://www.ntid.rit.edu/engineering/a-plus-b-amt
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Program overview

The AAS in applied mechanical technology is an Associate+Bachelor's degree program that prepares students to enter and successfully complete a baccalaureate program in the College of Applied Science and Technology in manufacturing engineering technology or mechanical engineering technology. Students strengthen their skills by taking courses taught by NTID faculty.

These courses systematically address the preparatory challenges that deaf and hard-of-hearing students face upon entry to the majors in the College of Applied Science and Technology.

Students in the applied mechanical technology major receive a comprehensive foundation in engineering fundamentals: precision measurement, precision machining, computer aided design applications, strength of materials, and machine design. Upon successful completion of the AAS degree in applied mechanical technology, students enroll in the bachelor's degree program in either manufacturing engineering technology or mechanical engineering technology.

Prerequisites

ACT: Composite test score of 18 or higher

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 Trigonometry (NMTH-220) course.

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).

Enrollment requirements

Students who graduate in good standing from NTID and have maintained a grade of C or better in the six NTID applied mechanical technology technical courses should be well-prepared for the College of Applied Science and Technology.

Curriculum

Applied mechanical technology, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
NETS-101	Fundamentals of Engineering	3
NETS-110	Foundations of Materials	2
NETS-111	Foundations of Materials Lab	1
MATH-171	LAS Elective: Calculus A	3
UWRT-100	Critical Reading and Writing	3
	First Year LAS Elective	3
NETS-120	Manufacturing Processes	3
NETS-150	Mechanical Design and Fab	3
NETS-151	Mechanical Design and Fab Lab	1
MATH-172	Calculus B	3
PHYS-111	LAS Perspective 6: College Physics I	4
	First Year Writing Seminar	3
	Wellness Education*	0
Second Year		
MCET-220	Principles of Statics	3
MCET-210	Foundations of Non-metallic Materials	2
MCET-211	Characterization of Non-metallic Materials Lab	1
PHYS-112	College Physics II	4
	LAS Perspective 1, 2, 3, 4	12
MCET-221	Strength of Materials	4
EEET-215	Circuits/Electronics	2
EEET-216	Circuits/Electronics Lab	1
MATH-211	Elements of Multivariate Calculus and Differential Equations	3
Total Semester Credit Hours		**64**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) for more information.
* Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.

ASL-English Interpretation, BS

www.rit.edu/NTID/aslie
Kim Brown Kurz, Chairperson
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Program overview

On-the-job responsibilities

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.

Places of employment

Graduates find work in a variety of settings, including elementary, secondary, and post-secondary educational institutions; community service organizations; hospitals and clinics; vocational rehabilitation agencies; business and industry; and government agencies.

Admission requirements

In addition to RIT's general admissions procedures, the ASL-English interpretation major requires applicants to complete admission materials from the NTID Admissions Office.

Academic preparation

Applicants are required to have at least a high school diploma or equivalent. High school preparation should include a college preparatory program with a minimum of four years of English (with a minimum of a B average), three years of science and mathematics, and two years of a foreign language.

Applicants must demonstrate beginning ASL competency equivalent to ASL 1.

The middle 50 percent of accepted NTID applicants possess SAT scores of 1530-1940. Equivalent ACT composite scores are 22-29. Either SAT and ACT tests may be submitted.

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.

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, please visit the section "Is Interpreting the Career for Me?" on our website.

Curriculum

ASL-English interpretation, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
INTP-125	American Sign Language II	4
	First Year LAS Elective	3
	LAS Perspective 1, 2, 3, 4, 7A, 7B	18
INTP-126	American Sign Language III	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
INTP-210	Introduction to the Field of Interpreting	3
INTP-225	American Sign Language IV	3
	Deaf Cultural Studies Elective	3
	LAS Elective	3
	LAS Perspective 5‡, 6	7
INTP-215	Processing Skills Development	3
INTP-220	Discourse Analysis	3
INTP-226	American Sign Language V	3
MLAS-351	Linguistics of ASL	3
Third Year		
INTP-310	Interpreting I	3
INTP-325	American Sign Language VI	3
INTP-315	Practical and Ethical Applications	3
	LAS Elective	3
	Free Elective	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/Technical Elective	3
	LAS Immersion 1	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
	Professional/Technical Elective	3
	LAS Immersion 2, 3	6
INTP-440	Interpreting IV: Adapting to Diverse Consumers	3
INTP-450	Practicum and Seminar II	3
INTP-460	Issues in Interpreting (WI)	3
	Free Elective	3
Total Semester Credit Hours		**123**

Please see General Education Curriculum-Liberal Arts and Sciences (LAS) for more information.
(WI) 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 Wellness courses.

‡ 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 1 (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)

ASL-English Interpretation, AAS

http://www.ntid.rit.edu/aslie

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Program overview

On-the-job responsibilities

The ASL-English interpretation major prepares entry-level sign language interpreters for work in settings where deaf, hard-of-hearing, and hearing people interact and communicate. The degree allows students to develop foundation skills.

Places of employment

Graduates find entry work in a variety of settings, including elementary, secondary, and post-secondary educational institutions; community service organizations; vocational rehabilitation agencies; business and industry; and government agencies.

Admission requirements

In addition to RIT's general admissions procedures, the ASL-English interpretation major requires applicants to complete admission materials from the NTID Admissions Office.

Academic preparation

Entry to the associate degree program is available for students who demonstrate proficiency at the ASL III (INTP-126) level and are ready to enter ASL IV (INTP-225) (see course descriptions). It is strongly recommended that applicants possess a BS degree. (Note: Candidates for national interpreter certification must possess a baccalaureate degree.) 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.

To succeed in this major, 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, please visit the section "Is Interpreting the Career for Me?" on our website.

Curriculum

ASL-English interpretation, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
INTP-210	Introduction to the Field of Interpreting	3
INTP-225	American Sign Language IV	3
	First Year LAS Elective	3
	LAS Perspective 1, 2, 3	9
INTP-215	Processing Skills Development	3
INTP-220	Discourse Analysis	3
INTP-226	American Sign Language V	3
	First Year Writing Seminar	3
	Wellness Education*	0
Second Year		
INTP-310	Interpreting I	3
INTP-315	Practical and Ethical Applications	3
INTP-325	American Sign Language VI	3
	LAS Perspective 4, 6	6
INTP-326	American Sign Language VII	3
INTP-335	Interpreting II: English to ASL	3
INTP-336	Interpreting II: ASL to English	3
INTP-350	Practicum and Seminar I	3
	LAS Elective: Mathematics	3
Total Semester Credit Hours		**60**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) for more information.
* Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.

Business, AS

http://www.ntid.rit.edu/businessstudies/asbs-business
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Program overview

The 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 Saunders College of Business. Saunders College is accredited by the Association to Advance Collegiate Schools of Business International (AACSB), the premier accrediting organization for business schools. Upon completion of the AS program, students with a minimum GPA of 2.5 will enroll in Saunders College, where they complete their bachelor's degree in business administration–accounting, business administration–finance, business administration–international business, business administration–management, business administration–marketing, management information systems, or new media marketing. Admission to this major is available during the fall semester only.

Prerequisites

ACT: Composite test score of 18 and above.

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.

Curriculum

Business, AS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
	First Year LAS Elective	3
MGIS-101	Computer Based Analysis	1
NSCI-250	LAS Perspective 6†	3
STAT-145	Introduction to Statistics I	3
NBUS-211	World of Business and Innovation	3
	LAS Perspective 1, 2	6
	First Year Writing Seminar	3
NACC-205	Financial Accounting	3
STAT-146	Introduction to Statistics II	4
NBUS-225	Introduction to Entrepreneurship	3
	Wellness Education*	0
Second Year		
NACC-206	Managerial Accounting	3
COMM-253	Communication	3
ECON-101	Principles of Microeconomics	3
	LAS Perspective 3, 4	6
INTB-225	Globalization	3
MATH-161	Applied Calculus	4
NBUS-227	Principles of Marketing	3
MGMT-215	Organizational Behavior	3
ECON-201	Principles of Macroeconomics	3
Total Semester Credit Hours		**63**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) 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.

Additional information

Admission requirements

To enroll in one of the bachelor degree programs in Saunders College of Business, students must have a minimum grade-point average of 2.5 upon graduation with the AS degree in business.

Microsoft certification

As an authorized testing center for Microsoft Office Specialist, preparatory courses are offered for several exams each semester.

Business Technology, AOS

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Program overview

The business technology AOS degree program includes technical course work in accounting, computers, payroll, general office skills, and word processing/information processing skills. Students complete a sequence of courses that provides either an accounting technology or administrative support technology concentration.

This is a non-transfer occupational program, with primary emphasis on preparation for immediate employment.

Places of employment

Graduates of this major will find employment in a variety of settings, including business, industry, government, and education.

On-the-job responsibilities

Graduates will input, manipulate, and retrieve data; use interactive software, e-mail, and information processing skills; and use computers to maintain and reconcile various financial records. Positions for which graduates qualify includegeneral office clerk, accounts receivable/payable

clerk, payroll records clerk, word processing technician, cost accounting clerk, and microcomputer accounting clerk.

Prerequisites

English: Placement into Career English I (NENG-212) or above. Students successfully completing AOS degrees typically enter with reading scores equivalent to 8.0 on the California Reading 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.

Curriculum

Business technology (administrative support technology option), AOS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
NENG-212	NTID LAS Foundation: Career English I	3
NAST-140	Essential Document Production	3
NACC-130	Personal Finance	3
NAST-160	Spreadsheet Applications for Business	3
NENG-213	NTID LAS Foundation: Career English II	3
NMTH-120	NTID LAS Foundation: Mathematics†	3
NAST-150	Advanced Document Production	3
NBUS-200	Orientation to Business	3
NACC-201	Accounting I	3
	Wellness Education*	0
Second Year		
NAST-215	Integrated Document Production	3
NAST-210	Essentials of Business Communication	3
NAST-220	Database Applications for Business	3
NBUS-213	Applied Ethics for Business	3
NAST-225	Business Graphics	3
NBUS-217	Fundamentals of Management	3
	NTID LAS Perspective‡	3
NAST-240	Administrative Support Technology Seminar	3
NAST-299	Cooperative Education	Co-op
Third Year		
	NTID LAS Perspective‡	3
NAST-230	Desktop Publishing for Business	3
NBUS-223	Fundamentals of Marketing	3
	Free Elective	3
Total Semester Credit Hours		**63**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) for more information.
* Please see Wellness Education Requirement for more information.
† Any mathematics course numbered NMTH-120 or higher. Students who place above NMTH-120 can take math or a 3-credit course from any non-science perspective category.
‡ NTID LAS 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		
NCAR-010	Freshman Seminar	0
NENG-212	NTID LAS Foundation: Career English I	3
NAST-140	Essential Document Production	3
NACC-130	Personal Finance	3
NAST-160	Spreadsheet Applications for Business	3
NENG-213	NTID LAS Foundation: Career English II	3
NMTH-120	NTID LAS Foundation: Mathematics†	3
NAST-150	Advanced Document Production	3
NBUS-200	Orientation to Business	3
NACC-201	Accounting I	3
	Wellness Education*	0
Second Year		
NAST-215	Integrated Document Production	3
NAST-210	Essentials of Business Communication	3
NAST-220	Database Applications for Business	3
NACC-202	Accounting 2	3
	NTID LAS Perspective‡	3
NBUS-213	Applied Ethics for Business	3
NBUS-217	Fundamentals of Management	3
NACC-203	Accounting 3	3
NACC-299	Cooperative Education	Co-op
Third Year		
	NTID LAS Perspective‡	3
NACC-204	Accounting Capstone	3
NBUS-223	Fundamentals of Marketing	3
	Free Elective	3
Total Semester Credit Hours		**63**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) 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-120 or higher. Students who place above NMTH-120 can take math or a 3-credit course from any non-science perspective category.
‡ NTID LAS Perspective courses may be from any of these three Perspective categories: ASL-Deaf Cultural Studies; Communication, Social & Global Awareness; and Creative and Innovative Exploration.

Additional information

Microsoft certification

The department operates an authorized testing center for Microsoft Office Specialist. Preparatory courses are offered for several exams each semester.

Civil Technology, AAS

http://www.ntid.rit.edu/engineering/a-plus-b-ct
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Program overview

The AAS in civil technology is an Associate+Bachelor's degree program that prepares qualified students to enter and successfully complete a baccalaureate program in Civil Engineering Technology in the College of Applied Science and Technology. Students strengthen their skills by taking courses taught by NTID faculty.

These courses systematically address the preparatory challenges that deaf and hard-of-hearing students face upon entry to the majors in the College of Applied Science and Technology. The civil technology program capitalizes on courses offered through NTID's Departments of Engineering Studies, English, and Science and Mathematics in order to prepare qualified students for entry to the baccalaureate program.

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.

Upon successful completion of the AAS degree in civil technology, students enroll in the bachelor's degree program in civil engineering technology.

Prerequisites

ACT: Composite test score of 18 (20 Math, 16 Reading) or higher

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 the College of Science Physics I (PHYS-111) course.

Enrollment requirements

Students must graduate in good standing from NTID and have maintained a grade point average of 2.5 or better to enroll in the College of Applied Science and 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.

Curriculum

Civil technology, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
	First Year LAS Elective	3
NCAD-255	Construction Materials and Methods I	3
NCAD-150	Engineering Graphics in AEC	3
	LAS Perspective 1	3
NMTH-275	LAS Elective: Advanced Math	3
NCAD-180	Civil Technology Graphics	3
PHYS-111	LAS Perspective 6: College Physics I w/ Lab	4
MATH-171	Calculus A	3
UWRT-150	First Year Writing Seminar	3
	Elective	3
	Wellness Education*	0
Second Year		
CVET-160	Surveying	3
CVET-161	Surveying Lab	1
MCET-220	Principles of Statics	3
MATH-172	Calculus B	3
PHYS-112	College Physics II w/ Lab	4
CVET-170	Elements of Building Construction	3
MCET-221	Strength of Materials	4
CHMG-141, 145	General and Analytical Chemistry with Lab	4
	LAS Perspective 2, 3, 4	9
Total Semester Credit Hours		**65**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) for more information.
* Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.

Computer Aided Drafting Technology, AAS

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Program overview

People who work in computer aided 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. Computer-aided drafting operators (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 students with a background in mathematics, building systems, construction regulations, site utilities, and materials and methods used in the architecture, engineering, and construction industries.

Students earning an AAS degree and satisfying the entry requirements in a specific major have the option of finding employment or continuing to work towards a baccalaureate degree. Transfer requirements vary by major.

On-the-job responsibilities

Graduates will enter businesses and industries that need technical employees with skills in computer drafting technology and a broad knowledge of applications and procedures. Graduates will work for architectural, engineering, or construction firms creating engineering drawings.

Places of employment

Graduates will find work in a variety of settings, including government agencies and architectural, construction, and engineering firms. Positions for which graduates qualify include drafters/technicians for architectural, highway design, and civil environments.

Prerequisites

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 10.0 on the California Reading Test. However, students who complete AAS degrees typically enter NTID with reading scores equivalent to 9.0 on the California Reading 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.

Curriculum

Computer aided drafting technology, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
	ASL-Deaf Cultural Studies†	0
NCAD-112	Computing Tools for ET	3
NCAD-150	Engineering Graphics in AEC	3
	LAS Perspective 1	3
	First Year LAS Elective	3
NMTH-220	LAS Elective: Trigonometry	3
NCAD-170	Construction CAD I	3
NCAD-108	Data Collection and Analysis	3
NCAD-180	Civil Technology Graphics	3
NMTH-275	Advanced Mathematics	3
	First Year Writing Seminar	3
	Wellness Education*	0
Second Year		
NCAD-220	Construction CAD II	3
NCAD-255	Construction Materials and Methods I	3
NCAD-275	Principles of Structural Systems	3
NSCI-201	LAS Perspective 6: Principles of Physics	3
NCAD-201	Job Search Process for CADT	3
NCAD-230	Construction CAD III	3
NCAD-265	Construction Materials and Methods II	3
NCAD-285	MEP Systems	3
NCAD-280	GIS Fundamentals	3
	LAS Perspective 2	3
NCAD-299	Cooperative Education	Co-op
Third Year		
NCAD-240	Advanced Construction CAD	3
NCAD-250	Presentation Graphics	3
	Professional/Technical Elective§	3
	LAS Perspective 3, 4	6
Total Semester Credit Hours		**75**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) 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 an LAS Perspective.
‡ A 3-credit ASL-Deaf Cultural Studies course, to be taken at NTID or another college of RIT, will count for RIT LAS General Education credit if it is a General Education Committee approved course.
§ 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 (NHSS-223), Materials of Construction w/ Lab (CVET-140, 141), Surveying w/ Lab (CVET-160, 161), Theatre Practicum (Lighting [NHSS-248-02] and Set Construction [NHSS-248-08]). Permission required for CVET-140, 141 and CVET-160, 161.

Computer Aided Drafting Technology, AOS

www.rit.edu/NTID/cadt
Dino Laury, Chairperson
(585) 286-4613 (VP), dino@mail.rit.edu

Program overview

People who work in computer aided 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. Computer aided drafting operators (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 gives students a background in mathematics, building systems, construction regulations, site utilities, and materials and methods used in the architecture, engineering, and construction industries.

On-the-job responsibilities

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 will work in architectural, engineering, or construction firms creating engineering drawings.

Places of employment

Graduates of this major will find work in a variety of settings, including engineering firms, government agencies, and architectural and construction firms. Positions for which graduates qualify includedrafters/technicians for architectural, highway design, and civil environments.

Prerequisites

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 equivalent to 8.0 on the California Reading 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.

Curriculum

Computer aided drafting technology, AOS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAD-112	Computing Tools for ET	3
NCAD-150	Engineering Graphics in AEC	3
NENG-212	NTID LAS Foundation: Career English I	3
NMTH-212	NTID LAS Foundation: Integrated Algebra	3
NCAR-010	Freshman Seminar	0
NCAD-170	Construction CAD I	3
NCAD-108	Data Collection and Analysis	3
NCAD-180	Civil Technology Graphics	3
NMTH-220	Trigonometry	3
NENG-213	NTID LAS Foundation: Career English II	3
	Wellness Education*	0
Second Year		
NCAD-220	Construction CAD II	3
NCAD-255	Construction Materials and Methods I	3
NCAD-275	Principles of Structural Systems	3
NSCI-154	NTID LAS Perspective: Physics of Matter	3
NCAD-201	Job Search Process for CADT	3
NCAD-230	Construction CAD III	3
NCAD-265	Construction Materials and Methods II	3
NCAD-285	MEP Systems	3
NCAD-280	GIS Fundamentals	3
NCAD-299	Cooperative Education	Co-op
Third Year		
NCAD-240	Advanced Construction CAD	3
NCAD-250	Presentation Graphics	3
	Professional/Technical Elective‡	3
	NTID LAS Perspective†	3
Total Semester Credit Hours		**66**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) for more information.
* Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.
† NTID LAS Perspective course may be from any of these three Perspective categories: ASL-Deaf Cultural Studies; Communication, Social and 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 (NHSS-223), Materials of Construction w/ Lab (CVET-140, 141), Surveying w/ Lab (CVET-160, 161), Theatre Practicum (Lighting [NHSS-248-02] and Set Construction [NHSS-248-08]). Permission required for CVET-140, 141 and CVET-160, 161.

Computer Integrated Machining Technology, AOS

www.ntid.rit.edu/engineering/cimt
Dino Laury, Chairperson
(585) 286-4613 (VP), dino@mail.rit.edu

Program overview

Students in the computer integrated machining technology major 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. In addition, graduates can continue their education in manufacturing and engineering technology programs.

On-the-job responsibilities

Graduates will set up and operate lathes, milling machine tools, grinders, polishers, and computer numerical controlled machine tools; shape material into precision parts by conventional and nonconventional processes; follow blueprints; and use advanced measuring techniques to inspect work.

Places of employment

Graduates will find work in a variety of settings, including manufacturing, metal and/or precision optics manufacturing industries, engineering firms, and engineering research firms. Positions for which graduates qualify includeentry-level and apprenticeship programs for positions such as a tool and die maker, instrument maker, mold maker, pattern maker, model maker, machinist, computer numerical control operator, or computer numerical control programmer trainee. Graduates who choose precision optics electives are also qualified for an entry-level position as a precision optics manufacturing technician. Graduates also work for companies that produce optical elements for a variety of applications.

Prerequisites

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 equivalent to 8.0 on the California Reading 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.

Curriculum

Computer integrated machining technology, AOS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCIM-131	Computer Integrated Machining Technology I	3
	NTID LAS Foundation: Mathematics†	3
NENG-212	NTID LAS Foundation: Career English I	3
NCAR-010	Freshman Seminar	0
NCIM-101	Blueprint Reading I	3
NENG-213	NTID LAS Foundation: Career English II	3
NMTH-206	Trigonometry for Coordinate Analysis	3
NCIM-121	Precision Measurement I	3
NCIM-132	Computer Integrated Machining Technology II	3
NCIM-102	Blueprint Reading II	3
Second Year		
NCIM-233	Computer Integrated Machining Technology III	3
NCIM-251	CNC I	3
NCIM-241	Precision Optics Manufacturing I	3
NSCI-200	NTID LAS Perspective: Physics of Light	3
NCIM-201	Job Search Process for CIMT	2
	Wellness Education*	0
NCIM-234	Computer Integrated Machining Technology IV	3
NCIM-252	CNC II	3
NCIM-242	Precision Optics Manufacturing II	3
	Professional/Technical Elective	3
NCIM-299	Cooperative Education	Co-op
Third Year		
NCIM-235	Computer Integrated Machining Technology V	3
NCIM-236	Computer Integrated Machining Technology V Lab	3
	NTID LAS Perspective‡	3
	Professional/Technical Elective	3
Total Semester Credit Hours		**65**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) 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

Electives

COURSE	
NCIM-207	Industrial Materials
NCIM-222	Precision Measurement II
NCIM-237	Precision Grinding
NCIM-243	Optical Testing
NCIM-214	CAD Applications

Deaf Cultural Studies-American Sign Language, Certificate

www.rit.edu/NTID/ds

Patti Durr, Program Contact
(866) 833-4374 (VP), paddhd@rit.edu

Program overview

The Deaf cultural studies-American Sign Language certificate offers deaf and hard-of-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.

Candidates for this certificate must complete or have already completed an undergraduate degree program at NTID/RIT.

Curriculum

Deaf cultural studies-ASL, certificate, typical course sequence

COURSE		SEMESTER CREDIT HOURS
Choose three of the following courses:		9
NHSS-159	Deaf Community in the Modern World	
NHSS-260	Deaf People and Civil Rights	
NHSS-270	Multiculturalism in the Deaf Community	
NASL-275	Structure of ASL	
NHSS-269	Visual Expressions of Deafhood	
NHSS-279	Seminar in Deaf Cultural Studies	
Total Semester Credit Hours		**9**

Design and Imaging Technology, AAS

www.ntid.rit.edu/vcs

Edward Mineck, Chairperson
(585) 475-6341, enmnvc@mail.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 very large, exciting field that requires a variety of computer-based and traditional visual skills. The design and imaging technology major provides opportunities for students to enter various careers ranging from creative to highly technical positions at various degree levels.

The design and imaging technology major includes a core component of eight courses (24 semester credit hours) plus a required cooperative work experience. The core courses provide a solid foundation for continuing in advanced courses, a baccalaureate program, and employment. Several of the core courses are scheduled during the first year, and additional courses are completed during the second year.

In addition to the core courses taken in the first year, students immediately begin course work in their concentration. Students may choose a concentration in graphic design or graphic production. Both concentrations consist of six courses (18 semester credit hours.)

All students entering the major will be given an aptitude self-assessment experience. As a result of this assessment profile, students will be counseled and placed into an initial concentration: graphic design for students with creative aptitude and interest; graphic production for students with technical/production aptitude and interest. The assessment is not final. Based on success and demonstrated capabilities, students may request or be counseled to change their program concentration.

The program's curriculum includes six credits of program electives which will enable the students to develop additional skills and knowledge to better prepare them for employment and/or for continued education.

All students gain real work experience through one term of required cooperative education employment. They also complete a required portfolio workshop course in which they refine and complete their portfolio as needed for an application to a baccalaureate program (BFA or BS in RIT's College of Imaging Arts and Sciences) or for the search for employment.

STEM and the DIT 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 design and imaging technology major definitely is a STEM-career program. Graphic design is listed in the technology/ computer science STEM disciplines. Graphic design and production for print, the Web, and digital media cannot happen without the immersion of computer technology.

On-the-job responsibilities

Depending on their concentration and elective course selection, graduates use computer-based methods to produce drawings, layouts, illustrations, and digital photographic images; prepare documents for print, the 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, simple bindery, and finishing equipment.

Places of employment

Graduates usually find employment in a variety of commercial, corporate, government, and educational settings. Examples include computer graphics firms, advertising agencies, art studios, printing or manufacturing plants, prepress companies, in-house printing or marketing departments, book and magazine publishing houses, newspaper facilities, government agencies, industrial training or media departments, educational media centers, and educational institutions.

Graduates may qualify for positions such as production graphic artist, graphic designer, digital photo artist, digital photography technician, digital prepress technician, video technician, website designer, website technician, and digital printing systems operator.

Prerequisites

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.

ACT: Composite test score of 18 and above.

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.

Curriculum

Design and imaging technology, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
NAIS-120	Principles of Design and Color	3
NAIS-130	Raster and Vector Graphics	3
Choose one of the following:		3
NGRD-111	Drawing I‡	
NGRP-110	Digital Photography I§	
	First Year LAS Elective	3
NMTH-120	LAS Elective: Mathematics**	3
	ASL-Deaf Cultural Studies†	
NAIS-140	Graphic Design and Typography I	3
NAIS-150	Page Layout I	3
NAIS-160	Web Design I	3
	First Year Writing Seminar	3
NSCI-120	LAS Perspective 6††	3
	Wellness Education*	0
Second Year		
NAIS-201	Employment Seminar	3
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§	
	Professional/Technical Elective	3
	LAS Perspective 1	3
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§	
NAIS-291	Production Workshop	3
	LAS Perspective 2, 3	6
NAIS-299	Cooperative Education: Visual Communications Studies	Co-op
Third Year		
NAIS-292	Portfolio Workshop	3
	Professional/Technical Elective	3
Choose one of the following:		3
NGRD-230	Digital Illustration‡	
NGRP-270	Specialty Graphics Imaging§	
	LAS Perspective 4	3
Total Semester Credit Hours		**72**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) 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 an LAS Perspective or LAS Elective.

‡ NGRD courses/Graphic Design concentration

§ NGRP courses/Graphic Production concentration

** Any mathematics course numbered NMTH-120 or higher.

†† Any science course numbered NSCI-120 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

Design and Imaging Technology, AOS

www.ntid.rit.edu/vcs
Edward Mineck, Chairperson
(585) 475-6341, enmnvc@mail.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 major provides opportunities for students to enter various careers ranging from creative to highly technical positions at various degree levels.

The design and imaging technology major includes eight required core courses (24 semester credit hours) plus a required cooperative education experience. The core courses provide a solid foundation for continuing in advanced courses, a baccalaureate program, and employment. Several of the core courses are scheduled during the first year, and additional courses are completed during the second year.

In addition to the core courses taken in the first year, students immediately begin course work in their concentration. Students may choose a concentration in graphic design or graphic production. Both concentrations consist of six courses (18 credit hours).

All students entering the major will be given an aptitude self-assessment experience. As a result of this assessment profile, students will be counseled and placed into an initial concentration: graphic design for students with creative aptitude and interest; graphic production for students with technical/production aptitude and interest. The assessment is not final. Based on success and demonstrated capabilities, students may request or be counseled to change their concentration.

The curriculum includes six credits of program electives which will enable the students to develop additional skills and knowledge to better prepare them for employment and/or for continued education.

All students gain real work experience through one term of required cooperative education employment. They also complete a required portfolio workshop course in which they refine and complete their portfolio as needed for an application to a baccalaureate program or for the search for employment.

STEM and the DIT 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 design and imaging technology major definitely is a STEM-career program. Graphic design is listed in the technology/ computer science STEM disciplines. Graphic design and production for print, the Web, and digital media cannot happen without the immersion of computer technology.

On-the-job responsibilities

Depending on the specific concentration and elective course selection, graduates use computer-based methods to produce drawings, layouts, illustrations, and digital photographic images; prepare documents for print, the 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, simple bindery, and finishing equipment.

Places of employment

Graduates usually find employment in a variety of commercial, corporate, government, and educational settings. Examples include computer graphics firms, advertising agencies, art studios, printing or manufacturing plants, prepress companies, in-house printing or marketing departments, book and magazine publishing houses, newspaper facilities, government agencies, industrial training or media departments, educational media centers, and educational institutions.

Graduates may qualify for positions such as production graphic artist, graphic designer, digital photo artist, digital photography technician, digital prepress technician, video technician, website designer, website technician, and digital printing systems operator.

Prerequisites

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.

ACT: Composite test score of 15 and above.

English: Placement into Career English I (NENG-212) or above. Students successfully completing AOS degrees typically enter with reading scores equivalent to 8.0 on the California Reading 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.

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
Choose one of the following:		3
NGRD-111	Drawing I‡	
NGRP-110	Digital Photography I§	
NENG-212	NTID LAS Foundation: Career English I	3
NCAR-010	Freshman Seminar	0
NAIS-140	Graphic Design and Typography I	3
NAIS-150	Page Layout I	3
NAIS-160	Web Design I	3
NENG-213	NTID LAS Foundation: Career English II	3
NMTH-120	NTID LAS Foundation: Mathematics†	3
	Wellness Education*	0
Second Year		
NAIS-201	Employment Seminar	3
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§	
	Professional/Technical Elective	3
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§	
NAIS-291	Production Workshop	3
	NTID LAS Perspective**	3
NAIS-299	Cooperative Education: Visual Communications Studies	Co-op

COURSE		SEMESTER CREDIT HOURS
Third Year		
NAIS-292	Portfolio Workshop	3
	Professional/Technical Elective	3
Choose one of the following:		3
NGRD-230	Digital Illustration‡	
NGRP-270	Specialty Graphics Imaging§	
	NTID LAS Perspective**	3
Total Semester Credit Hours		**63**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) 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 LAS 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

Hospitality and Service Management, AS

www.ntid.rit.edu/businessstudies/asbs-hospitality
Mark Pfuntner, Chairperson
(585) 286-4640 (V/VP), mjpnvd@rit.edu

Program overview

The associate in science degree in hospitality and service management is an Associate+Bachelor's degree program designed to prepare deaf and hard-of-hearing students to enter and successfully complete a baccalaureate program in the College of Applied Science and Technology's School of International Hospitality and Service Innovation.

Upon completion of the AS program with a minimum GPA of 2.5, students will enroll in the College of Applied Science and Technology, where they will pursue a bachelor's degree in international hospitality and service management. AS students may choose one of two concentrations: hotel and resort management or food and beverage management. Admission to this major is available for the fall semester only.

Prerequisites

ACT: Composite test score of 18 and above.

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-210 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.

Curriculum

Hospitality and service management (hotel and resort management option), AS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
	First Year LAS Elective	3
NSCI-250	LAS Perspective 6†	3
HSPT-131	Hotel Management and Operations	3
HSPT-181	Principles of Food, Hotel and Tourism Operations	3
	LAS Perspective 1, 2	6
	First Year Writing Seminar	3
	LAS Elective: Mathematics‡	3
	HSPT or FOOD Elective§	3
HSPT-334	International Resort Management	3
HSPT-499	Cooperative Education	Co-op
Second Year		
	Professional/Technical Elective§	3
HSPT-281	Service Management in a Global Economy	3
FOOD-223	Food and Beverage Management	3
FOOD-226	Food and Beverage Operations	3
HSPT-284	Hospitality Industry Sales and Marketing	3
ECON-101	Principles of Microeconomics	3
	LAS Perspective 3, 4	6
MATH-101	College Algebra	3
NACC-205	Financial Accounting	3
	Wellness Education*	0
Total Semester Credit Hours		**60**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) 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
‡ Any mathematics course numbered NMTH-250 or higher
§ Choose a course from one of the following HSPT or FOOD program options: International Food Marketing and Distribution, International Hotel and Resort Management, and Entertainment and Event Management. See chart below.

Hospitality and service management (food and beverage management option), AS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NCAR-010	Freshman Seminar	0
	First Year LAS Elective	3
NSCI-250	LAS Perspective 6†	3
FOOD-121	Principles of Food Production	3
HSPT-181	Principles of Food, Hotel and Tourism Operations	3
	HSPT or FOOD Elective§	3
	LAS Perspective 1, 2	6
	First Year Writing Seminar	3
	LAS Elective: Mathematics‡	3
FOOD-123	Sanitation and Safety	1
FOOD-223	Food and Beverage Management	3
HSPT-499	Cooperative Education	Co-op
Second Year		
	Professional/Technical Elective§	3
HSPT-281	Service Management in a Global Economy	3
ECON-101	Principles of Microeconomics	3
	LAS Perspective 3, 4	6
MATH-101	College Algebra	3
NACC-205	Financial Accounting	3
FOOD-224	Serving Alcohol Safely	1
HSPT-284	Hospitality Industry Sales and Marketing	3
FOOD-226	Food and Beverage Operations	4
	Wellness Education*	0
Total Semester Credit Hours		**60**

Please see the NTID General Education Curriculum-Liberal Arts and Sciences (LAS) 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
‡ Any mathematics course numbered NMTH-250 or higher
§ Choose a course from one of the following HSPT or FOOD program options: Entertainment and Event Management, International Food Marketing and Distribution, and International Hotel and Resort Management. See chart below.

Electives

Entertainment and Event Management

HSPT-234	Negotiation and Conflict Resolutions
HSPT-244	Meeting Event Management
HSPT-246	Casino Management
HSPT-248	Project Management for Events
HSPT-336	International Risk Assessment and Hospitality Law
HSPT-345	Venue Management

International Food Marketing and Distribution

FOOD-151	International Food Distribution
FOOD-454	Food Processing Quality and Integrity
PACK-301	Packaging Materials

International Hotel and Resort Management

HSPT-232	Hospitality Real Estate and Facilities Management
HSPT-234	Negotiation and Conflict Resolutions
HSPT-235	International Destinations
HSPT-336	International Risk Assessment and Hospitality Law

Additional information

Admission requirements

To enroll in the College of Applied Science and Technology's School of International Hospitality and Service Innovation, the student must present a grade point average of 2.5 or higher upon graduation with the associate in science degree.

Laboratory Science Technology, AAS

www.ntid.rit.edu/scimath/laboratory-science-technology
Matthew A. Lynn, Chairperson
(585) 475-5923 (V), (585) 286-4751 (VP), malntm@rit.edu

Program overview

The laboratory science technology major, 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 major 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.

Students earning an AAS degree have the option of finding employment or continuing to work toward a baccalaureate degree. Under the program's agreement with RIT's School of Individualized Study, individuals who maintain a grade-point average of 3.0 or higher may enroll in the center's bachelor's degree program. Students may then complete a BS degree in applied arts and science with a concentration in biotechnology studies. Students may also complete a BS degree in chemistry or biochemistry from the College of Science's School of Chemistry and Materials Science. For more information, please visit http://www.ntid.rit.edu/scimath/a-plus-b-lst.

On-the-job responsibilities

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.

Places of employment

The major prepares graduates for technical jobs in municipal, public, private, and industrial laboratories.

Prerequisites

English—AAS: 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 10.0 on the California Reading Test. However, students who complete AAS degrees typically enter NTID with reading scores of 9.0 on the California Reading 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.

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
NSCI-161	LAS Perspective 6: Fundamentals of Biology I	3
NMTH-212	Integrated Algebra‡	3
	First Year LAS Elective†	3
	ASL-Deaf Cultural Studies†	
	LAS Perspective 1	3
NLST-172	Fundamentals of Chemistry II	3
NSCI-162	Fundamentals of Biology II	3
NLST-220	Analytical Chemistry	4
	First Year Writing Seminar	3
	Wellness Education*	0
Second Year		
NLST-250	Quantitative Instrumental Analysis	4
NLST-240	Biotechnology I	3
NLST-230	Principles of Organic Chemistry	4
NLST-225	Laboratory Applications	3
NLST-232	Laboratory Mathematics	3
NLST-255	Chemical Separations and Chromatography	4
NLST-245	Biotechnology II	3
NLST-235	Principles of Biochemistry	3
NLST-260	Laboratory Methods	3
	LAS Perspective 2	3
NLST-299	Cooperative Education	Co-op
Third Year		
	Professional/Technical Electives§	6
	LAS Perspective 3, 4	6
Total Semester Credit Hours		**76**

See NTID General Education Curriculum-Liberal Arts and Sciences (LAS) 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 an LAS Perspective.

‡ 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 and 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

* Some of these courses may require department approval. Additional courses may be used as electives, with department approval.

Laboratory Science Technology, AOS

www.ntid.rit.edu/scimath/laboratory-science-technology
Matthew A. Lynn, Chairperson
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Program overview

The laboratory science technology major, 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 major 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, environmental, industrial, forensic, and food analysis.

On-the-job responsibilities

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.

Places of employment

The major prepares graduates for technical jobs in municipal, public, private, and industrial laboratories.

Prerequisites

English—AOS: Placement into Career English I (NENG-212) or above. Students successfully completing AOS degrees typically enter with reading scores equivalent to 8.0 on the California Reading 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.

Curriculum

Laboratory science technology, AOS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
NLST-120	Laboratory Tools	3
NLST-171	Fundamentals of Chemistry I	3
NSCI-161	Fundamentals of Biology I	3
NMTH-212	NTID LAS Foundation: Integrated Algebra†	3
NENG-212	NTID LAS Foundation: Career English I	3
NCAR-010	Freshman Seminar	0
NLST-172	Fundamentals of Chemistry II	3
NSCI-162	Fundamentals of Biology II	3
NLST-220	Analytical Chemistry	4
NENG-213	NTID LAS Foundation: Career English II	3
	Wellness Education*	0
Second Year		
NLST-250	Quantitative Instrumental Analysis	4
NLST-240	Biotechnology I	3
NLST-230	Principles of Organic Chemistry	4
NLST-225	Laboratory Applications	3
NLST-255	Chemical Separations and Chromatography	4
NLST-245	Biotechnology II	3
NLST-235	Principles of Biochemistry	3
NLST-260	Laboratory Methods	3
NLST-299	Cooperative Education	Co-op
Third Year		
NLST-232	Laboratory Mathematics	3
	Technical Electives‡	6
	NTID LAS Perspective§	3
Total Semester Credit Hours		**67**

See NTID General Education Curriculum-Liberal Arts and Sciences (LAS) 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 LAS 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 LAS 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.

Mobile Application Development, AAS

http://www.ntid.rit.edu/ics/mobile-application-development
Elissa Olsen, Chairperson
(585) 475-2225 (V), emondp@rit.edu

Program overview

The mobile application development major is an associate degree program that prepares students 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, students 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.

On-the-Job Responsibilities

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.

Places of Employment

The majority of the graduates of this program will find jobs in public or private software development companies. Most often, these companies will specialize in web or mobile application development.

Prerequisites

ACT: Composite score of 17 or higher, with minimum scores of 18 in Mathematics, 16 in English, and 19 in Reading.

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.

Curriculum

Mobile application development, AAS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
	ASL-Deaf Cultural Studies*	0
NCAR-010	Freshman Seminar	0
NACA-172	Website Development	3
NMAD-180, 181	Programming Fundamentals I, II: Mobile Domain	8
UWRT-150	Writing Seminar	3
NMTH-255	Introduction to Discrete Mathematics	3
NMAD-182	Software Analysis and Design	3
NMAD-150	Mobile User Interfaces	3
	LAS Perspective 2	3
	LAS Elective*	3
	Wellness Education†	0
Second Year		
NMAD-260, 261	Mobile Application Development I, II	8
NMAD-251	Mobile Application Design Elements	3
NMAD-250	Mobile User Experience	3
NACT-240	The World of Work	3
NMAD-270	Best Practices for Mobile Development	3
NMAD-262	Web Services and Data Storage Technologies	3
NMAD-299	Cooperative Education (summer)	0
	LAS Perspective 1, 4, 6	9
Third Year		
NBUS-211	World of Business and Innovation	3
NMAD-290	Mobile Application Development Capstone Projects	3
	Free Elective*	3
	Technical Elective‡	3
	LAS Perspective 3	3
Total Semester Credit Hours		**76**

* 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 an LAS Perspective or LAS Elective, or it can be used to fulfill an Open Elective.

† Please see Wellness Education Requirement for more information. Students completing associate degrees are required to complete one Wellness course.

‡ The Mobile Application Development program Technical Elective can be: Web Implementation (NACA-174), Programming Fundamentals II (NACA-161), Web and Mobile I (ISTE-140), Intro to Database and Data Modeling (ISTE-230), Java for Programmers (ISTE-200), or a course from another program with approval of the ICS Department Chair and the Department Chair of the program offering the course.

Performing Arts, Certificate

www.rit.edu/NTID/pa

Aaron Kelstone, Program Director
(585) 286-1659 (VP), abwnpa@rit.edu

Program overview

The performing arts certificate provides students with an additional set of marketable skills. Students 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. The certificate also provides a solid foundation for both deaf and hearing students who wish to pursue further education in film, video, theater, and related forms of performing arts.

The certificate includes knowledge of theater terminology, practices, and protocols; issues in script analysis; ASL translation and accessibility; and experience in performance and technical theater. Students take Theatre Practicum I (NHSS-248), then select three additional courses in areas such as stagecraft, acting, scenic and lighting technology, and scenic painting and props, to name a few. Candidates for this certificate must complete or have already completed an undergraduate program at NTID/RIT.

Curriculum

Performing arts, certificate, typical course sequence

COURSE		SEMESTER CREDIT HOURS
NHSS-248	Theatre Practicum I	1
Choose three of the following:		9
NHSS-120	Introduction to Performing Arts	
NHSS-122	Introduction to Stagecraft	
NHSS-130	Acting I	
NHSS-132	Sign Mime, Creative Movement, and Visual Theatre	
NHSS-134	Dance I: Jazz and Hip-Hop	
NHSS-223	Scenic and Lighting Technology	
NHSS-224	Scenic Painting and Props	
NHSS-225	Costume, Mask, and Stage Make-Up	
NHSS-231	Acting II	
NHSS-235	Dance II: Modern Dance and Ballet	
NHSS-240	Theatre History Through Deaf Eyes	
NHSS-249	Seminar in Performing Arts	
Total Semester Credit Hours		**10**

Pre-baccalaureate Studies

General information

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.

Engineering Studies

Dino Laury, Chairperson, Engineering Studies

Pre-baccalaureate studies, engineering option, typical course sequence

COURSE		SEMESTER CREDIT HOURS
NCAR-010	Freshman Seminar	0
	First Year LAS Elective	3
	Pre-baccalaureate Courses†	0-3
	Major Courses	6
PHYS-211, 212	University Physics I, II	8
	LAS-General Education	6
MATH-181, 182	Project-based Calculus I, II‡	8
Total Semester Credit Hours		**31-34**

Please see the General Education Curriculum–Liberal Arts and Sciences (LAS) 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
NCAR-010	Freshman Seminar	0
	First Year LAS Elective	3
	Pre-baccalaureate Courses†	0-3
	Undeclared Engineering Technology Seminar	1
	Major Courses	6
	LAS-General Education	6
PHYS-111	College Physics I	4
MATH-111	Pre-Calculus	3
MATH-171, 172	Calculus A, B‡	6
Total Semester Credit Hours		**29-32**

Please see the General Education Curriculum–Liberal Arts and Sciences (LAS) 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.

Liberal Studies

Jennifer L. Gravitz, Chairperson, Liberal Studies

Students entering pre-baccalaureate studies in liberal studies will typically be required to have:

ACT: Minimum composite score of 19 with a reading score of 20 and all other skill area scores of 18 or higher

English: Placement into Critical Reading and Writing (UWRT-100)

Mathematics: Placement into the NTID Advanced Mathematics (NMTH-275) course or higher

Pre-baccalaureate studies, liberal arts, typical course sequence

COURSE		SEMESTER CREDIT HOURS
NCAR-010	Freshman Seminar	0
	First Year Major Courses	6
	LAS-General Education*	6-9
	Mathematics or Science Course‡	3
	NTID Humanities or Social Science Courses§	3
	Pre-Baccalaureate Courses†	6-9
Total Semester Credit Hours		**24-20**

* Please see the NTID General Education Curriculum–Liberal Arts and Sciences 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 LAS Perspectives: ethical (P1), artistic (P2), global (P3), or social (P4).
† 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.

Science and Mathematics

Matthew A. Lynn, Chairperson, Science and Mathematics

Students entering pre-baccalaureate studies in science or mathematics will typically be required to have:

ACT: Minimum composite score of 21 with subscores of at least 19.

English: Placement into Critical Reading and Writing (UWRT-100)

Mathematics: Placement in NTID Advanced Mathematics (NMTH-275) course or higher

Pre-baccalaureate studies (biology, biotechnology, environmental science, environmental management, or medical sciences), typical course sequence

COURSE		SEMESTER CREDIT HOURS
NCAR-010	Freshman Seminar	0
	Pre-baccalaureate courses#	3-6
BIOL-101, 102	General Biology I, II	6
BIOL-103, 104	General Biology Lab I, II	2
	LAS General Education*	9
MATH-101	College Algebra	3
MATH-161	Applied Calculus‡	3
Total Semester Credit Hours		**26-29**

Pre-baccalaureate courses are an available option to strengthen students' skills in critical thinking, learning strategies, and specific discipline areas.
* Please see Liberal Arts 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
NCAR-010	Freshman Seminar	0
	Pre-baccalaureate courses#	3-6
CHMG-141, 142	General and Analytical Chemistry I, II	6
CHMG-145, 146	General and Analytical Chemistry Labs I, II	2
MATH-181, 182	Project-Based Calculus I, II	6
	LAS General Education*	9
Total Semester Credit Hours		**26-29**

Pre-baccalaureate courses are available to strengthen students' skills in critical thinking, learning strategies, and specific discipline areas.
* Please see Liberal Arts 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 studies in science (math or physics option), typical course sequence

COURSE		SEMESTER CREDIT HOURS
NCAR-010	Freshman Seminar	0
	Pre-baccalaureate courses#	3-6
Choose one of the following course sequences:		8
CHMG-141, 142, 145, 146	General and Analytical Chemistry I, II and Labs I, II	
PHYS-211, 212	University Physics I, II§	
Choose one of the following course sequences:		6
MATH-171, 172	Calculus A, B‡	
MATH-181, 182	Project-Based Calculus I, II‡	
	LAS General Education*	9
Total Semester Credit Hours		**26-29**

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.
* Please see Liberal Arts 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).
§ If pursuing the physics option, students must choose the physics sequence.

Visual Communications

Edward Mineck, Chairperson
Visual Communications Studies Department

Students entering pre-baccalaureate studies in visual communications will typically be required to have:

ACT: minimum score of 18

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

Pre-baccalaureate studies, visual communications (schools of American Crafts, Art, and Design), typical course sequence

COURSE		SEMESTER CREDIT HOURS
NGRD-115	Visual Idea Development	3
NGRD-111, 211	Drawing I, II	6
NAIS-120	Principles of Design and Color	3
NAIS-130	Raster and Vector Graphics	3
NGRD-140	Graphic Design and Typography I	3
	LAS-General Education	12
NCAR-010	Freshman Seminar	0
	Elective	3
Total Semester Credit Hours		**33**

Please see the General Education Curriculum–Liberal Arts and Sciences (LAS) in the Graduation Requirements section of this bulletin for more information.
Note: Portfolio of original artwork is required to determine admission. See the College of Imaging Arts and Sciences support coordinator for further information.

Pre-baccalaureate studies, visual communications (School of Photographic Arts and Sciences), BFA degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
NGRP-110, 210	Digital Photography I, II	6
NGRD-111	Drawing I	3
NAIS-120	Principles of Design and Color	3
NAIS-130	Raster and Vector Graphics	3
NGRD-115	Visual Idea Development	3
NGRD-140	Graphic Design and Typography I	3
	LAS General Education	12
NCAR-010	Freshman Seminar	0
Total Semester Credit Hours		**33**

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

Pre-baccalaureate studies, visual communications (School of Photographic Arts and Sciences), BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
NGRP-110	Digital Photography I	3
NAIS-120	Principles of Design and Color	3
NAIS-130	Raster and Vector Graphics	3
NGRP-231	Image Preparation	3
NGRP-232	Image Manipulation	3
	Math Course†	3
	Science Course‡	3
	LAS-General Education	12
NCAR-010	Freshman Seminar	0
Total Semester Credit Hours		**33**

Please see the General Education Curriculum–Liberal Arts and Sciences (LAS) in the Graduation Requirements section of this bulletin 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 (film and animation option), typical course sequence

COURSE		SEMESTER CREDIT HOURS
NGRP-220	Videography	3
SOFA-107	Principles of Animation	3
SOFA-103	Film/Video Materials and Technology	3
SOFA-106	Film Syntax	3
	Theatre Electives/Performing Arts†	3-9
	LAS-General Education	12
NCAR-010	Freshman Seminar	0
Total Semester Credit Hours		**27-33**

Please see the General Education Curriculum–Liberal Arts and Sciences (LAS) in the Graduation Requirements section of this bulletin for more information.
† Please see the College of Imaging Arts and Sciences support coordinator for a list of current theatre electives.

Pre-baccalaureate studies, visual communications (School of Media Sciences), typical course sequence

COURSE		SEMESTER CREDIT HOURS
NAIS-130	Raster and Vector Graphics	3
NAIS-150	Page Layout I	3
NGRP-231	Image Preparation	3
NGRP-232	Image Manipulation	3
NGRP-245	Color Theory and Management	3
	Math Course†	3
	Science Course‡	3
	LAS-General Education	12
NCAR-010	Freshman Seminar	0
Total Semester Credit Hours		**33**

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

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James J. DeCaro, BS, MS, University at Buffalo; Ph.D., Syracuse University—Special Projects; NTID Dean Emeritus; Professor

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Thomastine Sarchet, BS, MS, Rochester Institute of Technology—Research Faculty

Academic Affairs

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Baldev Kaur Khalsa, BA, M.Ed., McDaniel College—Associate Professor

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Business Studies

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Kathleen S. Szczepanek, AAS, AS, BS, MS, Rochester Institute of Technology—Senior Lecturer

Charlotte L. V. Thoms, BS, Youngstown State University; MS, Ed.D., University of Rochester—Associate Professor

Mellissa Youngman, AAS, Monroe Community College; BS, MBA, Rochester Institute Technology—Senior Lecturer

Communication Studies and Services

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Cultural and Creative Studies

Joseph H. Bochner, BA, City University of New York at Queens College; MA, Ph.D., University of Wisconsin—Chairperson; Professor

Erin Auble, BA, Emerson College; MST, Rochester Institute of Technology—Senior Lecturer

Julie J. Cammeron, BA, University of Great Falls; MED, Gallaudet University—Associate Professor

Patricia A. Durr, BA, Le Moyne College; MS, University of Rochester—Associate Professor

Luane Davis Haggerty, BA, City University of New York at Hunter College; MA, Goddard College; Ph.D., Antioch University—Principal Lecturer

Aaron Weir Kelstone, BA, MA, Cleveland State University; Ph.D., Northeastern University—Principal Lecturer

Deirdre A. Schlehofer, BA, University of Alaska; M.Phil.,University of Bristol (United Kingdom); Ed.D., University of Rochester—Associate Professor

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Thomas F. Warfield, BA, State University College at Purchase; MFA, University of Utah—Senior Lecturer

Engineering Studies

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Scott Bellinger, BS, University of Illinois; MS, Rochester Institute of Technology—Senior Lecturer

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Marcus Holmes, AAS, BS, MS, Rochester Institute of Technology—Senior Lecturer

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Robert Michalek, AAS, BS, Rochester Institute of Technology—Lecturer

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Edward A. Schwenzer, BA, MS, University of Rochester—Lecturer

Information and Computing Studies

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Karen Beiter, BS, MS, Rochester Institute of Technology—Assistant Professor

Tao Eng, BS, MS, Rochester Institute of Technology—Senior Lecturer

Mark Jeremy, AAS, BS, Rochester Institute of Technology—Lecturer

Donna A. Lange, BS, State University College at Brockport; MS, Rochester Institute of Technology—Associate Professor

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Edmund Lucas, BS, Rochester Institute of Technology—Lecturer

James R. Mallory, AAS, Kent State University; BS, MS, Rochester Institute of Technology—Professor

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Myra Bennett Pelz, BA, Rutgers University; MA, New York University; MS, Rochester Institute of Technology—Associate Professor

Tom Simpson, BS, Rochester Institute of Technology; MS, Nazareth College of Rochester—Lecturer

Joseph Stanislow, AAS, BS, Rochester Institute of Technology; MS, Stevens Institute of Technology—Assistant Professor

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Brian Trager, BS, MS, Rochester Institute of Technology—Assistant Professor

Liberal Studies

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Gerald P. Berent, BS, University of Virginia; Ph.D., University of North Carolina at Chapel Hill—Professor

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Kathleen E. Crandall, BA, MA, California State University at Fresno; Ph.D., Northwestern University—Associate Professor

Jessica A. Cuculick, BS, Rochester Institute of Technology; MSW, East Carolina University; Ed.D., University of Rochester—Associate Professor

Matthew W. Dye, B.Sc., Manchester Polytechnic (United Kingdom); M.Sc., University of Stirling (United Kingdom); Ph.D. University of South Hampton (United Kingdom)—Associate Professor

Erin A. Esposito, BS, MS, Rochester Institute of Technology—Senior Lecturer

Melinda J. Hopper, BS, MS, Illinois State University; Ph.D., University of Rochester—Senior Lecturer

Clayton Ide, BS, Gallaudet University; MS, Rochester Institute of Technology—Lecturer

Denise S. Kavin, BS, Gallaudet University; MS, Northwestern University; Ed.D., Northern Illinois University—Lecturer

Patricia Kenney, BA, Gallaudet University; BA, MA, California State University in Northridge—Lecturer

Pamela Kincheloe, BA, Rollins College; MA, University of North Carolina at Chapel Hill; Ph.D., Southern Illinois University—Associate Professor

Kenneth Lerner, BA, Beloit College; MS, University of Virginia—Senior Lecturer

Eugene Lylak, BA, University at Buffalo; M.Ed., St. Michael's College; Ed.D., University of Rochester—Professor

Marc Marschark, BA, Cornell University; MA, Ph.D., University of Western Ontario (Canada)—Professor

Rachel C. Mazique, BA, Gallaudet University; MA, Ph.D., University of Texas at Austin—Lecturer

Brian Milburn, AA, William Rainey Harper College; BS, MS, Rochester Institute of Technology—Lecturer

Vincent J. Samar, BA, MA, Ph.D., University of Rochester—Associate Professor

Kathy Varone, BS, State University College at Fredonia; MS, New York University—Lecturer

Jeanne Yamonaco, BA, MS, Nazareth College of Rochester—Senior Lecturer

Master of Science in Secondary Education

Gerald C. Bateman, BS, MS, State University College at Geneseo; Ed.D., University of Rochester—Director; Professor

Ronald R. Kelly, BS, M.Ed., Ph.D., University of Nebraska at Lincoln—Professor

Christopher A.N. Kurz, BS, Rochester Institute of Technology; MS, Ph.D., University of Kansas—Associate Professor

Ila Parasnis, BA, MA, Nagpur University (India); MA, Ph.D., University of Rochester—Professor

Thomastine Sarchet, BS, MS, Rochester Institute of Technology—Research Associate

Sara Schley, BA, Reed College; MA, Northeastern University; Ed.D., Harvard University—Professor

Michael Skyer, BFA, MS, Rochester Institute of Technology—Senior Lecturer

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Science and Mathematics

Matthew A. Lynn, BS, The Ohio State University; MS, Indiana University; Ph.D., University of Arizona—Chairperson; Associate Professor

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Bonnie C. Jacob, BA, Smith College; MS, Ph.D., Clemson University—Assistant Professor

Viet Le, BS, Ph.D., Wichita State University—Assistant Professor

Jacqueline McClive, AAS, BS, MS, Rochester Institute of Technology—Lecturer

Keith Mousley, BS, Rochester Institute of Technology; MA, Gallaudet University—Associate Professor

Jason Nordhaus, BA, BS, MS, Ph.D., University of Rochester—Assistant Professor

Camille E. Ouellette, BS, Rochester Institute of Technology; MS, Johns Hopkins University—Lecturer

Victoria J. Robinson, BS, MS, University of Illinois at Urbana—Associate Professor

Annemarie D. Ross, BS, MS, Rochester Institute of Technology—Associate Professor

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Sarah Sarchet, BS, MS, Rochester Institute of Technology—Lecturer

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Karen Tobin, BS, Rochester Institute of Technology—Senior Lecturer

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Visual Communications Studies

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Gilbert Beverly, BA, National-Louis University; MS, Rochester Institute of Technology—Assistant Professor

Stacy Bick, BFA, MS, Rochester Institute of Technology—Lecturer

David Cohn, BFA, MS, Rochester Institute of Technology—Associate Professor

Shannon Connell, BFA, University of Missouri—Lecturer

Paula A. Grcevic, BFA, MFA, Pratt Institute—Professor

Laural Hartman, BFA, MS, Rochester Institute of Technology—Lecturer

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Nancy J. Marrer, BA, FranklinPierce University; MS, RochesterInstitute of Technology—Assistant Professor

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Kurt Stoskopf, BFA, MFA, Rochester Institute of Technology—Associate Professor

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Office of the Associate Dean for Research

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Lisa Elliot, BS, University of Illinois; M.Ed., Ph.D., University of Rochester—Research Faculty

Scott Smith, BS, MD, East Carolina University; MPH, Harvard University—Research Associate Professor

Counseling and Academic Advising Services

Mark J. Rosica, BS, State University College at Oswego; MS, Syracuse University; CAS, Gallaudet University; Postgraduate Certificate, University of Rochester—Associate Professor

Access Services

Rico Peterson, BA, Nazareth College of Rochester; MFA, University of California at Los Angeles; Ph.D., University of California, Riverside—Assistant Dean and Director; Professor

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

Lisa Dallos, Founder, High IOMedia

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

Mary Beth Mothersell, Sprint Relay

David Nelson, Senior Outreach Specialist, Amtrak

Gabrielle Nocciolino, Coordinator of Performing Arts, Texas School for the Deaf

Karen Putz, Owner, Ageless Passions

Joseph Riggio, Regional Outreach Manager, SCDVRS

Michael Tecklenburg, Counsel to House Democratic Leader Nancy Pelosi

Kathleen Treni, Principal of the Continuum of Services for the Deaf and Hard of Hearing, Bergen County

Sean Virnig, Superintendent of California School for the Deaf, Fremont

Douglas Watson, University of Arkansas (retired)

Scott Wills, Research Scientist, Dow Chemical Company

U.S. Government Representatives

The Honorable Charles E. Schumer, Member, U.S. Senate, New York State

The Honorable Louise M. Slaughter, Member, U.S. House of Representatives, 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

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Accelerated BS/MS option 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.

Admission requirements

For information on undergraduate admission, including transfer and freshman admission guidelines, please see 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.

Faculty

The college has more than 200 faculty members teaching in the fields of science and mathematics. All are committed to the education of undergraduate and graduate students, and most hold a doctoral degree. A variety of faculty expertise means students are likely to find a faculty member with similar interests to serve as a mentor.

Our faculty members are dedicated professors who also practice their professions outside of the classroom, participating in research and professional activities.

Facilities

The College of Science's programs are conducted in 13 facilities on campus, including two main College of Science buildings: Gosnell Hall and the Carlson Building.

Gosnell Hall has 23 classrooms, 19 teaching laboratories, and 23 research laboratories that provide space for laboratory course work and student research projects. Some of the facilities within have specialized purposes, such as laboratories for X-ray and surface science, laser light scattering, animal care, plasma etching, electronics, quantum optics, confocal microscopy, and nuclear magnetic resonance. Additionally, Gosnell Hall is home to three computer laboratories, two statistical computing laboratories, and a greenhouse.

There are several study areas with WiFi for mobile computing. The Bruce and Nora James Atrium is a four story area used for individual study, collaboration, and community gatherings. The Bates Study Center in Gosnell Hall provides a quiet, comfortable environment for study and tutoring sessions with faculty.

The Carlson Building is home to the Chester F. Carlson Center for Imaging Science. Teaching and research facilities include dedicated classrooms for project-based and asynchronous learning, imaging science laboratories for multidisciplinary vision research, digital image processing, optics, and remote sensing. The School of Physics and Astronomy department offices, as well as physics laboratories dedicated to the study of optics, magnetism, and granular materials, are in the Carlson Building.

The Munsell Color Science Laboratory, in Color Science Hall, the Center for Computational Relativity and Gravitation, the Center for Detectors, and the university observatory also are part of the College of Science.

Cooperative education/Internships

In RIT's cooperative education plan, a student alternates semesters of paid work experience with on-campus academic study. Co-op employment experience has many advantages. It helps students gain insight into how classroom learning is applied in real work settings, gives them a chance to experience their professional field of study, and helps them acquire practical experience that is valuable in obtaining employment or applying to a graduate program. Salaries earned from cooperative education experiences enable students to offset a portion of the cost of their education.

Co-op is not a requirement in most of our programs, although it is strongly encouraged. The Office of Career Services and Cooperative Education assists students in identifying and applying for co-op positions. Students in the environmental science and imaging science majors are encouraged to participate in optional co-op blocks beginning the summer of the second year of their program. Students in the bioinformatics major are required to complete one cooperative education experience.

Research

Our students are encouraged to work with faculty members as they pursue their research. Many joint student-faculty research projects have resulted in publication in professional literature. Student research is conducted in campus laboratories and through field studies. Opportunities for research across disciplines develop from the collaboration of students and faculty who share common interests. The results of student research projects are recognized in forums during the academic year and at the Undergraduate Research Symposium and the end of the summer. The college encourages students to apply for both internal support for summer research and Research Experiences for Undergraduates (REU) at other universities. The College of Scinece currently offers five REUs.

Accreditation

Programs in chemistry and biochemistry are approved by the Committee on Professional Training of the American Chemical Society.

Advising

Each student is assigned both a professional academic adviser and a faculty adviser. The academic adviser provides advice on course selection, progress toward degree completion, and information on RIT services. The faculty adviser provides discipline specific, career related, and professional field advising.

Academic enrichment

Honors Program: Students who demonstrate a high level of achievement at the high school level may be invited to join the Honors program. These students will participate in Honors course work throughout their program of study and experiential learning activities under the guidance of a faculty mentor. Honors students will be selected during the admissions process.

Minors: RIT offers students more than 90 minors to choose from to enhance their major or further develop a personal area of interest. For a detailed list of minors, including courses, please refer to the Minors section of this bulletin.

Study Abroad: The Office of International Education & Global Programs works closely with students, faculty, affiliate universities, and international institutions to provide students with opportunities to study abroad through over 250 programs spanning more than 50 countries. Students may elect to study abroad during fall, spring, or summer terms.

Study abroad opportunities are typically identified through a variety of affiliated semester programs, through RIT's unique faculty-led programs, or at one of RIT's global campuses in Dubai, Croatia, and Kosovo. With appropriate planning and by working with both the home academic program and the Study Abroad Office, students can develop a plan to successfully incorporate a study abroad experience into their plan of study. Depending on the specific experience being considered and a student's financial aid package, there may or may not be additional costs associated with a study abroad experience.

Professional student organizations: The college maintains memberships in the following professional organizations: Imaging Science and Technology Student Chapter, Honorary Physics Society, the Society of Physics Students, American Society for Biochemistry and Molecular Biology Student Affiliates, American Mathematical Society, Mathematical Society of America, and the Society for Industrial and Applied Mathematics, to name a few.

Special opportunities

Accelerated dual degree options: Some programs offer accelerated, five-year dual BS/MS degree options. These degrees offer students the opportunity to earn a bachelor's degree and a master's degree in less time than pursuing each degree individually. Please refer to individual programs, the *Graduate Bulletin,* or the college's website for more information.

Graduate study: The college offers doctorate degrees in astrophysical sciences and technology, color science, imaging science, and mathematical modeling; and master of science degrees in applied and computational mathematics, astrophysical sciences and technology, bioinformatics, chemistry, applied statistics, color science, environmental science, and imaging science. For more information regarding these programs, please refer to the *Graduate Bulletin* or visit the college's website.

Actuarial studies: A plan of study is available for students interested in a career in the actuarial sciences. Actuarial science is a discipline that applies mathematical and statistical methods to assess risk in the insurance, finance, and other industries. Course work provides a foundation for students who will work as actuaries and also prepares students to take the first actuarial exams. These courses may count for credit in any of the three major programs in the School of Mathematical Sciences, or may be taken independently.

Premedical Studies/Pre-health Professions Advisory Program

The premedical studies and pre-health professions advisory program is designed to provide guidance and assistance to all RIT students who are interested in continuing their education in one of the health professions; e.g., medicine, osteopathy, dentistry, optometry, podiatry, or veterinary science. Faculty members who participate in this program provide advice on the prerequisites (course selection, health-related experiences, extracurricular activities) needed for application to various health-related professional schools. In addition, they provide assistance with the application process.

Enrollment in premedical studies/ pre-health professions advisory program

The premedical studies and pre-health professions advisory program is available to students who are enrolled in one of the degree granting programs offered at RIT or to nonmatriculated students taking the premedical core courses or pre-professional prerequisite courses. To enroll in the program, students must contact the premedical studies and pre-health professions office in the College of Health Sciences and Technology.

Integrated Sciences Academy

Science Exploration, Undeclared

rit.edu/science/sep
Catherine Mahrt-Washington, Academic Adviser
(585) 475-7046, cewsse@rit.edu

Program overview

Many prospective students are interested in the sciences, but may be undecided as to which major best meets their interests and career aspirations. The science exploration option allows students to investigate the various majors in the College of Science before deciding on a program of study. Students who decide on a major within their first year will not lose time toward the completion of their degree.

Plan of study

Science exploration is a year long option built around a single project aimed at designing, building, and conducting scientific research to achieve a goal, which is presented to students on the first day of class. This approach to interdisciplinary 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 at the freshman level.

As a result, students develop an in depth appreciation for the specific field in which their team was involved while simultaneously learning about the other College of Science majors through the work of their classmates.

Curriculum

Science exploration option, typical course sequence

COURSE		SEMESTER CREDIT HOURS
GSCI-101, 102	Science Exploration I, II	6
	Mathematics or Calculus Sequence	3-9
Choose one of the following laboratory sequences:		8
BIOL-101, 102, 103, 104	General Biology I, II with Labs	
CHMG-141, 142, 145, 146	General and Analytical Chemistry I, II with Labs	
PHYS-121, 122	University Physics	
	Computer Science	3-6
	Liberal Arts*	3-9
ACSC-010	Year One: College Experience	0
	Wellness Education†	0
Total Semester Credit Hours		**23-38**

*Please see New 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 Wellness courses.

School of Chemistry and Materials Science

Biochemistry, BS

https://www.rit.edu/science/scms
Paul Craig, School Head
(585) 475-6145, paul.craig@rit.edu
Alicia Balkum, Academic Adviser
(585) 475-7474, aabsse@rit.edu

Program overview

Biochemistry majors often have an interest in combining the life and health sciences with a chemistry degree. Students take a year of general biology in addition to a typical chemistry curriculum. During the upper-level years, students take a substantial core of courses in biochemistry, physical chemistry, the liberal arts, and elective courses in life sciences. Students 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. Students also are well-prepared to enter advanced degree programs in biochemistry, medicine, pharmacy, dentistry, and veterinary medicine.

Cooperative education

The biochemistry major may be completed in four or five years, depending on the amount of cooperative education each student elects to complete. Co-op may begin the summer after the first year. Students may complete the BS degree requirements in a traditional four-year program with three summers of co-op. Students who choose to complete co-op requirements during the academic year may be required to extend their studies.

Curriculum

Biochemistry, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHEM-130	Chemical Connections	1
CHEM-151	General Chemistry	3
CHEM-155	Chemistry Workshop	2
MATH-181	LAS Perspective 7A: Project-based Calculus I	4
	First Year LAS Elective	3
BIOL-121	Introductory Biology I	4
CHMO-331	Comprehensive Organic Chemistry I	3
CHMO-335	Comprehensive Organic Chemistry Lab I	1
MATH-182	LAS Perspective 7B: Project-based Calculus II	4
	First Year Writing Seminar	3
BIOL-122	Introductory Biology II	4
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
CHMO-332	Comprehensive Organic Chemistry II	3
CHMO-336	Comprehensive Organic Chemistry Lab II	2
CHMA-161	Quantitative Analysis	3
CHMA-165	Analytical Methods Lab	1
Choose one of the following:		3
MATH-219	Multivariable Calculus	
MATH-251	Probability and Statistics	
	LAS Perspective 1, 2	6
	LAS Immersion 1	3
CHMB-402	Biochemistry I	3
Choose one of the following:		4
PHYS-211	LAS Perspective 5: University Physics I	
PHYS-111	College Physics II	
BIOL-201	Cellular and Molecular Biology	4

COURSE		SEMESTER CREDIT HOURS
Third Year		
CHMA-261	Instrumental Analysis	3
CHMB-405	Biochemistry Lab (WI)	3
		4
Choose one of the following:		4
PHYS-212	University Physics II	
PHYS-112	LAS Perspective 6: College Physics II	
CHMA-265	Instrumental Analysis	1
	Advanced Biochemistry Elective‡	3
	LAS Perspective 3, 4	6
	LAS Immersion 2	3
CHMP-441	Physical Chemistry I	3
	Open Elective	4
	Advanced Biology Electives‡	3
Fourth Year		
CHMI-351	Descriptive Inorganic Chemistry	3
	Advanced Biology Elective‡	3
	LAS Electives	6
	LAS Immersion 3	3
Choose one of the following:		2
	Advanced Chemistry Lab Elective‡	
	Biochemistry Research	
	Advanced Biochemistry Elective‡	3
	Open Electives	9
Total Semester Credit Hours		**126**

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 Wellness courses.
‡ Please consult an adviser for course options.

Additional information

Undergraduate research opportunities

Students are encouraged to meet the professors in the School of Chemistry & Materials Science early in their time on campus. Many of our students join research labs and engage in research starting as early as their first year. Participation in undergraduate research leads to opportunities to make presentations at local and national conferences. Many of our student researchers also become contributing authors on peer-reviewed manuscripts.

Chemistry, BS

https://www.rit.edu/science/scms
Paul Craig, School Head
(585) 475-6145, Paul.Craig@rit.edu
Alicia Balkum, Academic Adviser
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Program overview

The chemistry major prepares students 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 taken by the student. The major also provides students 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.

Cooperative education

The chemistry major may be completed in four or five years, depending on the amount of cooperative education experience each student elects to complete. Co-op may begin as early as the summer after the first year. Students may elect to complete the BS degree requirements in a traditional four-year program with three summers of co-op work experience. Students who choose to complete co-op requirements during the academic year may be required to extend the length of their program.

Curriculum

Chemistry, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CHEM-130	Chemical Connections	1
CHEM-151	General Chemistry	3
CHEM-155	Chemistry Workshop	2
MATH-181	LAS Perspective 7A: Project-based Calculus I	4
	LAS Perspective 1, 2	6
CHMO-331	Comprehensive Organic Chemistry I	3
CHMO-335	Comprehensive Organic Chemistry Lab I	1
MATH-182	LAS Perspective 7B: Project-based Calculus II	4
	First Year LAS Elective	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
CHMA-161	Quantitative Analysis	3
CHMA-165	Analytical Methods Lab	1
CHMO-332	Comprehensive Organic Chemistry II	3
CHMO-336	Comprehensive Organic Chemistry Lab II	2
CHMI-351	Descriptive Inorganic Chemistry	3
MATH-219	Multivariable Calculus	3
CHMB-402	Biochemistry I	3
PHYS-211	LAS Perspective 5: University Physics I	4
	LAS Perspective 3	3
	LAS Immersion 1	3
MATH-233	Linear Systems and Differential Equations	4
Third Year		
CHMA-261	Instrumental Analysis	3
CHMA-265	Instrumental Analysis Lab	1
CHMP-441	Physical Chemistry I	3
PHYS-212	LAS Perspective 6: University Physics II	4
	LAS Perspective 4	3
	LAS Electives	6
	Open Electives	6
CHMP-442	Physical Chemistry II	3
CHMP-445	Experimental Physical Chemistry (WI)	3
Fourth Year		
CHMI-464	Structural Inorganic Chemistry	3
	Advanced Chemistry Electives§	6
	LAS Immersion 2, 3	6
	LAS Electives	6
	Open Electives	6
	Advanced Chemistry Lab§	2
Total Semester Credit Hours		**123**

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 Wellness courses.
§ Please see adviser for complete list of elective choices.

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		
MATH-181, 182	LAS Perspective 7A, 7B: Project-based Calculus I, II	8
CHEM-130	Chemical Connections	1
CHEM-151	General Chemistry	3
CHEM-155	Chemistry Workshop	2
CHMO-331, 335	Comprehensive Organic Chemistry I and Lab	4
	LAS Perspective 1, 2	6
	First Year LAS Elective	3
ACSC-010	Year One: College Experience	0
	First Year Writing Seminar	3
	Wellness Education*	0
Second Year		
MATH-219	Multivariable Calculus	3
CHMA-161	Quantitative Analysis	3
CHMO-332, 336	Comprehensive Organic Chemistry II and Lab	5
CHMA-165	Analytical Methods Lab	1
PHYS-211	LAS Perspective 5: University Physics	4
MATH-233	Linear Systems and Differential Equations	4
CHMB-402	Biochemistry I	3
CHMI-351	Descriptive Inorganic Chemistry	3
	LAS Perspective 3	3
Third Year		
PHYS-212	LAS Perspective 6: University Physics II	4
CHMA-261, 265	Instrumental Analysis and Lab	4
CHMP-441, 442	Physical Chemistry I, II	6
CHEm-445	Experimental Physical Chemistry	3
	LAS Perspective 4	3
	LAS Electives	6
	Open Electives	6
Fourth Year		
Choose one of the following:		6
	Graduate Chemistry Focus Courses (project)	
CHEM-790	Chemistry Research (Thesis)	
CHMI-464	Structural Inorganic Chemistry	3
CHEM-771, 772	Graduate Chemistry Seminar I, II	2
CHEM-670	Graduate Chemistry Writing	1
	LAS Immersion 2, 3	6
	Advanced Chemistry Elective	3
	Advanced Chemistry Lab Course	3
	LAS Electives	6
	Open Elective	3
Fifth Year		
CHEM-773, 774	Graduate Chemistry Seminar III, IV	2
	Approved Chemistry Graduate Courses	15
Choose one of the following:		4
CHEM-780	Chemistry Project	
CHEM-790	Research and Thesis	
Total Semester Credit Hours		**157**

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 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 Chemistry	3
CHEM-155	Chemistry Workshop	2
MATH-181	LAS Perspective 7A: Project-Based Calculus I	4
	First Year LAS Elective	3
	LAS Perspective 1, 2	6
CHMO-331	Comprehensive Organic Chemistry I	3
CHMO-335	Comprehensive Organic Chemistry I Lab	1
MATH-182	LAS Perspective 7B: Project-Based Calculus II	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
CHMA-161	Quantitative Analysis	3
CHMA-165	Analytical Methods Lab	1
CHMO-332	Comprehensive Organic Chemistry II	3
CHMO-336	Comprehensive Organic Chemistry II Lab	2
CHMI-351	Descriptive Inorganic Chemistry I	3
MATH-219	Multivariable Calculus	3
MATH-233	Linear Systems and Differential Equations	4
CHMB-402	Biochemistry I	3
PHYS-211	LAS Perspective 5: University Physics I	4
	LAS Perspective 3	3
	LAS Immersion 1	3
Third Year		
CHMA-261	Instrumental Analysis	3
CHMA-265	Instrumental Analysis Lab	1
CHMP-441	Physical Chemistry I	3
PHYS-212	LAS Perspective 6: University Physics II	4
	LAS Perspective 4	3
	LAS Electives	6
	Open Electives	6
CHMP-442	Physical Chemistry II	3
CHMP-445	Experimental Physical Chemistry (WI)	3
Fourth Year		
CHMI-464	Structural Inorganic Chemistry	3
	Advanced Chemistry Electives§	6
	LAS Immersion 2, 3	6
	Advanced Chemistry Lab§	2
	LAS Electives	6
	Open Electives	6
Fifth Year		
MTSE-601	Introduction to Materials Science	3
MTSE-705	Experimental Techniques	3
MTSE-790	Thesis	9
MTSE-704	Theoretical Methods	3
	Graduate Elective§	3
Total Semester Credit Hours		**153**

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 Wellness courses.
§ Please see adviser for complete list of elective choices.

Additional information

Undergraduate research opportunities

Students are encouraged to meet the professors in the School of Chemistry & Materials Science early in their time on campus. Many of our students join research labs and engage in research starting as early as their first year. Participation in undergraduate research leads to opportunities to make presentations at local and national conferences. Many of our student researchers also become contributing authors on peer-reviewed manuscripts.

Chester F. Carlson Center for Imaging Science

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Imaging Science, BS

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Program overview

Imaging science is a multidisciplinary field based on physics, mathematics, computer science, and systems engineering. Students study the theory behind the technologies used to create images, the integration of those technologies into imaging systems, and the application of those systems to solve scientific problems. 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 Innovative Freshman Experience (IMGS-181, 182) is a project-based course where students 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, biomedical imaging, 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.

Cooperative education

Cooperative education experience is not required but is recommended for the summers following the second and third years of the program. Opportunities to participate in research work with faculty are also available during academic and summer semesters.

Curriculum

Imaging science, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
IMGS-221	Vision and Psychophysics	3
IMGS-181, 182	Innovative Freshman Experience I, II	6
SOFA-103	Introduction to Imaging and Video Systems	3
MATH-181, 182	LAS Perspective 7A, 7B: Project-based Calculus I, II	8
PHYS-211	LAS Perspective 5: University Physics I	4
	LAS Perspective 1	3
	First Year LAS Elective	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-221	Multivariable and Vector Calculus	4
PHYS-212	LAS Perspective 6: University Physics II	4
	LAS Perspective 2, 3	6
IMGS-351	Fundamentals of Color Science	3
IMGS-261	Linear and Fourier Methods for Imaging	4
IMGS-211	Probability and Statistics for Imaging	3
PHYS-213	Modern Physics I	3
IMGS-180	Introduction to Computing and Control	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, 362	Image Processing and Computer Vision I, II	6
	LAS Perspective 4	3
	LAS Immersion 1	3
	Open Electives	6
Fourth Year		
IMGS-371	Imaging Systems Analysis	4
IMGS-441	Noise and System Modeling	3
IMGS-451	Imaging Detectors	3
IMGS-502, 503	Imaging Science Senior Project I, II (WI)	6
	Imaging Science Elective Track I, II	6
	LAS Immersion 2, 3	6
Total Semester Credit Hours		**121**

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 Wellness courses.

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Bioinformatics, BS

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Program overview

Bioinformatics represents the marriage of biotechnology and the computing sciences. Bioinformaticists use computers to analyze, organize, and visualize biological data in ways that increase the understanding of this data and lead to new discoveries. Students are well-qualified for many rewarding careers, including those in bioinformatics software development, biomedical research, biotechnology, comparative genomics, genomics, molecular imaging, pharmaceutical research and development, proteomics, and vaccine development.

The bioinformatics major 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.

Cooperative education

The major requires the completion of one cooperative education experience, where students participate in applied bioinformatics, using current technologies to gain a practical perspective. More than 65 organizations in industry, government, and academia employ our students in full-time paid positions. Co-op positions may be completed during the summer and/or the academic year. No tuition is charged for co-op participation. If a student elects to pursue co-op during the academic year, they may need to extend the date of graduation beyond the traditional four years.

Curriculum

Bioinformatics, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-121	Introductory Biology I	4
BIOL-130	Introduction to Bioinformatics	3
CSCI-141	Computer Science I	4
	First Year LAS Elective	3
BIOL-122	Introductory Biology II	4
CSCI-142	Computer Science II	4
	First Year Writing Seminar	3
MATH-161	LAS Perspective 7A: Applied Calculus	4
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
BIOL-201	Cellular and Molecular Biology	4
	LAS Perspective 1, 2	6
MATH-190	LAS Perspective 7B: Discrete Math	3
CHMG-141, 145	LAS Perspective 5: General and Analytical Chemistry I and Lab	4
CSCI-243	The Mechanics of Programming	3
BIOL-321	Genetics	3
STAT-145	Introduction to Statistics I	3
CHMG-142, 146	LAS Perspective 6: General and Analytical Chemistry II and Lab	4
	Open Elective	3
Third Year		
CSCI-251	Concepts of Parallel and Distributed Systems	3
	LAS Perspective 3, 4	6
BIOL-330	Bioinformatics	3
CHMO-231	Organic Chemistry I	3
CHMO-235	Organic Chemistry I Lab	1
ISTE-230	Introduction to Database and Data Modeling	3
BIOL-450	Genetic Engineering (WI)	5
BIOL-230	Bioinformatics Languages	3
	LAS Immersion 1	3
	Open Elective	3
BIOL-499	Cooperative Education (summer)	Co-op
Fourth Year		
CHMB-402	Biochemistry I	3
BIOL-340	Genomics	4
BIOL-430	Bioinformatics Algorithms	3
BIOL-425	Ethics in Bioinformatics	3
STAT-295	Statistical Analysis for Bioinformatics	3
BIOL-494	Molecular Modeling and Proteomics	3
	LAS Immersion 2, 3	6
	Open Electives	8
Total Semester Credit Hours		**122**

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 Wellness courses.

Bioinformatics (molecular genetics option), BS 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
CHMG-141, 145	LAS Perspective 5: General and Analytical Chemistry I and Lab	4
CHMG-142, 146	LAS Perspective 6: General and Analytical Chemistry II and Lab	4
	First Year LAS Elective	3
	First Year Writing Seminar	3
MATH-161	LAS Perspective 7A: Applied Calculus	4
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
BIOL-201	Cellular and Molecular Biology	4
CSCI-141, 142	Computer Science I, II	8
	LAS Perspective 1, 2	6
CHMO-231, 235	Organic Chemistry I and Lab	4
CHMO-232, 236	Organic Chemistry II and Lab	4
BIOL-321	Genetics	3
STAT-145	LAS Perspective 7B: Introduction to Statistics I	3
Third Year		
	LAS Perspective 3, 4	6
BIOL-330	Bioinformatics	3
CSCI-243	The Mechanics of Programming	3
ISTE-230	Introduction to Database and Data Modeling	3
BIOL-450	Genetic Engineering (WI)	5
STAT-295	Statistical Analysis for Bioinformatics	3
BIOL-230	Bioinformatics Languages	3
	LAS Immersion 1	3
	Open Elective	3
BIOL-499	Cooperative Education (summer)	Co-op
Fourth Year		
BIOL-425	Ethics in Bioinformatics	3
CHMB-402	Biochemistry I	3
BIOL-340	Genomics	4
	Molecular Bioscience and Biotechnology Electives§	11
	LAS Immersion 2, 3	6
	Open Electives	5
Total Semester Credit Hours		**125**

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 Wellness courses.
§ Please see adviser for complete list of elective choices.

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, BS/MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-121	Introductory Biology I	4
BIOL-130	Introduction to Bioinformatics	3
CSCI-141	Computer Science I	4
	First Year LAS Elective	3
BIOL-122	Introduction to Biology II	4
CSCI-142	Computer Science II	4
	First Year Writing Seminar	3
MATH-161	LAS Perspective 7A: Applied Calculus	4
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
BIOL-201	Cellular and Molecular Biology	4
	LAS Perspective 1	3
MATH-190	Discrete Math	3
CHMG-141, 145	LAS Perspective 5: General and Analytical Chemistry I and Lab	4
CSCI-243	The Mechanics of Programming	3
BIOL-321	Genetics	3
	LAS Perspective 2	3
STAT-145	Introduction to Statistics I	3
CHMG-142, 146	LAS Perspective 6: General and Analytical Chemistry II and Lab	4
	Open Elective	3
Third Year		
CSCI-251	Concepts of Parallel and Distribution Systems	3
	LAS Perspective 3, 4	6
BIOL-330	Bioinformatics	3
CHMO-231	Organic Chemistry I	3
CHMO-232	Organic Chemistry Lab I	1
ISTE-230	Introduction to Databases and Data Modeling	3
BIOL-450	Genetic Engineering (WI)	5
	LAS Immersion 1	3
BIOL-230	Bioinformatics Languages	3
	Open Elective	3
BIOL-499	Cooperative Education	Co-op
Fourth Year		
	Open Electives	8
CHMB-402	Biochemistry I	3
STAT-295	Statistical Analysis for Bioinformatics	3
BIOL-340	Genomics	4
	LAS Immersion 2, 3	6
BIOL-694	Molecular Modeling and Proteomics	3
Fifth Year		
BIOL-625	Ethics in Bioinformatics	3
BIOL-635	Bioinformatics Seminar	3
BIOL-630	Bioinformatics Algorithms	3
MATH-695	Statistical Analysis for Bioinformatics	3
	Graduate Electives‡	9
BIOL-790	Thesis	9
Total Semester Credit Hours		**152**

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 Wellness courses.
‡ Graduate electives may be any graduate-level course related to the field of bioinformatics. Consult academic advisers for assistance in course selection.

Biology, BS

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Program overview

In the College of Science, biology is something that students do, rather than something they merely learn. Courses present biology as it is done by career biologists, and hands-on laboratory and field experience is emphasized. Scientific knowledge is based on research, and students are encouraged to undertake research projects in the college's laboratories.

The biology major prepares students for rewarding positions in occupations related to the life sciences, namely biomedical research, scientific management, science journalism, ecology and environmental science, agriculture, and education.

The major includes all of the course work and support services to prepare students 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.

Cooperative education

Cooperative education is an optional component of the major. More than 65 organizations in private industry, government, and academia employ biology students in full-time paid positions directly related to the students' academic areas of interest. Co-op positions can be held during the summer and/or during the regular academic year. No tuition is charged for co-op participation. If a student elects to pursue co-op during the regular academic year, they may need to extend the date of graduation beyond the traditional four years.

Curriculum

Biology, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
BIOL-121	Introduction to Biology I	4
CHMG-141	LAS Perspective 5: General and Analytical Chemistry I	3
CHMG-145	LAS Perspective 5: General and Analytical Chemistry I Lab	1
	First Year LAS Elective	3
	LAS Perspective 1	3
BIOL-122	Introduction to Biology II	4
CHMG-142	LAS Perspective 6: General and Analytical Chemistry II	3
CHMG-146	LAS Perspective 6: General and Analytical Chemistry II Lab	1
	First Year Writing	3
MATH-161	LAS Perspective 7A: Applied Calculus	4
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
CHMO-231	Organic Chemistry I	3
CHMO-235	Organic Chemistry I Lab	1
	LAS Perspective 2, 3	6
BIOL-201	Cellular and Molecular Biology	4
CHMO-232	Organic Chemistry II	3
CHMO-236	Organic Chemistry II Lab	1
Choose one of the following:		3
STAT-145	LAS Perspective 7B: Introduction to Statistics	
STAT-155	LAS Perspective 7B: Introduction to Biostatistics	
Choose one of the following:		4
BIOL-240	General Ecology (WI)	
BIOL-265	Evolutionary Biology (WI)	
Choose one of the following:		3
BIOL-321	Genetics	
BIOL-365	Introduction to Population Genetics	

COURSE		SEMESTER CREDIT HOURS
Third Year		
PHYS-111	College Physics I	4
PHYS-112	College Physics II	4
	Program Electives§	15
	LAS Perspective 4	3
	LAS Immersion 1	3
Choose one of the following:		4
BIOL-322	Developmental Biology	
BIOL-313	Comparative Animal Physiology	
Fourth Year		
BIOL-500	Experiential Education Requirement in the Life Sciences	0
	Program Electives§	20
	Open Electives	6
	LAS Immersion 2, 3	6
Total Semester Credit Hours		**122**

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 Wellness courses.
§ Please see adviser for list of elective choices.

Biotechnology and Molecular Bioscience, BS

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Program overview

The BS degree in biotechnology and molecular bioscience prepares students to immediately assume challenging positions in research, development, and management in the field of biotechnology. Students are also well-prepared for positions in the fields of plant biotechnology, human genetics, agriculture, food products, pharmaceuticals and vaccine development, environment and energy, forensic science, and genetic counseling.

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 a 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.

Cooperative education

The major provides students with the option of participating in cooperative education. More than 65 organizations in industry, government, and academia employ biology students in full-time paid positions directly related to students' academic areas of interest. Co-op positions can be held during the summer and/or during the regular academic year. Tuition is not charged while a student is on co-op. If a student elects to pursue a co-op during the regular 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	Introduction to Biology I	4
CHMG-141	LAS Perspective 5: General and Analytical Chemistry I	3
CHMG-145	LAS Perspective 5: General and Analytical Chemistry I Lab	1
	LAS Perspective 1	3
	First Year LAS Elective	3
BIOL-122	Introduction to Biology II	4
CHMG-142	LAS Perspective 6: General and Analytical Chemistry II	3
CHMG-146	LAS Perspective 6: General and Analytical Chemistry II Lab	1
MATH-161	LAS Perspective 7A: Applied Calculus	4
ACSC-010	Year One: College Experience	0
	First Year Writing Seminar	3
	Wellness Education*	0
Second Year		
BIOL-201	Cell and Molecular Biology w/ Lab	4
CHMO-231	Organic Chemistry I	3
CHMO-235	Organic Chemistry I Lab	1
Choose one of the following:		3
STAT-145	LAS Perspective 7B: Introduction to Statistics	
STAT-155	LAS Perspective 7B: Biostatistics	
BIOL-321	Genetics	3
	Program Elective§	4
CHMO-232	Organic Chemistry II	3
CHMO-236	Organic Chemistry II Lab	1
	LAS Perspective 2, 3	6
Third Year		
BIOL-204	Microbiology w/ Lab	4
CHMB-402	Biochemistry I	3
BIOL-325	Bioinformatics Analysis Macromolecule	3
	Program Electives§	13
	LAS Perspective 4	3
	Open Elective	3
	LAS Immersion 1	3
Fourth Year		
BIOL-500	Experiential Learning Requirement in the Life Sciences	0
	Program Electives§	20
	LAS Immersion 2, 3	6
	Open Elective	3
	LAS Elective	3
Total Semester Credit Hours		**121**

Please see General Education Curriculum–Liberal Arts and Sciences (LAS) 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 Wellness courses.
§ Please see adviser for list of elective choices.

Environmental Science, BS

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Program overview

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. The BS program provides students with the education and experiences they need to be successful.

Plan of study

The practice of environmental science demands that students be well-rounded specialists. To accomplish this, each student is required to complete an environmental science concentration in one of the following areas: digital imaging, environmental biology, environmental economics, environmental public policy, mathematics and statistics, or remote sensing. Students also may develop a self-designed concentration in an area of personal interest, subject to approval from an environmental science review committee.

Cooperative education

Cooperative education is optional for environmental science majors, however, it offers students a great way to get a head start on their career with paid, professional work experience. Students can participate in cooperative education as soon as the summer after their second year of study. Co-op placements are typically with local, state, or federal government agencies, nonprofit environmental organizations, and a host of environmental consulting firms.

Curriculum

Environmental science, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ENVS-101	Concepts of Environmental Science	3
ENVS-111	Soil Science	4
BIOL-121, 122	Introductory Biology I, II	8
	LAS Perspective 1	3
	First Year LAS Elective	3
ENVS-201	Environmental Workshop	3
MATH-161	LAS Perspective 7A: Applied Calculus	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
STSO-220	Environment and Society	3
Choose one of the following:		3
STSO-421	Environmental Policy	
PUBL-210	Introduction to Qualitative Policy Analysis	
ENVS-250	Applications of Geographic Information Systems	4
BIOL-240	General Ecology	4
CHMG-141, 145	LAS Perspective 5: General and Analytical Chemistry I and Lab	4
ENVS-301	Environmental Science Field Skills	4
CHMG-142, 146	LAS Perspective 6: General and Analytical Chemistry II and Lab	4
	LAS Perspective 2, 3	6
Third Year		
STSO-422	Great Lakes	3
ENVS-450	Hydrologic Applications of GIS	4
BIOL-475	Conservation Biology	3
STAT-145	LAS Perspective 7B: Introduction to Statistics I	3
	Concentration Courses§	6
CHMO-231, 235	Organic Chemistry I and Lab	4
	LAS Perspective 4	3
STAT-146	Introduction to Statistics II	4
	LAS Immersion 1	3
Fourth Year		
ENVS-551	Environmental Science Capstone I	3
	Concentration Courses§	8
	Open Electives	6
	LAS Immersion 2, 3	6
ENVS-552	Environmental Science Capstone II (WI)	3
IMGS-431	Environmental Applications of Remote Sensing	3
Total Semester Credit Hours		**125**

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 Wellness courses.
§ Please see adviser for list of 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.

Environmental science, BS/MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ENVS-101	Concepts of Environmental Science	3
ENVS-111	Soil Science	4
BIOL-121, 122	Introductory Biology I, II	8
	LAS Perspective 1	3
	First Year LAS Elective	3
ENVS-201	Environmental Workshop	3
MATH-161	LAS Perspective 7A: Applied Calculus	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
STSO-220	Environment and Society	3
ENVS-250	Applications of Geographic Information Systems	4
BIOL-240	General Ecology	4
CHMG-141, 145	LAS Perspective 5: General and Analytical Chemistry I and Lab	4
Choose one of the following:		3
STSO-421	Environmental Policy	
PUBL-210	Qualitative Methods and Analysis	
ENVS-301	Environmental Science Field Skills	4
CHMG-142, 146	LAS Perspective 6: General and Analytical Chemistry II and Lab	4
	LAS Perspective 2, 3	6

COURSE		SEMESTER CREDIT HOURS
Third Year		
BIOL-675	Advanced Conservation Biology	3
STSO-422	Great Lakes	3
STAT-145	LAS Perspective 7B: Introduction to Statistics I	3
	Concentration Courses§	6
CHMO-231, 235	Organic Chemistry I and Lab	4
	LAS Perspective 4	3
ENVS-650	Hydrologic Applications of GIS	4
STAT-146	Introduction to Statistics II	4
	LAS Immersion 1	3
Fourth Year		
ENVS-551	Environmental Science Capstone I	3
	Concentration Courses§	8
	Open Electives	6
	LAS Immersion 2, 3	6
ENVS-601	Environmental Science Graduate Studies	3
ENVS-552	Environmental Science Capstone II (WI)	3
IMGS-431	Environmental Applications of Remote Sensing	3
Fifth Year		
	Graduate Science, Technology, and Society Core Elective	3
	Graduate Public Policy Core Elective	3
	Graduate Science Core Elective	3
	Graduate Electives	6
Choose one of the following:		3
ENVS-790	Environmental Science Thesis	
ENVS-780	Environmental Science Project	
ENVS-670	Advanced Concepts of Environmental Chemistry	3
Choose one of the following:		3
ENVS-790	Environmental Science Thesis	
ENVS-780	Environmental Science Project	
Total Semester Credit Hours		**159**

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 Wellness courses.
§ Please see adviser for course choices.

Environmental science, BS degree/Science, technology and public policy, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ENVS-101	Concepts of Environmental Science	3
	First Year LAS Elective	3
ENVS-111	Soil Science	4
	First Year Writing Seminar	3
BIOL-121, 122	Introduction to Biology I, II	8
ACSC-010	Year One: College Experience	0
ENVS-201	Environmental Workshop	3
MATH-161	LAS Perspective 7A: Applied Calculus	4
	LAS Perspective 1	3
	Wellness Education*	0
Second Year		
STSO-220	Environment and Society	3
ENVS-250	Applications of Geographic Information Systems	4
BIOL-240	General Ecology (WI)	4
CHMG-141, 145	LAS Perspective 5: General and Analytical Chemistry I and Lab	4
Choose one of the following:		3
STSO-421	Environmental Policy	
PUBL-210	Qualitative Methods and Analysis	
ENVS-301	Environmental Science Field Skills	4
CHMG-142, 146	LAS Perspective 6: General and Analytical Chemistry II and Lab	4
	LAS Perspective 2, 3	6
Third Year		
STSO-422	Great Lakes	3
STAT-145	LAS Perspective 7B: Introduction to Statistics I	3
STAT-146	Introduction to Statistics II	4
CHMO-231, 235	Organic Chemistry I and Lab	4
ENVS-450	Hydro Apps GIS	4
PUBL-702	Graduate Decision Analysis	3
BIOL-475	Conservation Biology	3
	Environmental Science Concentration Course	4
	LAS Perspective 4	3
	LAS Immersion 1	3
Fourth Year		
ENVS-551, 552	Environmental Science Capstone I, II	6
IMGS-431	Environmental Applications of Remote Sensing	3
PUBL-700	Readings In Public Policy	3
PUBL-701	Graduate Policy Analysis	3
PUBL-703	Program Evaluation and Research Design	3
	Environmental Science Concentration Course	4
	LAS Immersion 2, 3	6
	Open Elective	3
Fifth Year		
STSO-710	Graduate Seminar in Science Technology Policy	3
	Public Policy Graduate Electives	9
PUBL-700	Readings in Public Policy	3
Choose one of the following:		6
PUBL-790	Public Policy Thesis	
	Graduate Electives, Comprehensive Exam	
Total Semester Credit Hours		**146**

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 Wellness courses.

Additional information

Employment opportunities

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.

School of Mathematical Sciences

Applied Mathematics, BS

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Program overview

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. Students 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.

Curriculum

Applied mathematics, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181, 182	LAS Perspective 7A, 7B: Project-based Calculus I, II	8
MATH-199	Mathematics and Statistics Seminar	1
CSCI-101	Principles of Computing	3
CSCI-141	Computer Science I	4
	First Year LAS Elective	3
	LAS Perspective 5‡	4
	First Year Writing Seminar	3
	LAS Perspective 1	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-200	Discrete Mathematics with Introduction to Proofs	3
MATH-221	Multivariable and Vector Calculus	4
MATH-251, 252	Probability and Statistics I, II	6
MATH-231	Differential Equations	3
MATH-241	Linear Algebra	3
	LAS Perspective 2, 3, 4, 6‡	13
Third Year		
MATH-399	Mathematical Science Job Search Seminar	0
MATH-431	Real Variables I	3
	Program Electives	18
	LAS Immersion 1, 2	6
	Open Elective	3
Fourth Year		
MATH-421	Mathematical Modeling (WI)	3
MATH-441	Abstract Algebra I	3
MATH-411	Numerical Analysis	3
MATH-500	Senior Capstone in Mathematics§	3
	LAS Immersion 3	3
	LAS Electives	6
	Program Elective	3
	Open Electives	6
Total Semester Credit Hours		**121**

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 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 who have completed an experiential learning requirement with some other pre-approved activity may replace this course with a program elective.

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.

Applied mathematics, BS degree/Applied and computational mathematics, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181, 182	LAS Perspective 7A, 7B: Project-based Calculus I, II	8
MATH-199	Mathematics and Statistics Seminar	1
CSCI-101	Principles of Computing	3
CSCI-141	Computer Science I	4
	LAS Perspective 5‡	4
	First Year LAS Elective	3
	First Year Writing Seminar	3
	LAS Perspective 1	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-200	Discrete Mathematics with Introduction to Proofs	3
MATH-221	Multivariable and Vector Calculus	4
MATH-251, 252	Probability and Statistics I, II	6
MATH-231	Differential Equations	3
MATH-241	Linear Algebra	3
	LAS Perspective 2, 3, 4, 6‡	13
Third Year		
MATH-399	Mathematical Science Job Search Seminar	0
MATH-431	Real Variables I	3
	Program Electives	18
	LAS Immersion 1, 2	6
	Open Elective	3
	LAS Elective	3
Fourth Year		
MATH-421	Mathematical Modeling (WI)	3
MATH-441	Abstract Algebra I	3
MATH-611	Numerical Analysis	3
	Math Graduate Core	6
MATH-606	Graduate Seminar I	1
MATH-607	Graduate Seminar II	1
	LAS Immersion 3	3
	LAS Electives	6
	Program Elective	3
	Open Elective	3
Fifth Year		
	Math Graduate Core	3
	Graduate Concentration Courses	6
	Graduate Electives	9
MATH-790	Thesis	7
Total Semester Credit Hours		**151**

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 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.

Additional information

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.

Applied Statistics and Actuarial Science, BS

http://www.rit.edu/science/sms

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Program overview

The applied statistics and actuarial science major provides students 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. This gives students an advantage in the fields of business, government, and industry, and also prepares them well for advanced study in graduate school.

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.

Curriculum

Applied statistics and actuarial science, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-199	Mathematics and Statistics Seminar I	1
MATH-181	LAS Perspective 7A: Project-based Calculus I	4
MATH-182	LAS Perspective 7B: Project-based Calculus II	4
CSCI-101	Principles of Computing	3
	First Year LAS Elective	3
	First Year Writing Seminar	3
	LAS Perspective 1, 2, 5‡	10
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-200	Discrete Mathematics with Introduction to Proofs	3
MATH-221	Multivariable and Vector Calculus	4
MATH-251, 252	Probability and Statistics I, II	6
MATH-241	Linear Algebra	3
	Open Elective	3
	LAS Elective	3
	LAS Perspective 3, 4, 6‡	10
Third Year		
MATH-255	Actuarial Mathematics	3
MATH-261	Topics in Financial Mathematics	3
STAT-325	Design of Experiments (WI)	3
STAT-305	Regression Analysis	3
MATH-399	Mathematical Science Job Search Seminar	0
STAT-511	Statistical Software	3
	Program Electives**	6
	LAS Immersion 1, 2	6
	LAS Elective	3
Fourth Year		
STAT-405, 406	Mathematical Statistics I, II	6
STAT-500	Capstone in Statistics (WI)	3
	LAS Immersion 3	3
	Program Electives**	12
	Open Elective	3
	LAS Electives	6
Total Semester Credit Hours		**123**

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 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.
** At least two of the program electives must be from the following set of courses: Stochastic Processes (MATH-401), Statistical Quality Control (STAT-315), Introduction to Time Series (STAT-335), Nonparametric Statistics (STAT-345), Statistical Sampling (STAT-415), Multivariate Analysis (STAT-425), or Statistical Linear Models (STAT-435).

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, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-199	Mathematics and Statistics Seminar I	1
MATH-181	LAS Perspective 7A: Project-based Calculus I	4
MATH-182	LAS Perspective 7B: Project-based Calculus II	4
CSCI-101	Principles of Computer Science	3
	First Year LAS Elective	3
	First Year Writing Seminar	3
	LAS Perspective 1, 2, 5‡, 6‡	14
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-200	Discrete Mathematics with Introduction to Proofs	3
MATH-221	Multivariable and Vector Calculus	4
MATH-251, 252	Probability and Statistics I, II	6
MATH-231	Differential Equations	3
MATH-241	Linear Algebra I	3
	LAS Immersion 1, 2	6
	LAS Perspective 3, 4	6
Third Year		
MATH-255	Actuarial Mathematics	3
MATH-261	Topics in Financial Mathematics	3
STAT-325	Design of Experiments (WI)	3
STAT-305	Regression Analysis	3
MATH-399	Mathematical Science Job Search Seminar	0
STAT-511	Statistical Software	3
	Open Electives	6
	LAS Immersion 3	3
	Program Electives	9
Fourth Year		
STAT-405, 406	Mathematical Statistics I, II	6
	Math Graduate Core	9
MATH-606, 607	Graduate Seminar I, II	2
STAT-500	Capstone in Statistics (WI)	3
	LAS Electives	12
Fifth Year		
	Math Graduate Core	3
	Concentration Core Courses	6
	Graduate Electives	9
MATH-790	Thesis	7
Total Semester Credit Hours		**153**

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 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.

Applied statistics and actuarial science, BS degree/Applied statistics, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-199	Mathematics and Statistics Seminar I	1
MATH-181	LAS Perspective 7A: Project-based Calculus I	4
MATH-182	LAS Perspective 7B: Project-based Calculus II	4
CSCI-101	Principles of Computer Science	3
	First Year LAS Elective	3
	First Year Writing Seminar	3
	LAS Perspective 1, 2, 5‡, 6‡	14
ACSC-010	Year One: College Experience	0
	Wellness Education*	0

COURSE		SEMESTER CREDIT HOURS
Second Year		
MATH-200	Discrete Mathematics with Introduction to Proofs	3
MATH-221	Multivariable and Vector Calculus	4
MATH-251, 252	Probability and Statistics I, II	6
MATH-241	Linear Algebra	3
	Program Elective	3
	LAS Immersion 1, 2	6
	LAS Perspective 3, 4	6
Third Year		
MATH-255	Actuarial Mathematics	3
MATH-261	Topics in Financial Management	3
STAT-325	Design of Experiments (WI)	3
STAT-305	Regression Analysis	3
MATH-399	Mathematical Science Job Search Seminar	0
STAT-511	Statistical Software	3
	Open Electives	6
	LAS Immersion 3	3
	Program Electives	6
Fourth Year		
STAT-405, 406	Mathematical Statistics I, II	6
STAT-741	Regression Analysis	3
STAT-500	Senior Capstone in Statistics	3
STAT-701	Foundations of Experimental Design	3
	Program Elective	3
	LAS Electives	12
Fifth Year		
	Graduate Electives	18
STAT-792	Capstone	3
Total Semester Credit Hours		**144**

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 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.

Additional information

Minors

The flexibility of the applied statistics and actuarial science major allows students to complete a minor in science, liberal arts, or business, or to combine courses from various minors into a sequence tailored to their career aspirations.

Computational Mathematics, BS

http://www.rit.edu/science/sms

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Program overview

Computational mathematics prepares students 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.

Curriculum

Computational mathematics, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181, 182	LAS Perspective 7A, 7B: Project-based Calculus I, II	8
MATH-199	Mathematics and Statistics Seminar	1
CSCI-141,142	Computer Science I, II	8
	LAS Perspective 1, 5‡	7
	First Year LAS Elective	3
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-221	Multivariable and Vector Calculus	4
MATH-251	Probability and Statistics I	3
MATH-231	Differential Equations	3
MATH-241	Linear Algebra	3
CSCI-243	Mechanics of Programming	3
MATH-200	Discrete Mathematics with Introduction to Proofs	3
CSCI-262	Introduction to Computer Science Theory	3
	LAS Perspective 2, 3, 6‡	10
Third Year		
MATH-399	Mathematical Science Job Search Seminar	0
MATH-431	Real Variables I	3
MATH-441	Abstract Algebra I	3
MATH-411	Numerical Analysis	3
SWEN-261	Software Engineering	3
	Program Electives	6
	LAS Perspective 4	3
	LAS Immersion 1	3
	LAS Elective	3
Fourth Year		
MATH-421	Mathematical Modeling (WI)	3
Choose one of the following:		3
MATH-412	Numerical Linear Algebra	
MATH-351	Graph Theory	
MATH-500	Senior Capstone in Mathematics§	3
	Program Electives	6
	LAS Immersion 2, 3	6
	LAS Elective	3
	Open Electives	6
Total Semester Credit Hours		**122**

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 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.
§ Students who have completed their experiential learning requirement with some other pre-approved activity may replace this course with a program elective.

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.

Computational mathematics, BS degree/Applied and computational mathematics, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
MATH-181, 182	LAS Perspective 7A, 7B: Project-Based Calculus I, II	8
MATH-199	Mathematics and Statistics Seminar	1
CSCI-141, 142	Computer Science I, II	8
	LAS Perspectives 1, 5‡	7
	First Year LAS Elective	3
	First Year Writing Seminar	3
	Wellness Education*	0
ACSC-010	Year One: College Experience	0
	Open Elective	3

Second Year		
MATH-221	Multivariable and Vector Calculus	4
MATH-241	Linear Algebra	3
MATH-251	Probability and Statistics I	3
MATH-231	Differential Equations	3
MATH-200	Discrete Mathematics with Introduction to Proofs	3
CSCI-243	Mechanics of Programming	3
CSCI-262	Introduction to Computer Science Theory	3
	LAS Perspective 6‡	4
	LAS Perspective 2, 3	6
Third Year		
MATH-431	Real Variables I	3
MATH-399	Mathematical Science Job Search Seminar	0
MATH-441	Abstract Algebra I	3
	Program Electives	9
SWEN-261	Software Engineering	3
	LAS Perspective 4	3
	LAS Immersion 1, 2	6
	LAS Elective	3
Fourth Year		
MATH-421	Mathematical Modeling (WI)	3
	Math Graduate Core	6
MATH-606, 607	Graduate Seminar I, II	2
MATH-611	Numerical Analysis	3
Choose one of the following:		3
MATH-612	Numerical Linear Algebra	
MATH-645	Graph Theory	
	Open Electives	6
	LAS Immersion 3	3
	LAS Elective	3
	Program Elective	3
Fifth Year		
MATH-601	Methods of Applied Mathematics	3
	Concentration Core Courses	6
	Graduate Electives	9
MATH-790	Thesis	7
Total Semester Credit Hours		**152**

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 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.

School of Physics and Astronomy

Physics, BS

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Program overview

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.

Curriculum

Physics, BS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
Choose one of the following:		3
CHMG-141	LAS Perspective 5: General and Analytical Chemistry I§	
BIOL-101	LAS Perspective 5: General Biology I§	
Choose one of the following:		1
CHMG-145	LAS Perspective 5: General and Analytical Chemistry I Lab§	
BIOL-103	LAS Perspective 5: General Biology I Lab§	
MATH-181	LAS Perspective 7A: Project-based Calculus I	4
PHYS-150	Introduction to Special Relativity	3
	First Year LAS Elective	3
	LAS Perspective 1	3
Choose one of the following:		3
CHMG-142	LAS Perspective 6: General and Analytical Chemistry II§	
BIOL-102	LAS Perspective 6: General Biology II‡	
Choose one of the following:		1
CHMG-146	LAS Perspective 6: General and Analytical Chemistry II Lab§	
BIOL-104	LAS Perspective 6: General Biology II Lab§	
MATH-182	LAS Perspective 7B: Project-based Calculus II	4
PHYS-216	University Physics I: Physics Majors	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-219	Multivariable Calculus	3
PHYS-217	University Physics II: Physics Majors	4
PHYS-225	Introduction to Computational Physics and Programming	3
MATH-231	Differential Equations	3
PHYS-213	Modern Physics I	3
PHYS-222	Electronic Measurements	3
PHYS-275	Sophomore Physics Seminar	1
PHYS-283	Vibrations and Waves	3
	LAS Perspective 2, 3, 4	9
Third Year		
PHYS-214	Modern Physics II	3
PHYS-315	Experiments in Modern Physics	3
PHYS-320	Mathematical Methods in Physics	3
PHYS-330	Classical Mechanics	4
PHYS-316	Advanced Laboratory in Physics	3
PHYS-411	Electricity and Magnetism	4
PHYS-450	Capstone Preparation	1
	Physics Elective‡	3
	LAS Immersion 1, 2	6

COURSE		SEMESTER CREDIT HOURS
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)	3
	Physics Electives‡	6
	Open Electives	6
	LAS Immersion 3	3
	LAS Elective	3
Total Semester Credit Hours		**124**

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 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.

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.

Physics, BS degree/Materials science and engineering, MS degree, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
Choose one of the following:		8
CHMG-141, 142, 145, 146	LAS Perspective 5: General and Analytical Chemistry I, II and Labs§	
BIOL-101, 102, 103, 104	LAS Perspective 5: General Biology I, II and Labs§	
MATH-181	LAS Perspective 7A: Project-based Calculus I	4
PHYS-150	Introduction to Special Relativity	3
	First Year LAS Elective	3
	LAS Perspective 1	3
MATH-182	LAS Perspective 7B: Project-based Calculus II	4
PHYS-216	University Physics I: Physics Majors	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-219	Multivariable Calculus	3
PHYS-217	University Physics II: Physics Majors	4
PHYS-225	Introduction to Computational Physics and Programming	3
MATH-231	Differential Equations	3
PHYS-213	Modern Physics I	3
PHYS-222	Electronic Measurements	3
PHYS-275	Sophomore Physics Seminar	1
PHYS-283	Vibrations and Waves	3
	LAS Perspective 2, 3, 4	9
Third Year		
PHYS-214	Modern Physics II	3
PHYS-315	Experiments in Modern Physics	3
PHYS-320	Mathematical Methods in Physics	3
PHYS-330	Classical Mechanics	4
PHYS-316	Advanced Laboratory in Physics	3
PHYS-411	Electricity and Magnetism	4
	Physics Elective‡	3
	Open Elective	3
	LAS Immersion 1, 2	6
Fourth Year		
PHYS-414	Quantum Mechanics	3
PHYS-440	Thermal and Statistical Physics	3
MTSE-601	Materials Science	3
	Materials Science Elective	3
	Physics Electives‡	6
MTSE-705	Experimental Techniques	3
	Open Elective	3
	LAS Elective	3
	LAS Immersion 3	3
Fifth Year		
MTSE-704	Theoretical Methods in Materials Science and Engineering	3
	Materials Science Electives	9
MTSE-790	Research and Thesis	9
	Open Elective	3
Total Semester Credit Hours		**150**

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 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, 142, 145, 146	LAS Perspective 5: General and Analytical Chemistry I, II and Labs§	
BIOL-101, 102, 103, 104	LAS Perspective 5: General Biology I, II and Labs§	
MATH-181	LAS Perspective 7A: Project-based Calculus I	4
PHYS-150	Introduction to Special Relativity	3
	First Year LAS Elective	3
	LAS Perspective 1	3
MATH-182	LAS Perspective 7B: Project-based Calculus II	4
PHYS-216	University Physics I: Physics Majors	4
	First Year Writing Seminar	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-219	Multivariable Calculus	3
PHYS-212	University Physics II	4
PHYS-225	Introduction to Computational Physics and Programming	3
MATH-231	Differential Equations	3
PHYS-213	Modern Physics I	3
PHYS-222	Electronic Measurements	3
PHYS-275	Sophomore Physics Seminar	1
PHYS-283	Vibrations and Waves	3
	LAS Perspective 2, 3, 4	9
Third Year		
PHYS-214	Modern Physics II	3
PHYS-315	Experiments in Modern Physics	3
PHYS-320	Mathematical Methods in Physics	3
PHYS-330	Classical Mechanics	4
PHYS-316	Advanced Laboratory in Physics	3
PHYS-411	Electricity and Magnetism	4
PHYS-450	Capstone Preparation	1
	Program Elective	3
	LAS Immersion 1, 2	6
Fourth Year		
PHYS-414	Quantum Mechanics	3
PHYS-440	Thermal and Statistical Physics	3
PHYS-451, 452	Capstone Project I, II	6
PUBL-701	Graduate Policy Analysis	3
PUBL-702	Graduate Decision Analysis	3
STSO-710	Graduate Science, Technology, and Public Policy	3
	Public Policy Electives	6
	Physics Elective‡	3
Fifth Year		
PUBL-700	Readings in Public Policy	3
PUBL-703	Evaluation and Research Design	3
	Physics Elective‡	3
	Open Elective	3
	LAS Elective	3
	LAS Immersion 3	3
	Public Policy Elective	3
PUBL-790	Thesis Research	6
Total Semester Credit Hours		**151**

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 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, 142, 145, 146	LAS Perspective 5: General and Analytical Chemistry I, II and Labs§	
BIOL-101, 102, 103, 104	LAS Perspective 5: General Biology I, II and Labs§	
MATH-181	LAS Perspective 7A: Project-based Calculus I	4
PHYS-150	Introduction to Special Relativity	3
	First Year LAS Elective	3
	LAS Perspective 1	3
MATH-182	LAS Perspective 7B: Project-based Calculus II	4
PHYS-216	University Physics I: Physics Majors	4
	First Year Writing Seminar (WI)	3
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Second Year		
MATH-219	Multivariable Calculus	3
PHYS-217	University Physics II: Physics Majors	4
PHYS-225	Introduction to Computational Physics and Programming	3
MATH-231	Differential Equations	3
PHYS-213	Modern Physics I	3
PHYS-222	Electronic Measurements	3
PHYS-275	Sophomore Physics Seminar	1
PHYS-283	Vibrations and Waves	3
PHYS-220	University Astronomy	3
	LAS Perspective 2, 3	6
Third Year		
PHYS-214	Modern Physics II	3
PHYS-315	Experiments in Modern Physics	3
PHYS-320	Mathematical Methods in Physics	3
PHYS-330	Classical Mechanics	4
PHYS-316	Advanced Laboratory in Physics	3
PHYS-411	Electricity and Magnetism	4
PHYS-374	Introduction to Astrophysics	1
	Computational Physics Elective‡	3
	LAS Perspective 4	3
	LAS Immersion 1, 2	6
Fourth Year		
PHYS-414	Quantum Mechanics	3
PHYS-440	Thermal and Statistical Physics	3
ASTP-613	Astronomical Observational Techniques and Instrumentation	3
ASTP-601, 602	Graduate Seminar I, II	2
	AST Graduate Courses	6
Choose one of the following:		3
ASTP-610	Mathematical Methods for the Astrophysical Sciences	
ASTP-611	Statistical Methods for Astrophysics	
	LAS Immersion 3	3
	LAS Elective	3
	Open Elective	6
Fifth Year		
ASTP-617	Astrophysical Dynamics	3
ASTP-615	Radiative Processes for Astrophysical Sciences	3
	AST Graduate Courses	6
ASTP-790	Research and Thesis	6
Total Semester Credit Hours		**153**

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 Wellness courses.
‡ Please see academic adviser for a list of computational 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.

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Emmett Ientilucci, BS, MS, Ph.D., Rochester Institute of Technology—Associate Research Professor

Christopher Kanan, BS, Oklahoma State University; MS, University of Southern California, Ph.D., University of California—Assistant Professor

Joel H. Kastner, BS, University of Maryland; MS, Ph.D., University of California—Professor

John P. Kerekes, BS, MS, Ph.D., Purdue University—Professor

David W. Messinger, BS, Clarkson University; Ph.D., Rensselaer Polytechnic Institute—Director and Professor

Zoran Ninkov, BS, University of Western Australia (Australia); M.Sc., Monash University (Australia); Ph.D., University of British Columbia (Canada)—Professor

Jeff Pelz, BFA, MS, Rochester Institute of Technology; Ph.D., University of Rochester—Professor

Joe Pow, BS, MS, University of Rochester; MS, Air Force Institute of Technology—Associate Director

Jie Qiao, BS, University of Science and Technology Liaoning (China); MS, Tsinghua University (China); MBA, University of Rochester; Ph.D., University of Texas at Austin—Associate Professor

Carl Salvaggio, BS, MS, Rochester Institute of Technology; Ph.D., State University of New York College of Environmental Science and Forestry—Professor

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: Roy S. Berns

Frederick and Anna B. Wiedman Professorship

Established: 1985

Donor: Frederick Wiedman Jr.

Purpose: To support a truely 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 truely 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

Academic Affairs

rit.edu/academicaffairs

Neil Hair, Executive Director, Innovative Learning Institute
rit.edu/ili

James C. Hall, Executive Director, School of Individualized Study
rit.edu/sois

Marty Burris, Director, University Exploration
rit.edu/universityexploration

Danielle T. Smith, Director, University Honors Program
rit.edu/honors

David Martins, Director, University Writing Program
rit.edu/writing

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Innovative Learning Institute

rit.edu/ili
Neil Hair, Interim Executive Director
(585) 475-6322, nfhbbu@rit.edu

The Innovative Learning Institute supports systematic experimentation with and adoption of emerging modes and models of teaching and learning, including technology-enhanced and online course formats. ILI strives to provide students with a meaningful, effective, and success-oriented learning experience; to serve as a focal point for research, experimentation, application, and assessment of innovative pedagogy; to formalize and enlarge the scope of experimentation with online and other modes of teaching and learning; and to foster a network of expertise, scholarly work, and innovation in teaching and learning throughout RIT and the world.

ILI is comprised of two entities–RIT Online and the Teaching and Learning Services–and provides:

- A nexus of research and timely experimentation with emerging teaching and learning technologies and practices for RIT faculty.
- Faculty support services for course design and delivery, including academic technology and classroom equipment usage.
- Market research and student recruitment support for online programs, as well as a robust virtual campus experience for online.

RIT Online

rit.edu/ritonline
(585) 475-2229 (V/TTY)

RIT Online builds programs around industry standards, employer demand, and the perspectives of our global network. Degree programs offered online are of the same high quality as those offered on campus. Online courses meet the same rigorous objectives set for traditional classroom experiences, and faculty who teach online courses often teach the same class in a traditional format. A degree achieved through online study is the same as the one received by those who study on campus. There is no distinction between degree earned online versus those earned on campus.

Online learning is convenient and makes it possible to balance work, family, and school. Students can study and take classes anywhere there's an Internet connection, at times that are convenient and flexible.

Resources and support

All of the functions of a traditional university are available online, including admission, financial aid services, course registration, tuition payment, career advisement, a comprehensive library, and a bookstore. Online students also have access to the RIT Virtual Campus where they can network with faculty and fellow online students, obtain technical support, access resources, view RIT videos, and share their experiences directly with staff from RIT Online.

RIT is dedicated to helping students experience a high level of support to ensure academic success. Online students have full access to a comprehensive array of services including orientation, the RIT Virtual Campus, proctored exam assistance, an academic adviser, and a support desk available to answer general and technical questions via e-mail, IM, or phone.

Learning online

Online classes are just as demanding as their bricks-and-mortar counterparts. Each online course is set up by the professor and is designed to satisfy and accomplish the goals of that course. However, online learning takes more self-discipline, excellent time management skills, and a dedication to succeed. The online environment offers flexibility to fit around work and family schedules, but this convenience must be offset with rigorous study skills. Without a physical campus environment, many students find they need strong independent study and learning habits.

Most online courses establish either a weekly schedule for learning activities or a project-based learning approach where deliverables demonstrate that certain learning outcomes are accomplished. Students interact online with other students and instructors to exchange ideas and

collaborate much like they would in traditional on-campus courses. Each professor decides which learning outcomes are necessary for a particular course and how those outcomes are assessed (for example, if a professor decides to assess students using an exam, they may choose to use an online exam or a proctored exam). Other course activities may include readings from a textbook or electronic reserves from the RIT's library, watching streaming video, participating in an online discussion, or submitting written assignments or projects to the online dropbox.

Online programs and courses
RIT offers numerous degrees, certificate programs, and courses in an online format. For more information, please visit the RIT Online website.

Teaching and Learning Services

rit.edu/tls

Teaching and Learning Services promotes and supports student learning through faculty development and by collaborating with faculty. TLS partners with faculty to enrich their on-campus, blended, and online classes through instructional design, effective support of academic technologies, and media and individual consulting and coaching.

School of Individualized Study

rit.edu/sois
James C. Hall, Executive Director
(585) 475-2234, jchcms@rit.edu

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.

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 advisers are available throughout the year to answer 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.

Faculty
The school utilizes full- and part-time faculty members who guide students through individual advising. Faculty members and academic advisers assist students in course selection and planning, and offer advice on career exploration and student development.

Assessment of prior learning and experiential learning
Students with substantial work experience in a specific field may petition to receive academic credit for their life experience. Their adviser will assist them in identifying and preparing the appropriate documentation to prove that their experience is at least equivalent to the breadth and depth of a college-level course. These materials, presented as portfolios of prior learning experience, are reviewed by faculty members within the school. Students can also discuss experiential learning opportunities with an adviser.

Military experience
Students who have previously served in the armed forces and participated in any number of training programs may be eligible to receive credit for their responsibilities through the American Council of Education (ACE). Students should contact Veterans Enrollment Services at (585) 475-6641 or mskecr@rit.edu for an evaluation and recommendation of college credit for their military experience. RIT also is an institutional member of the Servicemembers Opportunity Colleges (SOC), which is a consortium of more than 1,500 colleges and universities that provide educational opportunities for service members and their families. SOC is funded by the Department of Defense and managed by the Defense Activity for Non-Traditional Education Support (DANTES).

Cooperative education
While cooperative education and/or an internship experience are not required for the BS in applied arts and science degree, they are encouraged. Cooperative education gives students the opportunity to apply classroom-based knowledge to real world situations, where they gain experience working on and solving problems in industry.

Advising
The school's faculty and academic advisers are experienced and trained across academic disciplines. They help match educational and career goals with an appropriate program of study. With an adviser's help, each program begins by taking into account what the student already knows and has accomplished. For example, college credits earned at RIT or other accredited institutions are reviewed to see how they might be applied to the program of study; professional certifications and experiences are evaluated for the possibility of receiving credit; and credits may be earned (by examination, portfolio reviews, or other documentation) for college-level learning that was gained on the job or through other educational experiences.

Special opportunities
Graduate study: SOIS offers an MS degree in professional studies and an advanced certificate in project management. Please refer to the *Graduate Bulletin* or the school's website for more information.

Online learning: The school offers a variety of courses through online learning. Students have the option of completing the diploma, AAS, and BS degrees online. This option allows students flexibility in completing their courses while maintaining a class atmosphere through online discussions via chat/e-mail conferencing. Online learning courses use textbook readings, assignments, and exams to deliver course work. Students have access to instructors by e-mail, computer, telephone, or individual appointments.

Applied Arts and Sciences, BS

www.rit.edu/sois
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 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 majors, or who want to prepare themselves for a career that requires skills and expertise from several disciplines.

Plan of study

The applied arts and sciences program is available as a bachelor of science program, an associate of applied science program, or a 24 credit hour diploma program.

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.

Applied Arts and Sciences, AAS

www.rit.edu/sois
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: 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.

Applied Arts and Sciences, Diploma

www.rit.edu/sois
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.

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 teams, individuals understand and obtain the skills necessary to proactively manage change.

Curriculum

Organizational change and leadership, certificate, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
CMDS-205	Practicing and Assessing Leadership	3
CMDS-335	Global Forces and Trends	3
CMDS-233	Teams and Team Development	3
CMDS-431	Understanding Corporate Culture	3
Second Year		
CMDS-432	Managing Organizational Change	3
CMDS-442	Learning Organization	3
Total Semester Credit Hours		**18**

Quality Management, Certificate

School of Individualized Study Advising Team
(585) 475-2234, sois@rit.edu

Program overview

Poor quality in manufacturing and service can cost companies as much as 20 percent of revenue in rework, scrap, brand switching, and loss of goodwill. Organizations have begun to understand that prevention saves more time and money than the discovery of flaws after the fact.

The school's management-oriented certificate program focuses on quality as a priority. Developed in cooperation with industry, the courses can help students develop a total quality management environment to combine the theory and practice of statistical quality control with leadership, teamwork, and problem-solving concepts and skills.

The certificate in quality management teaches the nuts and bolts of a quality organization, prepares students to introduce quality concepts to their organization, and teaches how to put quality principles to work. The certificate can prepare students to work as quality trainers, facilitators, team leaders, or managers at various levels of an organization.

Curriculum

Quality management, certificate, typical course sequence

COURSE		SEMESTER CREDIT HOURS
QLTM-310	Introduction to Quality	3
QLTM-340	Quality Data Analysis	3
QLTM-410	Introduction to Lean Six Sigma	3
Choose one of the following:		3
QLTM-420	Statistical Quality Tools	
QLTM-430	Management for Quality	
Total Semester Credit Hours		**12**

University Exploration Program

rit.edu/universityexploration

Marty Burris, Director
(585) 475-4027, marty.burris@rit.edu

If students have interests that span two or more of our colleges, the broadest and most flexible option, University Exploration, allows students up to a year to explore and focus their academic and career interests. University Exploration students are assigned an experienced adviser who will help them through the process of identifying a suitable program of study. In addition to helping to select courses, advisers provide encouragement and guidance throughout the career decision process.

Admission requirements

For 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.

Faculty

University Exploration utilizes part-time faculty members with backgrounds in career development to teach a one-credit hour Career Exploration Seminar (ITDL-101) course to guide students through the career exploration process. Additionally, full-time academic advisers assist students in course selection and planning, and offer further advice on majors and career options.

University Exploration, Undeclared

http://www.rit.edu/universityexploration

Program overview

In university exploration, students take math, science, and general education courses that satisfy requirements for most majors within RIT. Additionally, students are able to sample introductory courses from the university's nine colleges. Each semester, advisers develop a schedule with each individual student to target his or her unique interests, values, and skills. The goal is to help students make the most informed decision about a major and a career.

Curriculum

University exploration, typical course sequence

COURSE		SEMESTER CREDIT HOURS
First Year		
ITDL-101	Career Exploration Seminar	1
	First Year Writing Seminar	3
	LAS Perspectives 1, 2, 3, 4, 5, 6, 7A, 7B	24
	Major Exploration Courses†	6
ACSC-010	Year One: College Experience	0
	Wellness Education*	0
Total Semester Credit Hours		**28**

Please see New 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 Wellness course.
† Please see an academic adviser to select sample courses in your majors of interest.

University Honors Program

rit.edu/honors
Danielle Smith, Director
(585) 475-4511, dtsgla@rit.edu

The RIT University Honors Program provides a supportive and encouraging environment for high achieving students with academic distinction. Students benefit by working closely with faculty, and by sharing academic experiences with other Honors students, both in and out of the classroom. Honors activities and courses enhance the professional dimension of the student's collegiate experience. Major components of the Honors Program include professional development opportunities within the student's home college, enhanced general education courses, and complementary learning experiences. Special features include:

- An Honors curriculum of special courses, seminars, projects, and advising.
- Research and experiential learning.
- Honors advising with the students home college.
- Leadership and service opportunities with Honors Council.
- Residence in Honors housing increases studying, social, and community interactions among Honors students.

University Writing Program

rit.edu/writing
David Martins, Director
(585) 475-6376, dsmgla@rit.edu

The University Writing Program supports and advances writing excellence throughout RIT's programs, colleges, and global locations. Comprised of three interrelated units (Writing Across the Curriculum, First Year Writing, and the University Writing Commons) the program:

- provides writing support to all RIT students, regardless of location, year level, or major
- provides support for writing instruction to any RIT faculty member
- coordinates and helps develop writing resources across campus
- produces evidence of students' achievement of writing-related student learning outcomes
- cultivates high-quality environments for practicing, teaching, and researching writing.

Innovative Learning Institute

Neil Hair, BS, University of Wales (United Kingdom); MS, Sheffield Hallam University (United Kingdom); Ph.D., Cranfield University (United Kingdom)—Interim Executive Director

Donna Dickson—Director, ILI Faculty Services and Teaching & Learning Studio

Therese Hannigan, BFA, MFA, Rochester Institute of Technology—Interim Director, ILI and RIT Online

School of Individualized Study

Peter Boyd, BA, Nazareth College; MA, Columbia University—Graduate Program Coordinator

Katie Bush, BS, State University College at Brockport; MS, Rochester Institute of Technology—Visiting Lecturer

James Hall, BA, MA, Wilfrid Laurier University (Canada); MTS, Waterloo Lutheran Seminary (Canada); MA, Ph.D., University of Iowa—Executive Director, Professor

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

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

University Writing Program

David S. Martins, BA, St. Olaf College; MA, Northern Arizona University; Ph.D., Michigan Technological University—Director; Associate Professor

Rachel Chaffee, BA, Roberts Wesleyan College; MA, State University College at Brockport—Director, University Writing Commons

Dianna Winslow, BA, MA, California State University, Chico; Ph.D., Syracuse University—Director, First Year Writing; Assistant Professor

Collette Caton, BA, St. Edward's University; MA, Texas State University—Lecturer

Amy Wrobel Jamieson, BA, State University College at Geneseo; MA, Niagara University—Lecturer

Gail Hosking, BA, Alfred University; MS, Iowa State University; MFA, Bennington College—Lecturer

Andrew Perry, BA, State University College at Oswego; MA, State University College at Brockport—Senior Lecturer

Phil Shaw, BA, MA, University of Denver—Lecturer

Thomas M. Stone, BA, Northern Arizona University; MA, Bucknell University; Ph.D., University of Rochester—Lecturer

Paulette M. Swartzfager, BA, St. Mary's Dominican College; MA, Louisiana State University—Lecturer

Minors

rit.edu/minors

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.

Accounting

Peter Rosenthal, Minor Adviser
(585) 475-7063, prosenthal@saunders.rit.edu

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. This minor is closed to students majoring in accounting.

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-440	Advanced Taxation
ACCT-445	Accounting Information Systems
ACCT-450	Accounting for Government and Not-for-profit Organizations
ACCT-460	Forensic Accounting and Fraud Examination
ACCT-489	Seminar in Accounting
ACCT-490	Auditing
ACCT-510	Internal Auditing
ACCT-540	Advanced Accounting
BLEG-200	Business Law I†
FINC-120	Personal Financial Management†
FINC-220	Financial Management†
MGMT-340	Business Ethics and Corporate Social Responsibility†

* These courses are recommended for students interested in pursuing CPA certification.
† Students may choose one of these courses as a substitute for an accounting elective.

Advertising and Public Relations

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

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. This minor is closed to students majoring in advertising and public relations or communication.

COURSE	
Required Courses	
COMM-211	Principles of Advertising
COMM-212	Public Relations
Electives	
*Choose three of the following:**	
COMM-202	Mass Communications
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

* At least two courses must be at the 300 level or higher
† This course has two pre-requisites: Principles of Advertising (COMM-211) and Public Relations (COMM-212).

American Arts

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.

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, and Monuments
FNRT-383	Traumatic Images
FNRT-384	Art of Dying
Performing arts	
FNRT-201	Music in the U.S.
FNRT-203	American Popular and Rock Music
FNRT-322	Survey of Jazz
FNRT-323	Survey of African-American Music
FNRT-324	Sounds of Protest
FNRT-325	American Popular Song
FNRT-327	American Musical Theatre
Literature	
ENGL-411	Topics in American Literature
ENGL-412	American Studies
ENGL-413	African-American Literature

* Students must take at least one course in each of the three disciplines.

American Politics

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

The purpose of the American politics minor is to 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. This minor is closed to students majoring in political science.

COURSE	
Required Courses	
POLS-110	American Politics
Electives	
*Choose four of the following:**	
POLS-115	Ethical Debates in American Politics
POLS-200	Law and Society
POLS-250	State and Local Politics
POLS-290	Politics and the Life Sciences
POLS-295	Cyberpolitics
POLS-300	Rhetoric and Political Development
POLS-305	Political Parties and Voting
POLS-310	The Congress
POLS-315	The American Presidency
POLS-320	American Foreign Policy
POLS-345	Politics and Public Policy
POLS-355	Political Leadership
POLS-415	Evolution and Law
POLS-420	Primate Politics
POLS-425	Constitutional Law
POLS-430	Constitutional Rights and Liberties
POLS-435	American Political Thought
POLS-460	Classical Constitutionalism, Liberty, and Equality
POLS-465	Modern Constitutionalism, Liberty, and Equality
POLS-480	Women in Politics
POLS-485	Politics Through Fiction
POLS-490	Politics Through Film

* At least two courses must be at the 300 level or higher.

American Sign Language and Deaf Cultural Studies

Sandra Bradley, Minor Adviser
(585) 286-5149, spbnss@ntid.rit.edu
Patti Durr, Minor Adviser
(585) 475-6250, paddhd@rit.edu

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.

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 one of the following:	
MLAS-351	Linguistics of American Sign Language
MLAS-352	American Sign Language Literature
Electives*	
Choose three or four 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:	
CMDS-334	Oppression in the Lives of Deaf People
ENGL-343	Global Deaf Literature
ENGL-417	Deaf Literature
FNRT-440	Deaf Art and Cinema
HIST-230	American Deaf History
HIST-231	Deaf People in Global Perspective
HIST-330	Deaf People and Technology
HIST-333	Diversity in the Deaf Community
HIST-335	Women and the Deaf Community
HIST-430	Deaf Spaces
HIST-431	Theory and Methods of Deaf Geographics
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

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. This minor is closed to students majoring in sociology and anthropology.

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 Foundations of 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: Linguistic Anthropology
ANTH-225	Globalizing Africa
ANTH-230	Archaeology and Cultural Imagination
ANTH-235	Immigration to the U.S.
ANTH-245	Ritual and Performance
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-275	Global Islam
ANTH-280	Sustainable Development
ANTH-285	American Indian Languages
ANTH-290	Language and Sexuality
ANTH-301	Social and Cultural Theory
ANTH-302	Qualitative Research
ANTH-303	Quantitative Research
ANTH-305	Comparative and Historical Linguistics
ANTH-310	African Film and Popular Culture
ANTH-312	People Before Cities
ANTH-315	The Archaeology of Cities
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-345	Genocide and Post-Conflict Justice
ANTH-350	The Global Economy and the Grassroots
ANTH-360	Humans and Their Environment
ANTH-361	Transforming People into Numbers
ANTH-365	Culture and Politics in the Middle East
ANTH-370	Media and Globalization
ANTH-375	Native American Cultural Resources and Rights
ANTH-380	Nationalism and Identity
ANTH-385	Anthropology and History
ANTH-390	Marxist Perspectives
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-451	Economics of Women and the Family
ANTH-455	Economics of Native America
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-245	Gender and Health
SOCI-250	Globalization and Security
SOCI-255	Disaster, Public Health Crises, and Global Responses
SOCI-301	Social and Cultural Theory
SOCI-302	Qualitative Research
SOCI-303	Quantitative Research
SOCI-310	Housing Policies in the U.S.
SOCI-315	Global Exiles of War and Terror
SOCI-322	Society, Environment, and Health
SOCI-330	Urban (In)Justice
SOCI-331	Honors Sociology of Human Rights
SOCI-340	Urban Planning and Policy
SOCI-345	Urban Poverty
SOCI-350	Social Change
SOCI-355	Cyber Activism: Diversity, Sex and the Internet
SOCI-360	Transforming People into Numbers
SOCI-390	Marxist Perspectives
SOCI-451	Economics of Women and the Family
INGS-201	Histories of Globalization
INGS-210	Culture and Politics in Urban Africa
INGS-270	Cuisine, Culture and Power
INGS-310	Global Slavery and Human Trafficking
INGS-451	Economics of Women and the Family
INGS-455	Economics of Native America

* At least two courses must be at the 300 level or higher.

Applied Statistics

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The statistics minor provides an opportunity for students to deepen their technical background and gain further appreciation for modern mathematical sciences and the use of statistics as an analytical tool. The minor is closed to students majoring in applied statistics and actuarial science.

COURSE	
Prerequisites	
MATH-181	Project-based Calculus I
MATH-182	Project-based Calculus II
Electives	
Choose five of the following:	
MATH-251	Probability and Statistics I
MATH-252	Probability and Statistics II
MATH-401	Stochastic Processes
STAT-205	Applied Statistics
STAT-252	Probability and Statistics for Engineers II
STAT-305	Introduction to Regression Analysis
STAT-315	Statistical Quality Control
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-415	Statistical Sampling
STAT-425	Multivariate Analysis
STAT-435	Statistical Linear Models

Archaeological Science

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

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. This minor is closed to students majoring in sociology and anthropology who have chosen the archaeology or cultural anthropology tracks.

COURSE	
Required Courses	
ANTH-415	Archaeological Science
Electives	
*Choose four of the following:**	
Disciplinary	
ANTH-103	Archaeology and the Human Past
ANTH-230	Archaeology and Cultural Imagination
ANTH-250	Themes in Archaeological Research
ANTH-255	Regional Archaeology
ANTH-312	People Before Cities
ANTH-315	Archaeology of Cities
ANTH-328	Heritage and Tourism
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	Archaeology of Death

* At least one course must be selected from each group and at least one course must be 300-level or higher.

Art History

Sarah Thompson, Minor Adviser
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In the art history minor students 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.

COURSE	
Prerequisites	
ARTH-135	Survey of Western Art and Architecture: Ancient to Medieval
ARTH-136	Survey of Western Art and Architecture: Renaissance to Modern
Electives	
Choose five of the following:	
ARTH-221	Contemporary Design Issues
ARTH-311	Art 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-345	History of Architecture, Interiors, and Furniture I
ARTH-346	History of Architecture, Interiors, and Furniture II
ARTH-364	Art in Paris: Monuments, Museums, Modernity
ARTH-366	18th and 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-457	Art and Activism
ARTH-392	Theory and Criticism of 20th Century Art
ARTH-521	The Image
ARTH-541	Art and Architecture of Ancient Rome
ARTH-544	Illuminated Manuscripts
ARTH-550	Topics in Art History
ARTH-554	Late Medieval Art
ARTH-558	The Gothic Revival
ARTH-561	Latin American Art
ARTH-563	Modern Architecture
ARTH-566	Early Medieval Art
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
ARTH-577	Displaying Gender
ARTH-578	Edvard Munch
ARTH-581	Realism and the Avant-Garde in Russian Art
ARTH-582	Medieval Craft
ARTH-583	Installation Art
ARTH-584	Scandinavian Modernism
ARTH-586	History of Things: Studies in Material Culture
ARTH-587	The Gothic Cathedral
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 Graphic Design
GRDE-326	20th Century Editorial Design History
IDDE-221	History of Industrial Design
IDDE-223	History of Modern Furniture
PHAR-211	History and Aesthetics of Photography I
PHAR-212	History and Aesthetics of Photography II
PHIL-303	Philosophy of Art and Aesthetics
PHIL-313	Philosophy of Film
PHIL-314	Philosophy of Vision

Astronomy

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Astronomy is an interdisciplinary minor offered jointly by the School of Physics and Astronomy and the Chester F. Carlson Center for Imaging Science. Students have 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.

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 Courses	
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:	
PHYS-373	Observational Astronomy
IMGS-461	Multi-wavelength Astronomical Imaging
IMGS-528	Design and Fabrication of a Solid State Camera
Electives	
Choose two of the following:	
PHYS-370	Stellar Astrophysics
PHYS-371	Galactic Astrophysics
PHYS-372	Extragalactic Astrophysics and Cosmology
PHYS-373	Observational Astronomy
IMGS-461	Multi-wavelength Astronomical Imaging
IMGS-528	Design and Fabrication of a Solid State Camera
IMGS-361	Image Processing and Computer Vision I
IMGS-362	Image Processing and Computer Vision II
IMGS-451	Imaging Detectors
PHYS-493	Astrophysics Research

Bioinformatics Analysis

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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. This minor is closed to students majoring in bioinformatics.

COURSE	
Required Courses	
BIOL-130	Introduction to Bioinformatics
BIOL-330	Bioinformatics
BIOL-425	Ethics in Bioinformatics
Electives	
Choose two of the following	
BIOL-230	Bioinformatics Languages
BIOL-430	Bioinformatics Algorithms
BIOL-494	Molecular Modeling and Proteomics
BIOL-635	Bioinformatics Seminar

Biology: Cellular and Molecular

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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. This minor is closed to students majoring in biology, biochemistry, bioinformatics, biomedical sciences, and biotechnology and molecular bioscience.

COURSE	
Prerequisites	
Choose one of the following sequences:	
BIOL-101, 102, 103, 104	General Biology I, II and Labs
BIOL-121, 122	Introduction to Biology I, II
Required Course	
BIOL-201	Cellular and 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-305	Plants, Medicine, and Technology
BIOL-306	Food Microbiology
BIOL-307	Microbiology of Wastewater
BIOL-308	Biology of Cancer
BIOL-310	Bioenergy: Microbial Production
BIOL-314	Tissue Culture
BIOL-321	Genetics
BIOL-322	Developmental Biology
BIOL-325	Bioinformatic Analysis of Macromolecules
BIOL-340	Genomics
BIOL-341	Synthetic Biology
BIOL-375	Advanced Immunology
BIOL-380	Bioremediation
BIOL-401	Biological Separations: Principles and Practices
BIOL-403	Principles of Plant Biochemistry and Pathology
BIOL-415	Virology
BIOL-416	Plant Biotechnology
BIOL-418	Plant Molecular Biology
BIOL-420	Bacterial Host Interactions
BIOL-450	Genetic Engineering

* Two courses must be 300-level or above.

Biology: Ecology and Evolution

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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. The minor is closed to students majoring in biology or enrolled in the biology concentration of the environmental science major.

COURSE	
Prerequisites	
Choose one of the following sequences:	
BIOL-101, 102, 103, 104	General Biology I, II and Labs
BIOL-121, 122	Introduction to Biology I, II
Required Course	
Choose 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-290	Vertebrate Evolution
BIOL-293	Evolution and Creationism
BIOL-309	Comparative Vertebrate Anatomy
BIOL-313	Comparative Animal Physiology
BIOL-343	Tropical Ecology
BIOL-365	Population Genetics
BIOL-371	Freshwater Ecology
BIOL-385	Seneca Park Zoo Internship
BIOL-455	Biogeography
BIOL-473	Marine Biology
BIOL-475	Conservation Biology

* Two courses must be at the 300-level or above.

Black Studies

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

The interdisciplinary minor in black studies examines the social construction of racial differences and its 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.

COURSE	
Required Courses	
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: Black Feminist Thought
ENGL-316	Global Literature: Caribbean Literatures
FNRT-304	African-American Playwrights
FNRT-322	Survey of Jazz
FNRT-323	Survey of African-American Music
FNRT-324	Sounds of Protest
FNRT-371	African-American Art
HIST-245	American Slavery and Freedom
INGS-210/HIST-210	Culture and Politics in Urban Africa
INGS-310/HIST-310	Global Slavery and Human Trafficking
MLSP-352	Caribbean Cinema
SOCI-220	Minority Group Relations
SOCI-330	Urban (In)Justice

* Two courses must be at the 300-level or above.

Business Administration

Peter Rosenthal, Minor Adviser
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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. This minor is closed to students majoring in business.

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.

Chemical Engineering Systems Analysis

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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.

COURSE	
Required Courses	
CHME-230	Chemical Process Analysis
CHME-330	Mass Transfer Operations
CHME-340	Reaction Engineering
Electives	
Choose two 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
CHME-350	Multiple Scale Material Science
CHME-421	Interfacial Phenomena
CHMG-201	Introduction to Organic Polymer Technology
CHMP-751	Colloid and Interface Science
MECE-557	Applied Biomaterials
Biomedical	
BIME-200	Introduction to Musculoskeletal Biomechanics
BIME-370	Introduction to Biomaterials Science
MECE-358	Contemporary Issues in Bioengineering
MECE-407	Biomedical Device Engineering
Chemical	
CHME-310	Applied Thermodynamics
CHME-320	Continuum Mechanics I
CHME-421	Interfacial Phenomena
CHME-431	Advanced Separation Processes
Environmental	
ISEE-787	Design for the Environment
MECE-357	Contemporary Issues in Energy and the Environment
Semiconductor Processing	
MCEE-201	IC Technology
MCEE-503	Thin Films
MCEE-505	Lithography Materials and Processes

Chemistry

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Students have the opportunity to complete a minor in chemistry in order to build a secondary area of expertise in support of their major or other areas of interest.

COURSE	
Prerequisites	
CHMG-141	General and Analytical Chemistry I
CHMG-145	Chemical Principles I Laboratory
CHMG-142	General and Analytical Chemistry II
CHMG-146	Chemical Principles II Laboratory
Required Courses	
CHMO-231	Organic Chemistry I
CHMO-235	Organic Chemistry I Lab
CHMO-232	Organic Chemistry II
CHMO-236	Organic Chemistry II Lab
Electives	
*Choose three of the following:**	
CHMO-637	Advanced Organic Chemistry
CHMO-636	Spec. ID of Organic Compounds
CHMO-739	Advanced Physical Organic Chemistry
CHMO-710	Literature Explorations in Organic Synthesis
CHMA-161	Quantitative Analysis
CHMA-165	Analytical Methods Lab
CHMA-261	Instrumental Analysis
CHMA-222	Chemical Separations
CHMA-711	Advanced Instrumental Analysis
CHMA-740	Practical NMR
CHMB-402	Biochemistry I
CHMB-403	Biochemistry II
CHMB-450	Biochemistry of Infectious Diseases
CHMB-610	Advanced Protein Biochemistry
CHMI-351	Inorganic Chemistry I
CHMI-352	Inorganic Chemistry II
CHMP-441	Physical Chemistry I
CHMP-442	Physical Chemistry II
CHMP-752	Molecular Photophysics and Photochemistry
CHMP-753	Computational Chemistry
CHPO-706	Polymer Chemistry I
CHPO-707	Polymer Chemistry II
CHMA-621	Advanced Instrumental Analysis Lab
CHMB-405	Biochemistry Experimental Techniques
CHMI-565	Preparative Inorganic Chemistry Lab
CHMO-535	Advanced Techniques in Organic Synthesis
CHMO-640	Mechanisms of Drug Interactions
CHMP-751	Colloid and Interface Science
CHPO-708	Polymer Synthesis and Characterization Lab

* At least one course must be 400-level or above.

Communication

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

The communication minor offers students 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. This minor is closed to students majoring in communication.

COURSE	
Required Course:	
COMM-101	Human Communication
Electives	
Choose four of the following:	
COMM-201	Public Speaking
COMM-202	Mass Communications
COMM-302	Interpersonal Communication
COMM-303	Small Group Communication
COMM-304	Intercultural Communication
COMM-305	Persuasion
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-442	Professional Writing
COMM-503	Advanced Public Speaking

Computer Engineering

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The computer engineering minor provides students with a foundation in digital systems design, an understanding of computer organization, and an introduction to embedded systems programming. Students build on this core through elective courses in the areas of hardware design, architectures, networks and systems. The minor is closed to students majoring in computer engineering, computer engineering technology, electrical engineering technology or telecommunications engineering technology.

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 Language
CMPE-350	Computer Organization
Electives	
Choose two of the following:	
CMPE-260	Digital System Design II
CMPE-380	Applied Programming
CMPE-460	Interface and Digital Electronics
CMPE-480	Digital Signal Processing
CMPE-530	Digital IC 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 and Embedded Systems
CMPE-664	Modeling of Real-Time Systems
CMPE-665	Performance Engineering of Real-Time and Embedded Systems
CMPE-677	Machine Intelligence
CMPE-685	Computer Vision
CMPE-731	Design and Testing of Multi-Core Chips
CMPE-770	Wireless Networks
CMPE-755	High Performance Architectures

Computer Science

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In the computer science minor students 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. This minor is closed to students majoring in computer science.

COURSE	
Prerequisites	
CSCI-141, 142	Computer Science I, II*
MATH-181, 182	Project-based Calculus I, II†
Choose one of the following:‡	
MATH-190	Discrete Mathematics for Computing
MATH-200	Discrete Mathematics and Introduction to Proof
MATH-131	Discrete Mathematics
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-320	Principles of Data Management
CSCI-331	Introduction to Intelligent Systems
CSCI-344	Programming Language Concepts
CSCI-351	Data Communications and Networks I
CSCI-352	Operating Systems
CSCI-420	Principles of Data Mining
CSCI-431	Introduction to Computer Vision
CSCI-452	System Programming
CSCI-453	Computer Architecture
CSCI-455	Principles of Computer Security
CSCI-462	Introduction to Cryptography
CSCI-464	Xtreme Theory
CSCI-510	Introduction to Computer Graphics
CSCI-519	Seminar in Computer Graphics
CSCI-529	Seminar in Data Management
CSCI-531	Introduction to Security Measurement
CSCI-532	Introduction to Intelligent Security Systems
CSCI-539	Seminar in Intelligent Systems
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

* Students may also fulfill the prerequisite requirement with an equivalent two-course introductory programming sequence.
† Students may also fulfill the prerequisite requirement with an equivalent two-course calculus sequence.
‡ Students may also choose the equivalent of one discrete mathematics course.
§ Courses numbered CSCI-600 or higher may also be selected.

Computing Security

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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.

COURSE	
Required Courses	
CSEC-101	Fundamentals of Computing Security
Plus 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-465	Network and System Security Audits
CSEC-466	Introduction to Malware
CSEC-467	Mobile Device Security and Forensics
CSEC-468	Risk Management for Information Security
CSEC-470	Covert Communications
CSEC-471	Penetration Testing Frameworks and Methodologies
CSEC-472	Authentication and Security Models
CSEC-473	Cyber Defense Techniques
CSEC-474	Unix Based System Forensics
CSEC-475	Windows System Forensics
CSEC-476	Malware Reverse Engineering
CSEC-477	Disaster Recovery Planning
CSCI-455	Principles of Computer Security
CSCI-464	Xtreme Theory
CSCI-531	Introduction to Security Measurement
CSCI-532	Introduction to Intelligent Security Systems
SWEN-331	Engineering Secure Software
SWEN-467	Hardware/Software Co-Design for Cryptographic Applications

Construction Management

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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.

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 and Construction
ESHS-225	Construction Safety

Creative Writing

College of Liberal Arts, Office of Student Services
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The series of courses in the creative writing minor 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. Students choose either five creative writing courses or four creative writing courses and one literature course.

COURSE	
Electives	
Creative writing courses	
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 courses	
ENGL-216	Literature from Around the World
ENGL-275	Storytelling [Genre/Theme]
ENGL-307	Mythology and 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	Special Topics in Literary and 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 and Open Source Culture

Criminal Justice

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

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. This minor is closed to students majoring in criminal justice.

COURSE	
Required Courses	
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 in the Criminal Justice System
CRIM-489	Major Issues in Criminal Justice

Database Design and Development

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The database design and development minor provides 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.

COURSE	
Prerequisites	
Course work in discrete mathematics and a three-course sequence in programming.	
Required Courses	
ISTE-430	Information Requirements Modeling
ISTE-330	Database Connectivity and Access
ISTE-436	Data Management and Access
Plus one of the following:	
ISTE-230	Introduction to Databases and Data Modeling
CSCI-320	Principles of Data Management
Plus one of the following:	
ISTE-432	Database Application Development
ISTE-434	Data Warehousing

Digital Business

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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.

COURSE	
Required Course	
MGIS-360	Building a Web Business
Electives	
Choose four of the following:	
FINC-359	Financing New Ventures
MGIS-320	Database Management Systems
MGMT-360	Digital Entrepreneurship
MKTG-230	Principles of Marketing
MKTG-320	Internet Marketing
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

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 the literary.

COURSE	
Required Course	
ENGL-215	Text and Code
Electives	
Choose four of the following	
ENGL-275	Storytelling: [Genre/Theme]
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 and Open Source Culture

Economics

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

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. This minor is closed to students majoring in economics.

COURSE	
Prerequisite	
Choose one of the following:	
ECON-101	Principles of Microeconomics
ECON-101H	Honors Economics
Required Course	
ECON-201	Principles of Macroeconomics
Electives	
Theory and policy	
Choose two or three of the following:	
ECON-401	Intermediate Microeconomics Theory
ECON-402	Intermediate Macroeconomic Theory
ECON-405	International Trade and Finance
ECON-406	Global Economic Issues
ECON-407	Industrial Organization
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-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 and 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: Economic Applications
ECON-503	Econometrics II

Electrical Engineering

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Electrical engineering encompasses disciplines such as electronics, communication, control, digital systems, and signal/image processing. A minor in electrical engineering provides a foundation to explore specialized material in electrical engineering. The minor provides students from other engineering or non-engineering disciplines an introduction to the wide-ranging content of the electrical engineering major. The minor is closed to students majoring in computer engineering technology, electrical engineering, or electrical engineering technology.

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	Communications Systems

* Additional prerequisites may be required based on the choice of electrical engineering electives.

Engineering Management

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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. This minor is closed to students majoring in industrial engineering.

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	Facilities Planning
ISEE-410	Systems Simulation
ISEE-420	Production Planning and Scheduling
ISEE-460	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

The English minor gives students the opportunity to explore the areas of literature, linguistics, and creative writing. The minor introduces students to texts written in English, acquaint them with a variety of historical periods and geographical regions, create an awareness of methods and theories of analysis, and provide an introduction to critical or creative writing.

COURSE	
Required Courses	
Choose one of the following courses	
ENGL-210	Literature, Culture, and Media
ENGL-216	Literature from Around the World
Electives	
Choose four of the following	
ENGL-275	Storytelling: [Genre/Theme]
ENGL-307	Mythology and Literature
ENGL-308	Shakespeare Drama
ENGL-309	Literary Forms*
ENGL-310	Introduction to Language Science
ENGL-315	Digital Literature
ENGL-316	Global Literature
ENGL-318	Popular Literature
ENGL-320	Genre Fiction†
ENGL-345	History of Madness
ENGL-351	Language Technology
ENGL-370	Evolving English Language
ENGL-373	Media Adaptation
ENGL-386	World Building Workshop
ENGL-389	Digital Creative Writing Workshop
ENGL-390	Creative Writing Workshop‡
ENGL-391	Dangerous Texts
ENGL-410	Film 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.
‡ Creative Writing Workshop (ENGL-390) may be taken up to two times, for six semester credit hours, as long the course topics are different.

Entrepreneurship

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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.

COURSE	
Required Courses	
MGMT-350	Entrepreneurship
Choose one of the following:	
MGMT-470	Applied Entrepreneurship and Commercialization
MGMT-550	Field Experience in Business Consulting (or another approved field experience)
Electives	
Choose three of the following:	
ACCT-110	Financial Accounting
ACCT-210	Management Accounting
ACCT-500	Cost Management in Technical Organizations
FINC-359	Financing New Ventures
MGMT-215	Organizational Behavior
MGMT-360	Digital Entrepreneurship
MKTG-230	Principles of Marketing
MKTG-320	Internet Marketing

Environmental Modeling

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The environmental modeling minor introduces students to the process of spatial modeling as part of a tool set for investigating environmental issues and provides opportunities to apply these skills through advanced course work. Courses are designed to give students a solid foundation of environmental issues and concepts. Central to this minor are the development of geographic information systems (GIS) and remote sensing techniques, problem-solving skills, and an understanding of the multiple stakeholder perspectives often involved with environmental issues.

COURSE	
Required Courses	
ENVS-101	Concepts of Environmental Science
ENVS-250	Applications of Geographic Information Systems
ENVS-450	Advanced Applications of Geographic Information Systems
IMGS-431	Environmental Applications of Remote Sensing
STSO-220	Environment and Society

Environmental Science

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The environmental science minor introduces students to the interdisciplinary nature of environmental issues and concepts and provides opportunities to further investigate these issues through advanced course work. Central to this minor is the development of field, analytical, and problem-solving skills and an understanding of the multiple stakeholder perspectives often involved with environmental issues. This minor is closed to students majoring in environmental science.

COURSE	
Prerequisites	
BIOL-121	Introduction to Biology I
BIOL-122	Introduction to Biology II
BIOL-240	General Ecology
Required Courses	
ENVS-101	Concepts of Environmental Science
ENVS-201	Environmental Workshop
STSO-220	Environment and Society
Electives	
Choose two of the following:	
BIOL-343	Tropical Ecology
BIOL-371	Freshwater Ecology
BIOL-373	Marine Biology
BIOL-475	Conservation Biology
ENVS-301	Environmental Science Field Skills

Environmental Studies

College of Liberal Arts, Office of Student Services
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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.

COURSE	
Required Course	
STSO-510	Seminar in Science, Technology, and Society
Electives	
*Choose four of the following:**	
STSO-120	Introduction to Environmental Studies
STSO-220	Environment and Society
STSO-321	Face of the Land
STSO-325	History of Environmental Science
STSO-326	History of Ecology and Environmentalism
STSO-330	Energy and the Environment
STSO-421	Environmental Policy
STSO-521	Biodiversity
STSO-522	Great Lakes
STSO-550	Sustainable Communities
PUBL-530	Energy Policy
ECON-420	Environmental Economics
ECON-421	Natural Resource Economics
HIST-345	Environmental Disasters
PHIL-308	Environmental Philosophy
SOCI-320	Population and Society

* At least one elective must be at the 300 level or higher.

Ethics

College of Liberal Arts, Office of Student Services
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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. This minor is closed to students majoring in philosophy.

COURSE	
Required Courses	
PHIL-202	Foundations of Moral Philosophy
PHIL-415	Ethical Theory
Electives	
Choose three of the following (at least one course must be in philosophy and at least one course must be outside philosophy)	
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
ISSE-684	Engineering and the Developing World
ISTE-110	Ethics in Computing
MEDS-360	Placebo, Suggestion, Research, and Health
MGMT-340	Business Ethics and Corporate Responsibility
NSSA-221	System 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-316	Bioethics and Society
PHIL-403	Social and Political Philosophy
PUBL-201	Ethics, Values, and Public Policy
SOCI-225	Social Inequality

Exercise Science

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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.

COURSE	
Prerequisites	
Choose one of the following sequences:	
BIOL-101, 102	General Biology I, II
BIOL-121, 122	Introduction to Biology I, II
Electives	
Choose five of the following:	
EXSC-205	Sports Physiology and Life Fitness
EXSC-206	Fitness Prescription
EXSC-207	Exercise for Special Populations
EXSC-280	Strength Training for Performance
EXSC-350	Exercise Physiology
EXSC-410	Kinesiology
EXSC-430	Theory of Athletic Injuries
EXSC-480	Training the High Performance Athlete
MEDS-250	Anatomy and Physiology I
MEDS-251	Anatomy and Physiology II
NUTR-300	Sports Nutrition

Film Studies

College of Liberal Arts, Office of Student Services
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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. This minor is closed to students majoring in film and animation.

COURSE	
Electives	
Choose five of the following:	
ANTH-265	Native Americans in Film
ANTH-430	Visual Anthropology
ENGL-410	Film Studies
ENGL-425	Global Cinemas
FNRT-200	Anime
FNRT-372	American Film of the Studio Era
FNRT-373	American Film Since the Sixties
FNRT-440	Deaf Art and Cinema
HIST-450	Modern Japan in History, Fiction, and Film
HIST-275	Screening the Trenches: The History of World War I through Film
MLFR-351	French Films and Hollywood
MLSP-352	Caribbean Cinema
PHIL-313	Philosophy of Film
POLS-490	Politics Through Film

Finance

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The finance minor helps students create value in any type of business organization. The minor broadens a student's learning experiences and professional opportunities by focusing on corporate finance and investment topics in more depth. This minor is closed to students majoring in finance.

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-359	Financing New Ventures
FINC-361	Financial Institutions and Markets
FINC-362	Intermediate Investments
FINC-420	Finance in a Global Environment
FINC-430	Advanced Corporate Financial Planning
FINC-460	Financial Analysis and Modeling
FINC-470	Introduction to Options and Futures
FINC-489	Seminar in Finance

Flexible Packaging

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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. This minor is closed to student enrolled in the packaging science major.

COURSE	
Required Courses	
MAAT-256	Principles of Printing
MAAT-558	Package Printing
PACK-560	Converting and Flexible Packaging
Electives	
Choose two of the following:	
MAAT-544	Color Management Systems
MAAT-361	Digital Print Process
MAAT-367	Image Processing Workflow
MAAT-368	Gravure and Flexographic Printing
MAAT-376	Lithographic Process
PACK-211	Packaging Metals and Plastics
PACK-430	Packaging Regulations
PACK-530	Packaging Sustainability and the Environment
PACK-550	Packaging Machinery

Free and Open Source Software and Free Culture

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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.

COURSE	
Required Courses	
ENGL-450	Free and Open Source Culture
IGME-582	Humanitarian Free and 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 and Code
ENGL-351	Language Technology
ENGL-361	Technical Writing*
ENGL-481	Introduction to Natural Language Processing
IGME-584	Software Development on Linux Systems*
IGME-585	Project in FOSS Development
ISTE-452	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

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The game design minor is intended for non-computing majors who want to experience the process and underpinnings of world design and game interaction studies, but are just beginning to explore the technology required to produce computational interactivity. This minor is closed to students majoring in any of the computing programs.?

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 and Development I
IGME-320	Game Design and Development II

Game Design and Development

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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. This minor is closed to students majoring in game design and development.

COURSE	
Required Courses	
IGME-202	Interactive Media Development
IGME-209	Data Structures and Algorithms for Games and Simulation I
IGME-220	Game Design and Development I
IGME-309	Data Structures and Algorithms for Games and Simulation II
IGME-320	Game Design and Development II

Geographic Information Systems

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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.

COURSE	
Required Courses	
ISTE-382	Introduction to Geospatial Technologies
ISTE-384	Introduction to Geographic Information Systems
Electives	
GIS development track	
ISTE-386	GIS Programming
ISTE-482	Geospatial Data Analysis
ISTE-484	Thematic Cartography and Geovisualization
GIS analysis track	
ISTE-230	Introduction to Database and Data Modeling
ISTE-482	Geospatial Data Analysis
ISTE-483	Information Science and Technology Research

Global Literatures and Cultures

College of Liberal Arts, Office of Student Services
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The global literatures and cultures minor offers a rich variety of courses for students curious about global literatures and the different forms they take across cultures, from epic poetry to contemporary film. Students examine aspects of globalization and the human condition through multiple cultural lenses, better preparing them for the complex global workplace of the 21st century. Given the diverse, international backgrounds of our faculty, students learn how literary imaginations of all types are transmitted across historical epochs and national boundaries using a range of old and new material technologies.

COURSE	
Required Course	
ENGL-416	Global Literatures
Electives	
Choose four of the following:	
ENGL-391	Special Topics: Dangerous Texts
ENGL-406	Shakespeare: Tragedies
ENGL-407	Shakespeare: Comedies
ENGL-409	Mythology and Literature
ENGL-411	American Literature
ENGL-413	African-American Literature
ENGL-415	British Literature
ENGL-418	Great Authors
ENGL-421	The Graphic Novel
ENGL-461	Latin American Literature
ENGL-470	The Evolving English Language

Globalization

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.

COURSE	
Required Course	
INGS-101	Global Studies
Electives	
*Choose four of the following:**	
ANTH-210	Culture and Globalization
ANTH-220	Language and Culture
ANTH-225	Globalizing Africa
ANTH-235	Immigration to the U.S.
ANTH-270	Cuisine, Culture and Power
ANTH-275	Global Islam
ANTH-330	Cultural Images of War and Terror
ANTH-328	Heritage and Tourism
ANTH-345	Genocide and Post-Conflict Justice
ANTH-350	Global Economy and 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
ECON-406	Global Economic Issues
HIST-480	Global Information Age
INGS-201	Histories of Globalization
INGS-310	Global Slavery and Human Trafficking
MEDS-355	Introduction to Global Health Issues
POLS-220	Global Political Economy
POLS-330	Human Rights in Global Perspective
SOCI-250	Globalization and Security
SOCI-255	Global Public Health Crisis
SOCI-315	Global Exiles of War and Terror
SOCI-355	Cyber Activism

* At least two of the elective courses must be at the 300-level or above.

Health and Culture

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.

COURSE	
Required Course	
SOCI-322	Society, Environment, and Health
Electives	
*Choose four of the following:**	
ANTH-325	Bodies and Culture
ANTH-425	Global Sexualities
ANTH-435	Archaeology of Death
COMM-344	Health Communication
MLSP-353	Trauma and Survival
PHIL-316	Bioethics and Society
PSYC-231	Death and Dying
SOCI-245	Gender and Health
SOCI-255	Disaster, Public Health Crisis, and Global Responses

* At least two of the elective courses must be at the 300-level or above

Health Communication

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

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.

COURSE	
Required Course	
COMM-344	Health Communication
Choose one of the following:	
COMM-322	(Health) Campaign Management and Planning
COMM-361	Reporting in Special Fields: Health
Electives	
Choose three of the following:	
ANTH-325	Bodies and Culture
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-245	Gender and Health
SOCI-320	Population and Society

Health IT

Larry Hill, Minor Adviser
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Medical informatics, also known as health information technology or health IT, is experiencing a period of rapid growth fueled by the federal government's push for universal adoption of electronic health records. The health IT minor teaches students with a computing background how to develop and maintain software systems in the health care field. One year of object-oriented programming and an introductory database course are required prerequisites. Five required courses give students the skills they need to design and develop computing systems for the health care environment.

COURSE	
Prerequisite	
ISTE-120	Computer Problem Solving: Information Domain I*
ISTE-121	Computer Problem Solving: Information Domain II*
ISTE-230	Introduction to Database and Data Modeling
Required Courses	
ISTE-330	Database Connectivity and Access
MEDI-130	Computers in Medicine
MEDI-320	Medical Database Architectures
MEDI-330	The Electronic Health Record
MEDI-430	Medical Application Integration

* Students may fulfill this prerequisite with one year of computer programming in an object-oriented programming language.

History

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

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.

COURSE	
Electives	
*Choose five of the following:**	
HIST-101	Making History
HIST-102	Themes in U.S. History
HIST-103	The City in History
HIST-125	Public History, Public Debate
HIST-160	History of Modern East Asia
HIST-170	Twentieth Century Europe
HIST-180	Information Revolution
HIST-190	American Women's History
HIST-191	History of the Family in the U.S.
HIST-199	Survey of American Military History
HIST-201	Histories of Globalization
HIST-210	Introduction to African Studies
HIST-220	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-260	History of Pre-modern China
HIST-261	History of Modern China

COURSE	
HIST-265	History of Modern Japan
HIST-266	History of Pre-modern 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-290	U.S. History Since 1945
HIST-301	Great Debates in U.S. 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	Doing History in a Digital World
HIST-330	Deaf People and Technology
HIST-335	Women and the Deaf Community
HIST-345	Environmental Disasters
HIST-350	Terrorism, Intelligence, and War
HIST-351	The Vietnam War
HIST-365	Conflict in Modern East Asia
HIST-369	Histories of Christianity
HIST-380	International Business History
HIST-381	Technology in the Modern World
HIST-390	Medicine and Public Health in American History
HIST-421	Hands-on History
HIST-430	Deaf Spaces
HIST-431	Theory and Method 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, Technology, and European Imperialism, 1800-1965
HIST-480	Global Information Age

* At least two courses must be at the 300 level or higher.

Hospitality Management

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Jayne Downes, Minor Adviser
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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.

COURSE	
Required Courses	
HSPT-181	Principles Food Hotel and Tourism Operations
HSPT-281	Service Management in a Global Economy
HSPT-381	Technology in Service Systems
HSPT-383	Assessing and Improving Service Quality
Electives	
Choose one of the following:	
FOOD-223	Food and Beverage Management
HSPT-131	Lodging Operations Management
HSPT-244	Meeting and Event Management

Imaging Science

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Students have the opportunity for additional study in imaging science in order to build a secondary area of expertise in support of their major or other areas of interest.

COURSE	
Electives	
Imaging science	
Choose three of the following:	
SOFA-103	Introduction to Imaging and Video Systems
IMGS-261	Linear and Fourier Methods for Imaging
IMGS-361	Image Processing and Computer Vision I
IMGS-362	Image Processing and Computer Vision II
IMGS-462	Multivariate Statistical Image Processing
IMGS-221	Vision and Psychophysics
IMGS-251	Radiometry
IMGS-321	Geometric Optics
IMGS-322	Physical Optics
IMGS-351	Color Science
IMGS-341	Interactions Between Light and Matter
IMGS-451	Imaging Detectors
IMGS-528	Design and Fabrication of a Solid State Camera
IMGS-539	Principles of Solid State Imaging Array
IMGS-542	Testing of Focal Plane Arrays
Non-imaging science	
Choose two of the following:	
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

Imaging Systems

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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 business management, photo-lab operations, technical support, digital imaging technology, and sales for photography and imaging manufacturers.

COURSE	
Required Courses	
IMSM-301	Imaging Systems
IMSM-302	Color Management Technology
IMSM-303	Imaging Workflows
Electives	
Choose two of the following:	
IMPT-306	e-Sensitometry
IMPT-312	High Speed Photography
IMPT-307	Survey Non-Conventional Imaging Systems
MAAT-256	Principles of Printing
MAAT-206	Print Production
PHFA-361	Retouch and Restore
PHFA-362	The Fine Print Workflow
PHPS-316	Scanning Electron Microscopy
PHPS-315	Web Publishing
PHPS-306	Historic Photographic Processes
PHPS-332	Digital Imaging Processing

Industrial Engineering

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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.

COURSE	
Prerequisites	
MATH-233	Linear Systems and Differential Equations
Choose one of the following:	
STAT-205	Applied Statistics
MATH-252	Probability and Statistics II
Electives	
Choose five of the following:	
ISEE-301	Operations Research
ISEE-323	Facilities Planning
ISEE-330	Ergonomics/Human Factors
ISEE-345	Engineering Economy
ISEE-420	Production Planning and Scheduling
ISEE-510	Systems Simulation
ISEE-560	Applied Statistical Quality Control
ISEE-582	Lean Six Sigma Fundamentals
ISEE-626	Contemporary Production Systems

Innovation

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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.

COURSE	
Required Course	
CMDS-211	Exploring Innovation
CMDS-411	The Practice of Innovation and Invention
CMDS-511	Innovation Lab
Electives	
Choose two of the following:	
CMDS-333	Wicked Problems
CMDS-441	Creative Critical Thinking and Problem Solving
ENGL-419	Literature and Technology
ENGL-450	Free and Open Source Culture
IGME-581	Innovation and Invention
MGMT-330	Design Thinking and Concept Development

International Business

Peter Rosenthal, Minor Adviser
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Students who select the international business minor benefit from learning the global view of worldwide markets and the role of business in these environments.

COURSE	
Required Courses	
INTB-225	Global Business Environment
INTB-310	Regional Business Studies
Electives	
Choose three of the following:	
FINC-420	Finance in the Global Environment
MKTG-230	Principles of Marketing
INTB-300	Cross-Cultural Management
INTB-320	Global Marketing
INTB-489	Seminar in International Business
INTB-550	Global Entry and Competition Strategies

International Relations

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

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. This minor is closed to students majoring in political science.

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	Technology, Ethics, and Global Politics
POLS-220	Global Political Economy
POLS-285	Environmental Ethics and Political Ecology
POLS-315	International Law and Organizations
POLS-320	American Foreign Policy
POLS-330	Human Rights in Global Perspective
POLS-335	Politics of Developing Countries
POLS-350	Government and Politics of East Asia
POLS-360	International Political Thought
POLS-370	Cyberwar, Robots, and the Future of Conflict
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

* At least two courses must be at the 300 level or higher.

Journalism

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

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. This minor is closed to students majoring in journalism.

COURSE	
Required Courses	
COMM-271	Introduction to Journalism
Electives	
*Choose four of the following:**	
COMM-261	History of Journalism
COMM-263	Computer-Assisted Reporting
COMM-272	Reporting and Writing I
COMM-273	Reporting and Writing II
COMM-274	News Editing
COMM-361	Reporting in Specialized Fields
COMM-362	Law and Ethics of the Press
COMM-442	Professional Writing
COMM-461	Multi-platform Journalism

* At least two courses must be at the 300 level or higher

Language Science

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

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.

COURSE	
Required Courses	
ENGL-310	Introduction to Language Science
Plus one of the following:	
ANTH-220	Language and Culture
ENGL-351	Language Technology
MLCU-301	Psycholinguistics
Electives*	
Choose three of the following:	
	A beginning ASL or foreign language course
ANTH-220	Language and Culture
ANTH-285	American Indian Languages
ANTH-290	Language, Sex and Sexuality
ANTH-305	Investigating Language Change
ENGL-351	Language Technology
ENGL-370	Evolving English Language
ENGL-482	Science and Analytics of Speech
ENGL-581	Introduction to Natural Language Processing
ENGL-582	Seminar in Computational Linguistics
ENGL-584	Spoken Language Processing
MLAS-596	Linguistics of American Sign Language
MLCU-301	Psycholinguistics
MLJP-351	Languages in Japanese Society
MLJP-451	Structure of the Japanese Language
MLST-499	Special Topics: Modern Language
PHIL-414	Philosophy of Language
PSYC-331	Language and Thought

* Students may also use special topic courses or independent study, if approved by the minor adviser.

Latino/Latina/Latin American Studies

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

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. This minor is closed to students majoring in international and global studies who have chosen to focus on the Spanish or Portuguese languages or on Latin America as a regional focus.

COURSE	
Electives	
Culture Courses	
Choose four or five of the following:	
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-315	Hispanic Culture and Civilization
MLSP-351	Gender and Sexuality
MLSP-352	Caribbean Cinema
MLSP-353	Trauma and Survival
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-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

Legal Studies

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

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.

COURSE	
Required Course	
Choose one of the following:	
CRIM-215	Law and Society
POLS-200	Law and Society
Electives	
*Choose four of the following:**	
COMM-342	Communication Law and Ethics
COMM-362	Law and Ethics of the Press
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, and Law
POLS-464	Modern Constitutionalism, Liberty, and Equality
SOCI-310	U.S. Housing Policy

* Students majoring in communication, criminal justice, philosophy, or political science may only count one course from their home department toward the requirements of the minor.

Management

Peter Rosenthal, Minor Adviser
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The management minor provides a solid introduction to the world of general business management.

COURSE	
Required Courses	
MGMT-215	Organizational Behavior
MGMT-310	Leadership in Organizations
Electives	
Choose three of the following:	
INTB-300	Cross-Cultural Management
INTB-550	Global Entry and Competition Strategies
MGMT-320	Managerial Skills
MGMT-340	Business Ethics and Corporate Social Responsibility
MGMT-350	Entrepreneurship
MGMT-360	Digital Entrepreneurship
MGMT-380	Human Resource Management
MGMT-450	Negotiations
MGMT-470	Applied Entrepreneurship and Commercialization
MGMT-489	Seminar in Management
MGMT-550	Field Experience in Business Consulting
MGMT-560	Strategy and Innovation

Management Information Systems

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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.

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-360	Building a Web Business
MGIS-415	Object-oriented Business Programming
MGIS-425	Database Systems Development
MGIS-435	Advanced Systems Analysis and Design
MGIS-445	Web Systems Development
MGIS-450	Enterprise Systems
MGIS-489	Seminar in MIS
MGIS-550	MIS Capstone

Marketing

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Marketing, sales, and customer-oriented aspects of the marketing minor broaden students' learning experiences and professional opportunities by creating a secondary focus in marketing.

COURSE	
Required Course	
MKTG-230	Principles of Marketing
Electives	
Choose four of the following:	
INTB-320	Global Marketing
MKTG-310	Marketing Metrics and Research
MKTG-320	Internet Marketing
MKTG-350	Consumer Behavior
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
MKTG-550	Marketing Strategy

Mathematics

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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.

COURSE	
Prerequisites	
MATH-181	Project-based Calculus I
Plus one of the following:	
MATH-182	Project-based Calculus II
MATH-190	Discrete Mathematics for Computing
MATH-200	Discrete Mathematics and Introduction to Proofs
Electives*	
Choose five of the following, with at least one from Group II:	
Group I	
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
Group II	
MATH-341	Advanced Linear Algebra
MATH-351	Graph Theory
MATH-371	Number Theory
MATH-401	Stochastic Processes
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

* At least two courses must be at the 300 level or above.

Mechanical Engineering

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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.

COURSE	
Prerequisites	
Choose one of the following:	
MECE-102	Engineering Mechanics Lab
PHYS-211	University Physics I
Plus an approved course with significant programming content	
Required Courses	
MECE-104	Engineering Design Tools
MECE-103	Statics
MECE-110	Thermodynamics
Electives	
*Choose two of the following:**	
MECE-203	Strength of Materials
MECE-205	Dynamics
MECE-210	Fluid Mechanics I
MECE-305	Materials Science with Applications
MECE-310	Heat Transfer
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-407	Biomedical Device Engineering
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 300-level or higher.

Media Arts and Technology

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The media arts and technology minor provides students with a five-course sampling of the media arts and technology major. Most students begin with the Design Production (MAAT-383) course and customize their selection of courses from diverse offerings related to media production, media architecture, media strategy, and media management.

COURSE	
Required Course	
MAAT-101	Foundations
MAAT-383	Design Production
Electives	
Choose four of the following:	
MAAT-106	Typography and Page Design
MAAT-107	Imaging
MAAT-206	Print Production Workflow
MAAT-246	Magazine Publishing
MAAT-266	Advanced Workflow
MAAT-271	Webpage Production I
MAAT-272	Webpage Production II
MAAT-301	Database Publishing
MAAT-306	Cross Media Publishing
MAAT-307	Media Business Management
MAAT-544	Color Management Systems
MAAT-355	Media Law
MAAT-356	Multimedia Strategies
MAAT-359	Media Distribution and Transmission
MAAT-363	Media Industries Analysis
MAAT-364	Digital News Systems Management
MAAT-366	Introduction to Book Design
MAAT-367	Image Processing Workflow
MAAT-368	Gravure and Flexography
MAAT-369	Bookbinding
MAAT-371	Print Finishing Management
MAAT-376	Lithographic Process
MAAT-377	Advanced Retouching and Restoration
MAAT-386	Printing Workflow
MAAT-498	Media Arts and Technology Internship
MAAT-541	Digital Print Processes
MAAT-543	Limited Edition Print
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	Estimating Practice
MAAT-566	Typography Research
MAAT-571	Digital Asset Management
MAAT-573	Transmedia Storytelling
MAAT-599	Independent Study

Microelectronic Engineering

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The microelectronic engineering minor provides students with basic integrated circuit fabrication skills from science and other engineering disciplines whose may be interested in a career path may in the semiconductor industry. With one of the finest clean rooms in the world specializing in undergraduate microelectronic education, students have a unique opportunity to experience an important and dynamic industry. The minor is closed to students majoring in microelectronic engineering.

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	Semiconductor Devices
MCEE-360	Semiconductor Devices-MicroE
MCEE-502	Semiconductor Process Integration
MCEE-505	Microlithography Materials and Processing
MCEE-515	Nanolithography Systems
MCEE-550	CMOS Processing
MCEE-720	Photovoltaics
MCEE-730	Metrology for Failure Analysis and Yield of ICs
MCEE-732	Evaluation of Microelectronic Manufacturing
MCEE-770	Microelectromechanical Systems

* Additional prerequisites may be required based on the choice of microelectronic engineering electives.

Military Studies and Leadership

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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. Please note: 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.

COURSE	
Air Force track	
Required Courses	
AERO-101	Foundations of the U.S. Air Force I
AERO-102	Foundations of the U.S. Air Force II
AERO-201	History of Airpower I
AERO-202	History of Airpower II
AERO-401	National Security Forces I
AERO-402	National Security Forces II and Preparation for Active Duty
MGMT-300	Air Force Management and Leadership I
MGMT-301	Air Force Management and Leadership 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 Adviser
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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. This minor is closed to students majoring in any degree program offered by the B. Thomas Golisano College of Computing and Information Sciences.

COURSE	
Required Courses	
ISTE-120	Computational Problem Solving in the Information Domain I
ISTE-140	Web and Mobile I
ISTE-240	Web and Mobile II
ISTE-260	Designing the User Experience
ISTE-252	Foundations of Mobile Design

Mobile Development

Bryan French, Minor Adviser
(585) 475-5231, bdfvks@rit.edu

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.

COURSE	
Required Courses	
ISTE-140	Web and Mobile I*
ISTE-240	Web and 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 and Implementation (IGME-230) may be substituted for Web and Mobile I (ISTE-140).
† Rich Media Web Application Development I (IGME-330) may be substituted for Web and 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 Adviser
(585) 475-6074, hxygsl@rit.edu

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. This minor is closed to fluent speakers of Arabic.

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-240	Muslim Youth Cultures
ANTH-275	Global Islam
ANTH-365	Islamic Culture and the Middle East

Modern Language - Chinese

Zhong Chen, Assistant Professor
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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. This minor is closed to fluent speakers of Chinese.

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 Pre-modern 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 Adviser
(585) 475-3158, pxcgsl@rit.edu

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. This minor is closed to fluent native speakers of French.

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-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: A History of WWI through Film
HIST-470	Science, Technology and European Imperialism
MLFR-351	French Films and Hollywood
MLFR-352	The French Heritage in Film

Modern Language - German

Ulrike Stroszeck, Minor Adviser
(585) 475-2921, uisgsl@rit.edu

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. This minor is closed to fluent native speakers of German.

COURSE	
Electives	
Choose five consecutive language courses:	
MLGR-201	Beginning German I
MLGR-202	Beginning German II
MLGR-301	Intermediate German I
MLGR-302	Intermediate German II
MLGR-315	German Grammar Through Reading and Writing
MLGR-351	German Conversation and Oral Practice
MLGR-401	Advanced German I
MLGR-402	Advanced German II
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 and Beethoven
HIST-280	History of Modern Germany
MLGR-449	Special Topics in German
PHIL-417	Continental European Philosophy

Modern Language - Italian

Elisabetta D'Amanda, Minor Adviser
(585) 475-6522, exdgla@rit.edu

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. This minor is closed to fluent native speakers of Italian.

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-351	Italian Cinema from Neorealism to the New Millenium
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 of Florence and Rome: 15th Century
ARTH-318	Art and Architecture of Florence and Rome: 16th Century

Modern Language - Japanese

Yukiko Maru Leary, Minor Adviser
(585) 475-4558, yxmgsl@rit.edu

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. This minor is closed to fluent native speakers of Japanese.

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-401	Advanced Japanese I
MLJP-402	Advanced Japanese II
MLJP-403	Professional Japanese
MLJP-405	Advanced Speaking in 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-252	The United States and Japan
HIST-265	History of Modern Japan
HIST-266	History of Pre-modern Japan
HIST-450	Modern Japan in History, Fiction, and Film
HIST-465	The Samurai in Word and Image
MLJP-351	Language in Japanese Society
MLJP-404	Japanese Culture in Print
MLJP-451	Structure of the Japanese Language
PHIL-311	East Asian Philosophy
POLS-350	Politics in East Asia

* Course may be used when topic focuses on East Asia.

Modern Language - Portuguese

Hiroko Yamashita, Minor Adviser
(585) 475-6074, hxygsl@rit.edu

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. This minor is closed to fluent speakers of Portuguese.

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 Adviser
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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. This minor is closed to fluent speakers of Russian.

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 adviser.	
ENGL-416	Topics in Global Literatures†
ENGL-418	Great Authors†

* Under special circumstances, and with permission of the minor adviser, up to two culture courses may be substituted for two sequential language courses. Students should contact the minor adviser for a list of approved culture courses.
† When course specifically pertains to Russian authors.

Modern Language - Spanish

Diane Forbes, Minor Adviser
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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. This minor is closed to fluent native speakers of Spanish

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-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 adviser.	
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 the Americans
ENGL-416	Topics in Global Literatures‡
ENGL-418	Great Authors‡
MLSP-315	Hispanic Culture and Civilization
MLSP-351	Gender and Sexuality
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
‡ 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

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. This minor is closed to students majoring in museum studies.

COURSE	
Required Courses	
MUSE-220	Introduction to Museums and Collecting
MUSE-221/HIST-221	Introduction to Public History
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-224	History and Theory of Exhibitions
MUSE-225	Museums and the Digital Age
MUSE-340	Introduction to Archival Studies
MUSE-341	Museum Education and Interpretation
MUSE-358	Legal and Ethical Issues
MUSE-360	Visitor Engagement and Technologies
MUSE-489	Special Topics

* At least one 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

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.

COURSE	
Required Courses	
EEET-261	Fundamentals of Audio Engineering
*Plus one of the following:**	
FNRT-205	Music Theory I
FNRT-208	Composing for Media
Electives	
*Choose three of the following:**	
EEET-361	Modern Audio Production
FNRT-201	Music in the U.S.
FNRT-202	Studies in World Music
FNRT-203	American Pop and Rock
FNRT-204	Music and the Stage
FNRT-208	Composing for Media
FNRT-210	Bach, Handel and Baroque
FNRT-211	Era of Haydn, Mozart and Beethoven
FNRT-250	Singers
FNRT-251	Orchestra
FNRT-252	Concert Band
FNRT-253	World Music Ensemble
FNRT-254	Jazz Ensemble
FNRT-255	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 of Musical Instruments
FNRT-327	American Musical Theatre
FNRT-328	Composing for Video Games and Interactive Media
FNRT-485	Music Theory II
IGME-570	Digital Audio Production
IGME-571	Interactive Games Audio

* It is strongly recommended that students select two music electives and one technology elective. At least two courses must be at the 300 level or higher.

Music Performance

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

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.

COURSE	
Required Course	
FNRT-205	Music Theory I
Students choose at least three semester credits of the following one credit courses:	
FNRT-250	Singers
FNRT-251	Orchestra
FNRT-252	Concert Band
FNRT-253	World Music Ensemble
FNRT-254	Jazz Ensemble
FNRT-255	Chamber Orchestra

COURSE	
Electives	
*Choose three of the following:**	
FNRT-201	Music in the U.S.
FNRT-202	Studies in World Music
FNRT-203	American Pop and Rock
FNRT-204	Music and the Stage
FNRT-208	Composing for Media
FNRT-210	Bach, Handel and the Baroque
FNRT-211	Era of Haydn, Mozart and Beethoven
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 of Musical Instruments
FNRT-327	American Musical Theater
FNRT-328	Composing for Video Games and Interactive Media
FNRT-485	Music Theory II

* A minimum of two courses must be 300 level or above.

Networking and Systems Administration

Larry Hill, Minor Adviser
(585) 475-7064, Lawrence.Hill@rit.edu

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.

COURSE	
Prerequisites	
NSSA-102	Computer Systems Concepts
NSSA-241	Introduction to Routing and Switching
Required Courses	
Student choose one track and complete all courses:	
Networking	
NSSA-242	Wireless Networking
NSSA-341	VoIP and Unified Communications
NSSA-445	Mobile Ad Hoc and Sensor Networks
System Administration	
NSSA-220	Task Automation with Interpretive Languages
NSSA-221	System Administration I
NSSA-244	Virtualization

Nutritional Sciences

Elizabeth Kmiecinski, Minor Adviser
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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. This minor is closed to students majoring in nutrition management.

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 Labs

COURSE	
Electives	
Choose two of the following	
FOOD-121	Principles of Food Production
NUTR-210	Nutrition and the Mediterranean Diet
NUTR-333	Techniques in Dietetic Education
NUTR-300	Sports Nutrition
NUTR-510	Nutrition and Integrative Medicine
NUTR-525	Medical Nutrition Therapy I
NUTR-526	Medical Nutrition Therapy II
NUTR-554	Life Cycle Nutrition

* At least two courses must be at the 300 level or higher.

Optical Science

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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.

COURSE	
Electives	
Group A	
Choose one of the following:	
IMGS-321	Geometric Optics
IMGS-322	Physical Optics
MCEE-515	Nanolithography Systems
PHPS-211	Photographic Optics
PHYS-365	Physical Optics
Group B	
Choose one of the following:	
IMGS-251	Radiometry
PHYS-408	Laser Physics
Group C	
Choose one of the following:	
IMGS-451	Detectors
IMGS-528	Design and Fabrication of a Solid State Camera
IMGS-542	Testing of Focal Plane Arrays
Group D	
Choose two of the following:	
CHMP-442	Quantum Chemistry
EEEE-374	Electromagnetic Fields
IMGS-221	Vision and Psychophysics
IMGS-322	Physical Optics
IMGS-341	Interaction of Light and Matter
MCEE-515	Microlithography Systems and Lab
PHPS-316	Scanning Electron Microscopy
PHYS-213	Modern Physics I
PHYS-412	Electricity and Magnetism II

Packaging Science

Stefanie Soroka, Minor Adviser
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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.

COURSE	
Required Courses	
PACK-301	Packaging Materials
PACK-302	Packaging Containers
Electives	
Choose three of the following:	
PACK-471	Packaging Supply Chain
PACK-530	Packaging Sustainability and the Environment
PACK-535	Characterization and Evaluation of Polymer Packaging
PACK-546	Pharmaceutical and Medical Packaging
PACK-547	Pharmaceutical and Medical Packaging Lab
PACK-550	Packaging Machinery
PACK-555	Import/Export Packaging

Philosophy

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

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. This minor is closed to students majoring in philosophy.

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-302	Symbolic Logic
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 and Literary Theory
PHIL-414	Philosophy of Language
PHIL-415	Ethical Theory
PHIL-416	Seminar in Philosophy
PHIL-417	Continental European Philosophy
PHIL-449	Special Topics
PHIL-571	Honors Philosophy

* At least one course must be at the 400 level.

Physics

Dawn Hollenbeck, Minor Adviser
(585) 475-6652, dmhsps@rit.edu

Students have 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.

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 in Physics
PHYS-408	Laser Physics
PHYS-411	Electricity and Magnetism
PHYS-414	Quantum Mechanics
PHYS-440	Thermal and Statistical Physics

Political Science

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

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. This minor is closed to students majoring in political science.

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 in American Politics
POLS-200	Law and Society
POLS-250	State and Local Politics
POLS-290	Politics and the Life Sciences
POLS-295	Cyberpolitics
POLS-300	Rhetoric and Political Deliberation
POLS-305	Political Parties and Voting
POLS-310	The Congress
POLS-315	The American Presidency
POLS-320	American Foreign Policy
POLS-345	Politics and Public Policy
POLS-355	Political Leadership
POLS-415	Evolution and Law
POLS-420	Primate Politics
POLS-425	Constitutional Law
POLS-430	Constitutional Rights and Liberties
POLS-435	American Political Thought
POLS-460	Classical Constitutionalism, Liberty and Equality
POLS-465	Modern Constitutionalism, Liberty and Equality
POLS-480	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	Technology, Ethics, and Global Politics
POLS-220	Global Political Economy
POLS-285	Environmental Ethics and Political Ecology
POLS-325	International Law and Organizations
POLS-320	American Foreign Policy
POLS-330	Human Rights in Global Perspective
POLS-335	Politics of Developing countries
POLS-350	Government and Politics of East Asia
POLS-360	International Political Thought
POLS-370	Cyberwar, Robots, and the Future of Conflict
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

* 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

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. This minor is closed to students majoring in psychology.

COURSE	
Electives	
Choose five of the following:	
PSYC-221	Abnormal Psychology
PSYC-222	Biopsychology
PSYC-223	Cognitive Psychology
PSYC-224	Perception
PSYC-225	Social Psychology
PSYC-231	Death and Dying
PSYC-232	Developmental Psychology
PSYC-233	History and Systems
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	Psychology of Human Sexuality

Public Policy

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

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. This minor is closed to students majoring in public policy.

COURSE	
Required Courses	
Choose five of the following:	
PUBL-101	Foundations of Public Policy*
PUBL-201	Ethics, Values, and Public Policy*
PUBL-210	Introduction to Qualitative Methods
PUBL-301	Public Policy Analysis
PUBL-302	Decision Analysis
PUBL-363	Cybersecurity Policy and Law
PUBL-455	Comparative Public Policy
PUBL-489	Special Topics in Public Policy
PUBL-510	Technology Innovation and Public Policy
PUBL-520	Information and Communication Policy
PUBL-530	Energy Policy
STSO-201	Science and Technology Policy*
STSO-421	Environmental Policy

* Students must select one of the three electives courses as their required course. The remaining courses may be taken as electives.
† Students must choose four elective courses to bring the total number of courses to five. Students may accomplish this by choosing electives from among the required courses and the elective courses. At least one of the elective courses must be at the 300 level or higher.

Science, Technology, and Society

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

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.

COURSE	
Required Course	
STSO-510	Seminar in STS
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-245	History of Women in Science and Engineering
STSO-321	Face of the Land
STSO-341	Biomedical Issues
STSO-342	Gender, Science and Technology
STSO-345	Makers of Modern Science
STSO-346	History of American Technology
STSO-441	Cyborg Theory
STSO-442	Science, Technology and Society Classics
STSO-445	History of Science
STSO-446	History of Chemistry

* At least one course must be at the 300 level or higher.

Software Engineering

Sarah Mittiga, Minor Adviser
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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.

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 from the following groups:	
Design	
SWEN-331	Secure Software System Development
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-461	Real Time and Embedded Systems
SWEN-462	Modeling of Real Time Systems
SWEN-463	Performance Engineering of Real Time and Embedded Systems
SWEN-549	Software Engineering Design Seminar
Process	
SWEN-350	Software Process and Product Quality
SWEN-352	Software Testing
SWEN-356	Trends in Software Development Processes
SWEN-559	Software Engineering Process Seminar
Other	
SWEN-220	Mathematical Models of Software
SWEN-440	Software System Requirements and Architectures
SWEN-444	Human Centered Requirements and Design
SWEN-590	Software Engineering Seminar

Structural Design

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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. This minor is not available for students majoring in civil engineering technology.

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	Pre-stressed Concrete
CVET-436	Masonry Structures

Supply Chain Management

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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.

COURSE	
Prerequisites	
Choose one of the following:	
DECS-310	Operations Management
ISEE-420	Production Planning and Scheduling
Required Courses	
DECS-435	Supply Chain Management
ISEE-582	Lean Six-Sigma Fundamentals
MGIS-450	Enterprise Systems
Electives	
Choose two of the following:	
BLEG-300	Business Law II
DECS-445	Managing Supplier Relations
INTB-300	Cross-Cultural Management
INTB-310	Regional Business Studies
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
MGMT-450	Negotiations

Sustainable Product Development

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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.

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
CMDS-333	Wicked Problems
PUBL-510	Technology Innovation and Public Policy
PUBL-530	Energy Policy
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
STSO-550	Sustainable Communities
Technical	
EEEE-221	Clean and Renewable Energy Systems and Sources
EEET-251, 252	Green Energy Systems and Lab
ESHS-310	Solid and Hazardous Waste Management
ESHS-330	Industrial Wastewater Management
ESHS-500	Social Responsibility and Environmental Sustainability
ESHS-525	Air Emissions Management
ESHS-720	Environment, Health, and Safety Management
ISEE-684	Engineering and the Developing World
ISEE-787	Design for the Environment
MECE-348	Contemporary Issues in Energy and the Environment
MECE-520	Photovoltaic Science and Engineering
MECE-629	Renewable Energy Systems
MECE-710	Fuel Cell Technology
MCET-560	Alternative Energy
MCET-580	Plastics Manufacturing Technology
MCET-583	Plastics Product Design
PACK-530	Packaging Sustainability and the Environment
PUBL-510	Technology Innovation and Public Policy
PUBL-530	Energy Policy
STSO-442	Great Lakes
STSO-521	Biodiversity and Society

* 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

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).

COURSE	
Required Courses	
FNRT-207	Dramatic Theory and Text Analysis
FNRT-230	Theater Ensemble*
Electives	
Choose three of the following	
FNRT-204	Music and the Stage
FNRT-231	Fundamentals of Acting
FNRT-240	Devising Theatre
FNRT-260	Design/Stagecraft Apprenticeship†
FNRT-301	Traditions of European Theatre
FNRT-302	Traditions of Theater in the U.S.
FNRT-303	Traditions of Shakespearean Theatre
FNRT-304	African American Playwrights
FNRT-327	American Musical Theatre
FNRT-330	Performing Identity
FNRT-489	Special Topics in Performing Arts
FNRT-490	Special Topics in Performing Arts

* Students must take Theater Ensemble (FNRT-230) three times.
† Students may substitute one credit of Design/Stagecraft Apprenticeship (FNRT-260) for one credit of Theater Ensemble (FNRT-230).

Visual Culture

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

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.

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 and Collecting
FNRT-225	Museums and the Digital Age
FNRT-353	History and Theory of Exhibitions
FNRT-360	Visitor Engagement and Museum Technologies
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-377	Imag(in)ing Rochester
FNRT-378	Memory, Memorials, and Monuments
FNRT-383	Traumatic Images
FNRT-384	Art of Dying
FNRT-440	Deaf Art and Cinema
Group B	
Choose one of the following:	
ANTH-210	Culture and Globalization
ANTH-240	Muslim Youth Cultures
ANTH-265	Native North Americans in Film
ANTH-310	African Popular Cultures
ANTH-325	Bodies and Culture
ANTH-330	Cultural Images of War
ANTH-375	Native American Repatriation
ANTH-425	Global Sexualities
ANTH-430	Visual Anthropology
ANTH-435	Garbage Archaeology
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 and Aesthetics
PHIL-309	Feminist Theory
PHIL-313	Philosophy of Film
PHIL-314	Philosophy of Vision/Imaging
POLS-490	Politics Through Film
STSO-321	Faces of the Land

Water Resources

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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.

COURSE	
Required Courses	
CVET-250, 251	Hydraulics and 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 and Wastewater Treatment Facilities
CVET-452	Groundwater Hydraulics
CVET-453	Stormwater Management
Group B	
CVET-423	GIS for CETEMS
ESHS-500	Social Responsibility and Environmental Sustainability
STSO-421	Environmental Policy

Web Design and Development

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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.

COURSE	
Required Courses	
ISTE-105	Web Foundations
ISTE-205	Digital Image Creation
ISTE-206	Digital Video Creation
ISTE-305	Rapid Online Presence
ISTE-405	Web Integration and Application

Web Development

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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.

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 and Mobile I
ISTE-230	Introduction to Database and Data Modeling
ISTE-240	Web and Mobile II
ISTE-340	Client Programming
SWEN-383	Software Design Principles and Patterns
ISTE-341	Server Programming

Women's and Gender Studies

College of Liberal Arts, Office of Student Services
(585) 475-2444, libarts@rit.edu

The women's and gender studies minor provides a critical framework to explore the significance of gender (as it intersects with race, sexuality, and class) in the construction of knowledge within academic disciplines and in the shaping of women's and men's lives. Courses engage a critical pedagogy focused on the recovery of women's contributions in a variety of fields, on women's and men's roles in society across cultures, and especially on critical questions about gender power in the shaping of culture.

COURSE	
Required Course	
WGST-200	Foundations in Women's and Gender Studies
Electives	
Choose four of the following:	
ANTH-325	Bodies and Culture
ANTH-425	Global Sexualities
WGST-206	Queer Looks
WGST-210	Introduction to LGBT 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-290	American Women's and Gender History
WGST-291	History of Families and Children in the U.S.
WGST-309	Feminist Theory
WGST-335	Women and the Deaf Community
WGST-342	Gender, Science, and Technology
WGST-351	Gender and Sexuality in Hispanic Studies
WGST-361	Queering Gender
WGST-375	Women, Gender, Art
WGST-383	Traumatic Images
WGST-384	Art of Dying
WGST-414	Topics in Women's and Gender Studies
WGST-451	Economics of Women and the Family

Immersions

rit.edu/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. For the most recent list of immersions, please visit rit.edu/programs/immersions.

Advertising and Public Relations

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. This immersion is closed to students majoring in advertising and public relations or communication.

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

* Students are required to complete Principles of Advertising (COMM-211) or Public Relations (COMM-212). Students may take both courses using one as a required course and one as an elective.

At least one course must be at the 300 level of higher.

African Studies

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. This immersion is closed to students who are majoring in international and global studies who have chosen a specialization in African studies.

COURSE	
Electives	
*Choose three of the following:**	
ANTH-225	Globalizing Africa
ANTH-275	Global Islam
ANTH-310	African Film and Popular Culture
ANTH-345	Genocide and Post-Conflict Justice
ANTH-365	Culture and Politics in the Middle East
ANTH-410	Global Cities
ANTH-430	Visual Anthropology
FNRT-323	Survey of African-American Music
FNRT-371	African-American Art
HIST-245	American Slavery and Freedom
INGS-210/HIST-210	Culture and Politics in Urban Africa
INGS-310/HIST-310	Global Slavery and Human Trafficking
SOCI-210	African-American Culture
SOCI-220	Minority Group Relations
SOCI-250	Globalization and Security
SOCI-315	Global Exiles of War and Terror
SOCI-255	Disaster, Public Health Crisis and Global Responses

* 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.

American Arts

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.

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, and Monuments
FNRT-383	Traumatic Images
FNRT-384	Art of Dying
Performing arts	
FNRT-201	Music in the U.S.
FNRT-203	American Popular and Rock Music
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-327	American Musical Theatre

* Students must take at least one course from each category.

American Politics

The American politics immersion introduces students 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. This immersion is closed to students majoring in political science.

COURSE	
Electives	
*Choose three of the following:**	
POLS-200	Law and Society
POLS-250	State and Local Politics
POLS-290	Politics and the Life Sciences
POLS-295	Cyberpolitics
POLS-300	Rhetoric and Political Deliberation
POLS-305	Political Parties and Voting
POLS-310	The Congress
POLS-315	The American Presidency
POLS-320	American Foreign Policy
POLS-345	Politics and Public Policy
POLS-355	Political Leadership
POLS-415	Evolution and 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 and Law
POLS-465	Modern Constitutionalism, Liberty and Equality
POLS-480	Women in Politics
POLS-485	Politics Through Fiction
POLS-490	Politics Through Film

* At least one course must be at the 300 level of higher.

American Sign Language and Deaf Cultural Studies

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 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 of D/deaf people, and various political, legal, and educational issues affecting members of the D/deaf community. 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.

COURSE	
Electives	
Choose three of the following:	
ENGL-343	Global Deaf Literature
ENGL-417	Deaf Literature
FNRT-440	Deaf Art and Cinema
HIST-230	American Deaf History
HIST-231	Deaf People in Global Perspective
HIST-330	Deaf People 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
HIST-431	Theory and Methods of Deaf Geographies
MLAS-201	Beginning American Sign Language I
MLAS-202	Beginning American Sign Language II
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
SOCI-240	Deaf Culture in America

Applied Statistics

This immersion is closed to students majoring in applied statistics, applied mathematics, and computational mathematics.

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-401	Stochastic Processes
MATH-655	Biostatistics
STAT-205	Applied Statistics
STAT-295	Statistical Analysis for Bioinformatics
STAT-305	Introduction to Regression Analysis
STAT-315	Statistical Quality Control
STAT-325	Design of Experiments
STAT-335	Introduction to Time Series
STAT-345	Non-parametric Statistics
STAT-405	Mathematical Statistics I
STAT-406	Mathematical Statistics II
STAT-415	Statistical Sampling

* At least one of the courses must be at the 300-level or above

Archaeology

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. This immersion is closed to students majoring in sociology and anthropology who have chosen the archaeology track.

COURSE	
Electives	
*Choose three of the following:**	
ANTH-103	Archaeology and the Human Past
ANTH-215	Field Methods in Archaeology
ANTH-230	Archaeology and Cultural Imagination
ANTH-250	Themes in Archaeological Research
ANTH-255	Regional Archaeology
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	Archaeology of Death

* At least one course must be from the 300 level or higher.

Art History

In the art history immersion students 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. This immersion is closed to students enrolled in the following programs: 3D digital design, ceramics, film and animation, fine arts studio, furniture design, glass, graphic design, illustration, industrial design, interior design, medical illustration, metals and jewelry design, new media design, photographic and imaging arts, and museum studies.

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-550	Topics in Art History
ARTH-554	Late Medieval Art
ARTH-558	The Gothic Revival
ARTH-561	Latin American Art
ARTH-563	Modern Architecture
ARTH-566	Early Medieval Art
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-582	Medieval Craft
ARTH-583	Installation Art
ARTH-584	Scandinavian Modernism
ARTH-586	History of Things: Studies in Material Culture
ARTH-588	Symbols and Symbol-Making

Astronomy

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. This immersion is closed to students majoring in imaging science and physics.

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

Biology is the study of living organisms, including their structure, systems, function, evolution, and ecology. The biology immersion provides students with the opportunity to experience courses in a variety of areas of biology. This immersion is closed to students majoring in biochemistry, bioinformatics, biology, biomedical science, biomedical engineering, biotechnology and molecular bioscience, environmental science, or physician assistant.

COURSE	
Prerequisites	
Choose one of the following sequences:	
BIOL-101, 102, 103, 104	General Biology I, II and Labs
BIOL-121, 122	Introduction to Biology I, II
Required Course	
Choose at least one of the following:	
BIOL-201	Cellular and 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-313	Comparative Animal Physiology
BIOL-321	Genetics
BIOL-322	Developmental Biology
BIOL-365	Population Genetics
BIOL-475	Conservation Biology

* at least one elective must be at the 300-level or above.

Chemistry

All of the required or optional courses for the chemistry immersion are core chemistry courses within the chemistry curriculum. 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.

COURSE	
Prerequisites	
CHMG-141	General and Analytical Chemistry I
CHMG-142	General and Analytical Chemistry II
Required course	
CHMO-231	Organic Chemistry I
Electives	
Choose two of the following:	
CHMO-232	Organic Chemistry II
CHMA-161	Quantitative Analysis
CHMA-261	Instrumental Analysis
CHMA-222	Chemical Separations
CHMB-402	Biochemistry I
CHMI-351	Inorganic Chemistry I

Communication

The communication immersion provides opportunities for the advanced study of selected areas of communication. Topics include 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. This immersion is closed to students majoring in advertising and public relations and communication.

COURSE	
Electives	
Choose three of the following:	
COMM-201	Public Speaking
COMM-202	Mass Communications
COMM-302	Interpersonal Communication
COMM-303	Small Group Communication
COMM-304	Intercultural Communication
COMM-305	Persuasion
COMM-341	Visual Communication
COMM-342	Communication Law and Ethics

Creative Writing

The creative writing immersion includes a series of courses offering 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.

COURSE	
Electives	
Choose three of the following:	
ENGL-211	Introduction to Creative Writing
ENGL-275	Storytelling: [Genre/Theme]
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

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. This immersion is closed to students majoring in criminal justice.

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 in the Criminal Justice System
CRIM-489	Major Issues in Criminal Justice

Cultural Anthropology

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. This immersion is closed to students majoring in the sociology and anthropology who have chosen the cultural anthropology track.

COURSE	
Electives	
*Choose three of the following:**	
ANTH-104	Language and Linguistics
ANTH-201/SOCI-201	Ethnographic Imagination: Writing About Society and Culture
ANTH-210	Culture and Globalization
ANTH-220	Language and Culture: An Introduction to Linguistic Anthropology
ANTH-225	Globalizing Africa
ANTH-235	Immigration to the U.S.
ANTH-245	Ritual and Performance
ANTH-260	Native North Americans
ANTH-265	Native Americans in Film
ANTH-270/INGS-270	Cuisine, Culture, and Power
ANTH-275	Global Islam
ANTH-280	Sustainable Development
ANTH-285	American Indian Languages
ANTH-290	Language and Sexuality
ANTH-301/SOCI-301	Social and Cultural Theory
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-345	Genocide and Post-Conflict Justice
ANTH-350	Global Economy and the Grassroots
ANTH-365	Culture and Politics in the Middle East
ANTH-370	Media and Globalization
ANTH-375	Native American Cultural Resources and Rights
ANTH-380	Nationalism and Identity
ANTH-385	Anthropology and History
ANTH-390	Marxist Perspectives
ANTH-410	Global Cities
ANTH-425	Global Sexualities
ANTH-430	Visual Anthropology
ANTH-451/SOCI-451/INGS-451/ECON-451	Economics of Women and the Family
ANTH-455/ECON-452/INGS-455	Economics of Native America
INGS-210	Culture and Politics in Urban Africa

* At least one course must be taken at the 300 level or higher.

Digital Literatures and Comparative Media

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.

COURSE	
Required Course	
ENGL-215	Text and Code
Electives	
Choose two of the following:	
ENGL-275	Storytelling: [Genre/Theme]
ENGL-315	History of 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 and Open Source Culture

Diversity in the U.S.

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. This immersion is closed to students majoring in sociology and anthropology who have chosen the cultural anthropology or the sociology track.

COURSE	
Required course	
SOCI-220	Minority Group Relations
Electives	
*Choose two of the following:**	
ANTH-235	Immigration to the U.S.
ANTH-260	Native North Americans
ANTH-285	American Indian Languages
ANTH-290	Language and Sexuality
ANTH-305	Comparative and Historical Linguistics
ANTH-375	Native American Cultural Resources and Rights
ANTH-455/ECON-452/ INGS-455	Economics of Native America
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-323	Survey of African-American Music
FNRT-324	Sounds of Protest
FNRT-371	African-American Art
SOCI-210	African-American Culture
SOCI-225	Social Inequality
SOCI-235	Women, Work, and Culture
SOCI-330	Urban (In)justice
SOCI-355	Cyber Activism
SOCI-451/ECON-451/ WGST-451	Economics of Women and the Family

* At least one course must be taken from a discipline other than sociology (SOCI).

Economics

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. This immersion is closed to students majoring in economics.

COURSE	
Prerequisites	
ECON-101	Principles of Microeconomics
ECON-101H	Honors Principles of 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: 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 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 and Experimental Economics
ECON-503	Econometics II
ECON-520	Environmental Economics

English

The English immersion gives students the opportunity to explore English studies in the areas of literature, 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 genre fiction such as science fiction, fantasy, or romance. Courses emphasize the ability to read literature and new media analytically and write critically.

COURSE	
Required Course	
Choose one of the following:	
ENGL-210	Literature, Culture, and Media
ENGL-216	Literature from Around the World
Electives	
Choose two of the following:	
ENGL-275	Storytelling: [Genre/Theme]
ENGL-307	Mythology and Literature
ENGL-308	Shakespeare: Drama
ENGL-309	Literary Forms
ENGL-310	Introduction to Language Science
ENGL-315	History of Digital Literature
ENGL-316	Global Literature
ENGL-318	Popular Literature
ENGL-320	Genre Fiction
ENGL-345	History of Madness
ENGL-351	Language Technology
ENGL-373	Media Adaptation
ENGL-386	World Building Workshop
ENGL-389	Digital Creative Writing Workshop
ENGL-390	Creative Writing Workshop
ENGL-391	Dangerous Texts
ENGL-410	Film Studies
ENGL-418	Great Authors
ENGL-419	Literature and Technology
ENGL-470	Evolving English Language

Environmental Studies

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.

COURSE	
Electives	
*Choose three of the following:**	
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-421	Environmental Policy
STSO-422	Great Lakes
STSO-510	Interdisciplinary Capstone Seminar
STSO-521	Biodiversity and Society
STSO-550	Sustainable Communities

* At least one course must be from the 300 level or higher.

Ethics

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. This immersion is closed to students majoring in philosophy.

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
MGMT-340	Business Ethics and Corporate Social Responsibility

*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.

Film Studies

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. This immersion is closed to students majoring in film and animation.

COURSE	
Electives	
*Choose three of the following:**	
ANTH-265	Native Americans in Film
ANTH-430	Visual Anthropology
ENGL-410	Film Studies
ENGL-425	Global Cinemas
FNRT-200	Anime
FNRT-372	American Film of the Studio Era
FNRT-373	American Film Since the Sixties
FNRT-440	Deaf Art and Cinema
HIST-450	Modern Japan in History, Fiction, and Film
HIST-275	Screening the Trenches: The History of World War I through Film
MLFR-351	French Films and Hollywood
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 fine arts (FNRT) and one in anthropology (ANTH).

Geographic Information Systems

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. This immersion is closed to students majoring in web and mobile computing, human centered computing, and computing and information technologies.

COURSE	
Required Courses	
ISTE-382	Introduction to Geospatial Technologies
ISTE-384	Introduction to Geographic Information Systems
Electives	
Choose one of the following:	
ENGL-422	Maps, Places and Spaces
ISTE-120	Computational Problem Solving in the Information Domain I
ISTE-230	Introduction to Database and Data Modeling
ISTE-386	Spatial Problem Solving and Algorithms
ISTE-484	Thematic Cartography and Geovisualization
STSO-550	Sustainable Communities

Global Justice

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.

COURSE	
Electives	
*Choose three of the following:**	
ANTH-280	Sustainable Development
ANTH-340	Divided Europe
ANTH-330	Cultural Images of War
ANTH-345	Genocide and Post-Conflict Justice
ANTH-350	The Global Economy and the Grassroots
ANTH-365	Culture and Politics in the Middle East
ANTH-375	Native American Cultural Resources and Rights
ANTH-425	Global Sexualities
INGS-201	Histories of Globalization
INGS-210	Culture and Politics in Urban Africa
INGS-310	Global Slavery and Human Trafficking
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-245	Gender and Health
SOCI-255	Disaster, Public Health Crisis, and Global Responses
SOCI-315	Global Exiles of War and Terror
SOCI-451	Economies or Women and the Family

* Students must select courses from at least two different disciplines. Students majoring in philosophy, sociology and anthropology, or political science must choose two of the three required courses from outside their respective major.

Globalization Theory

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. This immersion is closed to students majoring in international and global studies.

COURSE	
Electives	
*Choose three of the following:**	
ANTH-210	Culture and Globalization
ANTH-225	Globalizing Africa
ANTH-235	Immigration to the U.S.
ANTH-270/INGS-270	Cuisine, Culture, and Power
ANTH-275	Global Islam
ANTH-280	Sustainable Development
ANTH-328	Heritage and Tourism
ANTH-330	Cultural Images of War and Terror
ANTH-345	Genocide and Post-Conflict Justice
ANTH-350	Global Economy and the Grassroots
ANTH-370	Media and Globalization
ANTH-410	Global Cities
ANTH-425	Global Sexualities
INGS-201	Histories of Globalization
INGS-310	Global Slavery and Human Trafficking
SOCI-250	Globalization and Security
SOCI-255	Disaster, Public Health Crisis, and Global Responses
SOCI-315	Global Exiles of War and Terror
SOCI-322	Society, Environment, and Health
SOCI-331	Honors Sociology of Human Rights

* At least one course must be from the 300 level or higher.

Health and Culture

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.

COURSE	
Electives	
*Choose three of the following:**	
ANTH-245	Ritual and Performance
ANTH-270	Cuisine, Culture, and Power
ANTH-325	Bodies and Culture
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
SOCI-245	Gender and Health
SOCI-255	Disaster, Public Health Crisis, and Global Responses
SOCI-315	Global Exiles of War and Terror
SOCI-322	Society, Environment and Health
SOCI-330	Urban (In)Justice
PSYC-231	Death and Dying
STSO-341	Biomedical Issues
STSO-441	Cyborg Theory: (Re)thinking the Human Experience in the 21st Century

* At least one course must be taken from either anthropology (ANTH) or sociology (SOCI).

History

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.

COURSE	
Electives	
*Choose three of the following:**	
HIST-201	Histories of Globalization
HIST-210	Introduction to Africa and the Diaspora
HIST-220	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-260	History of Pre-modern China
HIST-261	History of Modern China
HIST-265	History of Modern Japan
HIST-266	History of Pre-modern Japan
HIST-270	History of Modern France
HIST-275	Screening the Trenches: A History of WWI Through Film
HIST-280	History of Modern Germany
HIST-290	U.S. History Since 1945
HIST-301	Great Debates in U.S. 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	Doing History in a Digital World
HIST-330	Deaf People 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-345	Environmental Disasters
HIST-350	Terrorism, Intelligence, and War
HIST-351	The Vietnam War
HIST-365	Conflict in Modern East Asia
HIST-369	Histories of Christianity
HIST-380	International Business History
HIST-381	Technology in the Modern World
HIST-390	Medicine and 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	The Samurai in Word and Image
HIST-470	Science, Technology, and European Imperialism
HIST-480	Global Information Age

* At least one course must be taken from the 300 level or higher.

Human Language Technology and Computational Linguistics

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.

COURSE	
Required course	
ENGL-581	Introduction to Natural Language Processing
Electives	
Choose two of the following:	
ENGL-310	Introduction to Language Science
ENGL-351	Language Technology
ENGL-482	Science and Analytics of Speech
ENGL-582	Seminar in Computational Linguistics

International Relations

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. This immersion is closed to students majoring in political science.

COURSE	
Electives	
*Choose three of the following:**	
POLS-205	Ethics in International Politics
POLS-210	Comparative Politics
POLS-215	Technology, Ethics and Global Politics
POLS-220	Global Political Economy
POLS-285	Environmental Ethics and Political Ecology
POLS-315	International Law and Organizations
POLS-320	American Foreign Policy
POLS-330	Human Rights in Global Perspective
POLS-335	Politics of Developing Countries
POLS-350	Government and Politics of East Asia
POLS-360	International Political Thought
POLS-370	Cyberwar, Robots, and the Future of Conflict
POLS-410	Evolutionary International Relations
POLS-440	War and the State
POLS-445	Terrorism and Political Violence
POLS-455	Comparative Public Policy

* At least one course must be at the 300 level or higher.

Journalism

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. This immersion is closed to students majoring in journalism.

COURSE	
Required course	
COMM-271	Introduction to Journalism
Electives	
Choose two of the following:	
COMM-261	History of Journalism
COMM-263	Computer-Assisted Reporting
COMM-272	Reporting and Writing I
COMM-273	Reporting and Writing II
COMM-274	News Editing
COMM-361	Reporting in Specialized Fields
COMM-362	Law and Ethics of the Press
COMM-442	Professional Writing
COMM-461	Multi-platform Journalism

Language Science

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.

COURSE	
Required course	
ENGL-310	Introduction to Language Science
Electives	
Choose two of the following:	
ANTH-220	Language and Culture
ENGL-310	Introduction to Language Science
ENGL-351	Language Technology
ENGL-370	Evolving English Language
ENGL-482	Language and Brain
ENGL-581	Introduction to Natural Language Processing
ENGL-582	Seminar in Computational Linguistics
MLAS-351	Linguistics of American Sign Language
MLCU-301	Psycholinguistics
MLJP-351	Languages in Japanese Society
MLJP-451	Structure of the Japanese Language
MLST-449	Special Topics: Modern Language*
PHIL-414	Philosophy of Language

* This course may be used when the topic focuses on linguistics

Latino/Latina/Latin American Studies

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. This immersion is closed to students majoring in international and global studies who have chosen an area of study in the Spanish or Portuguese language or a field specialization in Latin America or Europe.

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-315	Hispanic Culture and Civilization
MLSP-401	Advanced Spanish I
MLSP-402	Advanced Spanish II
MLSP-351	Gender and Sexuality in Hispanic Studies
MLSP-352	Caribbean Cinema
MLSP-353	Trauma and Survival in First-Person Narrative

* 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.

† This course may be used when the topic focuses on Mesoamerica.

Legal Studies

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.

COURSE	
Required Course	
Choose one of the following:	
CRIM-215	Law and Society
POLS-200	Law and Society
Electives	
*Choose two of the following:**	
COMM-342	Communication Law and Ethics
COMM-362	Law and Ethics of the Press
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 and Law
POLS-465	Modern Constitutionalism, Liberty and Equality
SOCI-310	US Housing Policy

* All three courses cannot be 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.

Linguistic Anthropology

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. This immersion is closed to students majoring in anthropology and sociology who have chosen the cultural anthropology track.

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: An Introduction to Linguistic Anthropology
ANTH-285	American Indian Languages
ANTH-290	Language and Sexuality
ANTH-305	Comparative and Historical Linguistics
ANTH-312	People Before Cities
COMM-304	Intercultural Communication
PHIL-414	Philosophy of Language

Mathematics

This immersion is closed to students majoring in applied statistics, applied mathematics, and computational mathematics.

COURSE	
Prerequisites	
MATH-181	Project-based Calculus I (or equivalent)
Plus one of the following:	
MATH-182	Project-based Calculus II
MATH-190	Discrete Mathematics for Computing
MATH-200	Discrete Mathematics and Introduction to Proof
Electives	
Choose three of the following:	
MATH-219	Multivariable Calculus
MATH-221	Multivariable Calculus 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	Non-linear 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-401	Stochastic Processes
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

Modern Languages and Cultures - Arabic

Hiroko Yamashita, Immersion Adviser
(585) 475-6074, hxygsl@rit.edu

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. 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.

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-240	Muslim Youth Cultures
ANTH-275	Global Islam
ANTH-365	Culture and Politics in the Middle East

Modern Languages and Cultures - Chinese

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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. This immersion is closed to students majoring in international and global studies who have chosen an area of study in Chinese language, a field specialization in Asia, or are native speakers of Chinese.

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 Pre-modern 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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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. 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.

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-401	Advanced French I
MLFR-402	Advanced French II
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: History of WWI through Film
HIST-470	Science, Technology and European Imperialism
MLFR-351	French Films and Hollywood
MLFR-352	The French Heritage in Films

Modern Languages and Cultures - German

Ulrike Stroszeck, Immersion Adviser
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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. 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.

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-315	German Grammar Through Reading and Writing
MLGR-351	German Conversation and Oral Practice
MLGR-401	Advanced German I
MLGR-402	Advanced German II
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 and Beethoven
HIST-280	History of Modern Germany
MLGR-449	Modern German Culture Through Film
PHIL-417	Continental European Philosophy

Modern Languages and Cultures - Italian

Elisabetta D'Amanda, Immersion Adviser
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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. 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.

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 & Architecture of Italy: 1250-1400
ARTH-312	Art & Architecture of Italy: 1600-1750
ARTH-317	Art & Architecture of Florence and Rome: 15th Century
ARTH-318	Art & Architecture of Florence and Rome: 16th Century
MLIT-351	Italian Cinema From Neorealism to the New Millennium

Modern Languages and Cultures - Japanese

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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 adviser for placement evaluation before they register. This immersion is closed to students majoring in international and global studies who have chosen an area of study in Japanese language, a field specialization in Asia, or are native speakers of Japanese.

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	Advanced Japanese II
MLJP-403	Professional 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-450	Modern Japan in History, Fiction, and Film
HIST-265	History of Modern Japan
HIST-266	History of Pre-modern Japan
HIST-465	The Samurai in Word and Image
MLJP-351	Language in Japanese Society
MLJP-404	Japanese Culture in Print
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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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 adviser for placement evaluation before they register. 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 native speakers of Portuguese

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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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 adviser for placement evaluation before they register. 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.

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*
ENGL-416	Topics in Global Literatures*

* This course may be used when the topic focuses on Russian Literature.

Modern Languages and Cultures - Spanish

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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. This immersion is closed to students majoring in international and global studies who have chosen an area of study in Spanish language, a field specialization in Latin America or Europe, or are native speakers of Spanish.

COURSE	
Electives	
Choose two or three consecutive language courses:	
MLSP-201A, 201B	Beginning Spanish IA, IB†
MLSP-202	Beginning Spanish II
MLSP-301	Intermediate Spanish I
MLSP-302	Intermediate Spanish II
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
ENGL-416	Topics in Global Literatures*
ENGL-418	Great Authors*
MLSP-315	Hispanic Culture and Civilization
MLSP-351	Gender and Sexuality in Hispanic Studies
MLSP-352	Caribbean Cinema
MLSP-353	Trauma and Survival in First-Person Narrative
MLSP-572	Art of the Americas

† Based on a student's previous study of the Spanish language, students may enroll in either Beginning Spanish 1A (MLSP-201A) or Beginning Spanish 1B (MLSP-201B).
* When the course deals with Spanish and/or Latin American literature.
† This course may be used when the topic focuses on Mesoamerica.

Museum Studies

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. This immersion is closed to students majoring in museum studies.

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 and Collecting
MUSE-221/HIST-221	Introduction to Public History
MUSE-224	History and Theory of Exhibitions
MUSE-225	Museums and the Digital Age
MUSE-340	Archival Studies
MUSE-341	Museum Education and Interpretation
MUSE-358	Legal and Ethical Issues for Collecting Institutions
MUSE-360	Visitor Engagement and Technologies

* Students must take at least one museum studies (MUSE) course and one history (HIST) course. The third course may be taken from either discipline.

Music

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.

COURSE	
Electives*	
Choose three of the following:	
FNRT-250	RIT Singers†
FNRT-251	RIT Orchestra†
FNRT-252	RIT Concert Band†
FNRT-253	World Music Ensemble†
FNRT-255	RIT Chamber Orchestra†
FNRT-254	RIT Jazz Ensemble†
FNRT-201	Music in the United States
FNRT-202	Studies in World Music
FNRT-203	American Popular and Rock Music
FNRT-204	Music and the Stage
FNRT-205	Music Theory I
FNRT-210	Bach, Handel, and the Baroque
FNRT-211	Era of Haydn, Mozart, and Beethoven
FNRT-320	Romanticism in Music
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-327	The American Musical Theater
FNRT-485	Music Theory 2

* At least one course must be at the 300 level or above.
† Each of these ensembles is one semester credit hour. Three semesters of participation are required to complete one immersion course.

Native American and Indigenous Studies

The immersion in Native American and indigenous studies enhances students' knowledge of the unique heritage of Native Americans 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 Native American 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. 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.

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-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	Society, Environment, and Health

* At least one course must be at the 300 level or higher.

Philosophy

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. This immersion is closed to students majoring in philosophy.

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 and Literary Theory
PHIL-414	Philosophy of Language
PHIL-415	Ethical Theory
PHIL-416	Seminar in Philosophy
PHIL-417	Continental European Philosophy
PHIL-571	Honors Philosophy

* At least one course must be at the 300 level or higher.

Physics

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. This immersion is closed to students majoring in imaging science or physics.

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

Psychology

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. This immersion is closed to students majoring in psychology.

COURSE	
Prerequisite	
PSYC-101	Introduction to Psychology
Electives	
Choose three of the following:	
PSYC-221	Abnormal Psychology
PSYC-222	Biopsychology
PSYC-223	Cognitive Psychology
PSYC-224	Perception
PSYC-225	Social Psychology
PSYC-231	Death and Dying
PSYC-232	Developmental Psychology
PSYC-233	History and Systems
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	Psychology of Human Sexuality

Public Policy

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. This immersion is closed to students majoring in public policy.

COURSE	
Electives	
Choose three of the following:	
PUBL-201	Ethics, Values and Public Policy
PUBL-210	Introduction to Qualitative Policy Analysis
PUBL-301	Public Policy Analysis
PUBL-302	Decision Analysis
PUBL-363	Cybersecurity Policy and Law
PUBL-510	Technology Innovation and Public Policy
PUBL-520	Information and Communication Policy
PUBL-530	Energy Policy
STSO-201	Science and Technology Policy
STSO-421	Environmental Policy

* At least one course must be at the 300 level or higher.

Religious Studies

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.

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 and Literature
HIST-369	Histories of Christianity
PHIL-301	Philosophy of Religion
PHIL-311	East Asian Philosophy
PHIL-409	Existentialism
PHIL-410	Medieval Philosophy
PHIL-411	Metaphysics
PHIL-412	Nineteenth-Century Philosophy
PSYC-238	Psychology of Religion

* To complete the 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. The Great Thinkers courses (offered within the philosophy department) will be considered on an individual basis, subject to approval by the religious studies immersion coordinator.

Renaissance Studies

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.

COURSE	
Electives	
Choose three of the following	
ARTH-311	Art 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	Shakespeare The Dramatist
PHIL-317	Renaissance Philosophy

Science and Technology Studies

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.

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-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-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-446	History of Chemistry
STSO-510	Interdisciplinary Capstone Seminar

* At least one course must be from the 300 level or higher.

Science of Film, Photography, and Imaging

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. The immersion is closed to students majoring in imaging science, motion picture science, and imaging and photographic technology.

COURSE	
Required Course	
SOFA-103	Introduction to Imaging and Video Systems
Electives	
Choose two of the following:	
IMGS-221	Vision and 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

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. This immersion is closed to students majoring in sociology and anthropology.

COURSE	
Electives	
*Choose three of the following:**	
ANTH-210	Culture and Globalization
ANTH-225	Globalizing Africa
ANTH-235	Immigration to the U.S.
ANTH-260	Native North Americans
ANTH-285	American Indian Languages
ANTH-290	Language and Sexuality
ANTH-305	Comparative and Historical Linguistics
ANTH-328	Heritage and Tourism
ANTH-335	Culture and Politics in Latin America
ANTH-345	Genocide and Post-Conflict Justice
ANTH-350	The Global Economy and the Grassroots
ANTH-365	Culture and Politics in the Middle East
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-451/INGS-451/ SOCI-451	Economics of Women and the Family
ANTH-455/INGS-455	Economics of Native America
INGS-310/HIST-310	Global Slavery and Human Trafficking
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-245	Gender and Health
SOCI-255	Disaster, Public Health and Global Responses
SOCI-310	Housing Policies in the U.S.
SOCI-315	Global Exiles of War and Terror
SOCI-322	Society, Environment, and Health
SOCI-330	Urban (In)Justice
SOCI-345	Urban Poverty
SOCI-350	Social Change

* All three courses cannot come from one discipline. At least one course must be taken at the 300 level or higher.

Theatre Arts

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.

COURSE	
Electives	
Choose three of the following:	
FNRT-207	Dramatic Theory and Text Analysis
FNRT-230	Theater Ensemble*
FNRT-231	Fundamentals of Acting
FNRT-240	Devising Theatre
FNRT-301	Traditions of European Theatre
FNRT-302	Traditions of Theatre in the U.S.
FNRT-303	Traditions of Shakespearean Theatre
FNRT-304	African-American Playwrights
FNRT-327	The American Musical Theater

* Theater ensemble counts for 1 credit. The ensemble course may be taken up to three times.

Urban Studies

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. This immersion is closed to students majoring in sociology and anthropology who have chosen the urban studies track.

COURSE	
Electives	
*Choose three of the following:**	
ANTH-235	Immigration to the U.S.
ANTH-280	Sustainable Development
ANTH-315	Archaeology of Cities
ANTH-410	Global Cities
ECON-440	Urban Economics
INGS-210	Culture and Politics in Urban Africa
SOCI-220	Minority Group Relations
SOCI-280	Sustainable Development
SOCI-310	Housing Policies in the U.S.
SOCI-330	Urban (In)Justice
SOCI-340	Urban Planning and Policy
SOCI-345	Urban Poverty
STSO-550	Sustainable Communities

* At least one course must be at the 300 level or higher.

Visual Culture

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. This immersion is closed to students majoring in museum studies.

COURSE	
Electives	
Choose three of the following:	
FNRT-206	Queer Looks
FNRT-220	Introduction to Museums and Collecting
FNRT-225	Museums and The Digital Age
FNRT-353	History and Theory of Exhibitions
FNRT-360	Visitor Engagement and Museum Technologies
FNRT-370	American Painting
FNRT-371	African American Painting
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-440	Deaf Art and Cinema

Women's and Gender Studies

This immersion enables students to interrogate the social constructions, political systems, and historical discourses that produce and maintain power structures. Courses examine key feminist, queer, and critical race writings and discourses, and study the rise of feminist thought. They consider the history of women's activism and the women's rights movements from Suffrage to the present day, and explore more recent applications of feminist theory made visible through the rise of new and intersectional social identity movements.

COURSE	
Electives	
Choose three of the following:	
ANTH-325	Bodies and Culture
ANTH-425	Global Sexualities
WGST-200	Foundations Women's and Gender Studies
WGST-206	Queer Looks
WGST-210	Introduction to LGBT 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-290	American Women's and Gender History
WGST-291	History of Families and Children in the U.S.
WGST-309	Feminist Theory
WGST-335	Women and the Deaf Community
WGST-342	Gender, Science, and Technology
WGST-351	Gender and Sexuality in Hispanic Studies
WGST-361	Queering Gender
WGST-375	Women, Gender, Art
WGST-383	Traumatic Images
WGST-384	Art of Dying
WGST-414	Topics in Women's and Gender Studies
WGST-451	Economics of Women and the Family

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 requires that candidates file their applications and all supporting documents by November 15. Admission notification will be sent beginning in mid-December by January 15.

Freshmen who choose not to apply for Early Decision 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 with notification letters mailed four to six weeks after the application is completed.

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 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, 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 $300 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 Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS) examination along with the requirements listed below. Applications from international students are reviewed on a rolling basis. However, to receive the best consideration for admission and scholarships, you are encourage to submit the application and all required documents by January 15 for fall entry (November 1 for spring entry). Applications received after those dates will be considered on a space-available basis.

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 American College Test (ACT) or Scholastic Reasoning Test (SAT-I) results for all freshman applicants;
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 American Crafts, Art, and Design. Please review the portfolio guidelines available at cias.rit.edu/prospective-students/portfolio-guide 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. This exam is taken by all entering students whose majors require a calculus sequence. It assesses students' mastery of some of the fundamental mathematical concepts they have seen in their high school mathematics courses. Students without a calculus sequence who are not sure about the appropriate mathematics course with which to begin their studies may contact the department of mathematics and statistics at (585) 475-5780 to arrange for a special mathematics diagnostic test.

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, all 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 and entrance exam score ranges will 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.**

			Middle 50% of Accepted Applicants for 2017	
College	**Majors and Options**	**Specific Math and Science Requirements and Other Recommendations**	**SAT (EBRW+M)**	**ACT Composite**
College of Applied Science and Technology	**School of Engineering Technology** • Civil Engineering Technology • Computer Engineering Technology (all options) • Electrical Engineering Technology (all options) • Electrical/Mechanical Engineering Technology • Manufacturing Engineering Technology • Mechanical Engineering Technology • Undeclared Engineering Technology Option[1] • Environmental Sustainability, Health and Safety • Packaging Science	• 3 years of math required; pre-calculus recommended • Chemistry **or** physics required; biology recommended • Technology electives desirable	1170 -1330	26-31
	• Hospitality and Tourism Management	• 3 years of math required	1000 -1190	21-26
Saunders College of Business	• Accounting • Finance • International Business • Management • Management Information Systems • Marketing • New Media Marketing • Supply Chain Management[2] • Business Exploration Option[1]	• 3 years of math required; pre-calculus recommended	1150 -1320	25-30
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 Option[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	1260 -1430	28-33
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	1290 -1420	29-33
College of Science	• Applied Mathematics • Applied Statistics and Actuarial Science • Biochemistry • Bioinformatics • 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 sciences and recommended for science exploration • Chemistry required for biological sciences, bio-chemistry, chemistry and environmental science • Chemistry **or** physics required for physics	1210 -1390	27-32
College of Health Sciences and Technology	• Biomedical Sciences • Diagnostic Medical Sonography (Ultrasound) • Exercise Science • Nutrition Management • Nutritional Sciences • Physician Assistant (BS/MS)	• 3 years of math is required. Pre-calculus is recommended for all programs except nutrition management. • Biology is required for all programs. Chemistry is required for all programs except diagnostic medical sonography, where is it recommended.	1170 -1320	26-31

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 Division of Academic Affairs 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.
[2] Pending New York State approval.

College	Majors and Options	Specific Math and Science Requirements and Other Recommendations	Middle 50% of Accepted Applicants for 2017: SAT (EBRW+M)	Middle 50% of Accepted Applicants for 2017: ACT Composite
College of Imaging Arts and Sciences	**School of Art** • Fine Arts Studio • Illustration • Medical Illustration • Undeclared Art Option[1] **School for American Crafts** • Ceramics • Furniture Design • Glass • Metals and Jewelry Design • Undeclared Crafts Option[1] **School of Design** • 3D Digital Design • Graphic Design • Industrial Design • Interior Design • New Media Design • Undeclared Design Option[1]	• Studio art experience and a portfolio of original artwork are required for all programs in the Schools of Art, Design and Crafts. • Portfolio guidelines can be found at http://cias.rit.edu/prospective-students/portfolio-guide. • Medical illustration requires biology.	1150 - 1370	25-30
	School of Film and Animation • Film and Animation – Animation Option – Production Option • Motion Picture Science	• Motion picture science requires 3 years of math; pre-calculus **and** physics are recommended.	1250 -1400	28-32
	School of Photographic Arts and Sciences • Photographic and Imaging Arts – Advertising Photography Option – Fine Art Photography Option – Photojournalism Option – Visual Media Option • Photographic Sciences – Biomedical Photographic Communications Option – Imaging and Photographic Technology Option • Undeclared Photography Option[1]	• Biology is required for the biomedical photographic communications option of photographic sciences.	1090 -1280	23-30
	School of Print Media • Media Arts and Technology	• 3 years of math required • Chemistry **or** physics required	1000 -1280	23-27
College of Liberal Arts	• Advertising and Public Relations • Applied Modern Language and Culture[2] • 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.	1130 -1310	24-30
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.		
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	1160 -1350	24-29
	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 • Career Exploration Studies[1] • Civil Technology • Hospitality and Service Management • Laboratory Science Technology • 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 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 determines associate degree options.	Most applicants to NTID submit ACT scores. NTID recommends that applicants submit the ACT score, but will consider either SAT or ACT.	18-21
	Career-focused Associate Degree Programs (Deaf and Hard-of-Hearing Students ONLY) • Accounting Technology • Administrative Support Technology • Applied Computer Technology • Business Technology • Career Exploration Studies[1] • Computer Aided Drafting Technology • 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 determines associate degree options.	Most applicants to NTID submit ACT scores. NTID recommends that applicants submit the ACT score, but will consider either SAT or ACT.	14-17

Transfer Admission Guidelines

COLLEGE OF APPLIED SCIENCE AND 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	Courses in computer science, math, science, engineering science, and engineering technology	Computer Technology, Electrical or Electronic Technology, or Computer Science
Electrical Engineering Technology	Courses in mathematics, science, engineering science, and engineering technology	Electrical Technology, Electronic Technology, Engineering Science
Electrical Mechanical Engineering Technology	Courses in mathematics, science, engineering science, and engineering technology	Electrical or Mechanical 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
Manufacturing Engineering Technology	Courses in mathematics, science, engineering science, and engineering technology	Manufacturing, Mechanical, Drafting and Design, Robotics, or Electromechanical Technology; Engineering Science
Mechanical Engineering Technology	Courses in mathematics, science, engineering science, and engineering technology	Mechanical, Design and Drafting, Air Conditioning, or Electromechanical Technology; Engineering Science
Packaging Science *Management Option* *Printing Option* *Technical Option*	Courses in business, mathematics, science, liberal arts, statistics, or computer science	Business Administration, Marketing, Management, Graphic Arts, Engineering Science, Liberal Arts with math/science
School of International Hospitality and Service Innovation		
International Hospitality and Service 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

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 New Media Marketing	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

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 **Information Sciences and Technologies Department** Human-Centered Computing Information Technology Networking and Systems Administration **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 *Electrical/Computer Engineering Option* *Electrical/Energy Option* *Electrical/Robotics Option* *Electrical/Wireless Communications Option* Industrial Engineering *Industrial/Ergonomics Option* *Industrial/Lean Six Sigma Option* *Industrial/Manufacturing Option* *Industrial/Six Sigma Option* *Industrial/Supply Chain Management Option* Mechanical Engineering *Mechanical/Aerospace Option* *Mechanical/Automotive Option* *Mechanical/Bioengineering Option* *Mechanical/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 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
Nutrition Management	Courses in liberal arts, sciences, and math. Science courses are required for Nutrition Management major.	Dietetics or Nutrition, Foodservice Management, or Liberal Arts
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 IMAGING ARTS AND SCIENCES		
Majors and Options	**Transfer Course Recommendations without Associate Degree**	**Appropriate Associate Degree Programs for Transfer**
School of Art Fine Arts Studio, Illustration, Medical Illustration **School of Design** 3D Digital Design, Graphic Design, Industrial Design, Interior Design, New Media Design **Transfer Adjustment *(Summer Entry)*** All Art and Design programs	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. Summer courses can lead to third-year status in most programs.
School for American Crafts Ceramics, Furniture Design, Glass, Metals and Jewelry Design	Courses in art history, studio art, and liberal arts. A portfolio of original artwork is required to determine admissions, studio art credit and year level in the program.	Transfer as a third-year student is uncommon, as comparable programs are not generally available at other colleges. A portfolio of original artwork is required.
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 Media Sciences Media Arts and Technology	Courses in liberal arts, college math, physics and chemistry, business	Transfer from associate degree programs considered on an individual basis
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 and Imaging Technologies *Biomedical Photographic Communications Option*	Courses in biology, photography, and liberal arts. Portfolio required for photo credit.	No common program available
Imaging and Photographic Technology Option	Courses in college physics, mathematics, photography, and liberal arts. Portfolio required for photo credit.	No common program available
Transfer Adjustment *(Summer Entry):* Available in all photography programs		Transfer adjustment leading to second- or third-year status in most programs

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
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
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, ASL-English Interpretation, Business, Business Technology, Civil Technology, Computer Aided Drafting Technology, Computer Integrated Machining Technology, Design and Imaging Technology, Hospitalityy 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 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 Science		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.

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 2017-2018 academic year are as follows:
Fall Semester—August 28, 2017
Spring Semester—January 16, 2018
Summer Term—May 17, 2018

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.

FEE SCHEDULE 2017–18
(DEGREE-SEEKING DAY COLLEGE STUDENTS EXCEPT NTID)*

Tuition	Per Semester	Per Year (Two Semesters)
Full-time Undergraduate (12–18 credit hours)	$19,753	$39,506
Part-time Undergraduate (1-11 credit hours)	$936/Cr. Hr	
Student Activities Fee *(Mandatory Charge)*		
Full-time Undergraduate	$140	$280
Part-time Undergraduate	$70	$140
Student Health Fee *(Mandatory Charge)*		
Full-time Undergraduate	$140	$280
Residence Hall Room Charges §		
Double Occupancy	$3,688	$7,376
Single Occupancy §	$4,243	$8,486
Board/Meal Plans		
Tiger 20 (For students who typically eat 3 meals per day, 7 days a week, and spend approximately $20 a week in Dining Dollars†.)	$2,879	$5,758
Tiger 14 (For students who typically eat 2 meals per day, 7 days a week, and spend approximately $33 a week in Dining Dollars†)	$2,762	$5,524
Tiger 10 (for students who typically eat 2 meals per day, 5 days a week, and spend approximately $45 a week in Dining Dollars†.)	$2,645	$5,290
Part Time Programs		
1 -11 credit hours		$936/Cr. Hr.
12-18 credit hours		$19,753

* See the National Technical Institute for the Deaf section of this bulletin for NTID cost information.
§ Additional single-occupancy rates are available, depending on square footage of rooms.
**Additional meal plans also are available, providing for different meal and debit account amounts. Information can be obtained from RIT Food Service upon request.
† Dining Dollars may be used to purchase perishable and non-perishable groceries and food items only, and can be used Utilized at all RIT Dining Services dining locations, campus convenience stores, vending machines..

Other fees

In addition to the fees specified below, certain groups of students may incur other fees, as follows:

Orientation fees:
New freshman students: $225 (one-time charge)
New transfer students: $105 (one-time charge)

Photo/print facilities fee: $149 charged to all full-time photo and print media students; $75 per term charged to all part-time photography and print media students

Some courses require additional charges to cover laboratory, studio, or supply fees. Consult the registrar's schedule for those courses with additional fees.

Costs for books and supplies: These costs vary with the program followed and, to some extent, the electives chosen. In programs with minimal expenses (e.g., liberal arts, business, hospitality), books and supplies will average $1,925 or more annually. In the arts and crafts, costs may range from $900 to $1,100, and in photographic illustration, a realistic allowance is $2,000 a year in addition to cameras and related 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. Payment can be made by check, money order, or credit card, or the premium can 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 at 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 Mary Beth Nally, 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, located in the Student Alumni Union, Room A520 (lower level). 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.

More than 77 percent of RIT full-time undergraduate students receive some type of financial assistance each year. Last year, RIT undergraduates received more than $320 million from all sources, including more than $223 million in scholarships and grants.

Your financial need

Eligibility for need-based financial aid at RIT begins with three basic requirements: graduation from high school or its equivalent, admission in an approved degree program, and demonstration of financial need. 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 are determining a student's financial need for any federal financial aid programs. Financial aid programs are designed to supplement the expected family 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, families are encouraged to contact the Office of Financial Aid and Scholarships with any questions or concerns. Students and families are encouraged to pursue all available sources of financial aid. If students are denied financial aid from one source, that does not necessarily mean they will be denied financial aid from another source.

Application process

The process of applying for financial aid should begin in January of the year 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 applying for fall entry is February 15. The application priority date for transfer students entering RIT in the fall is March 1. Current undergraduate students should submit the FAFSA by April 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

Freshman and transfer students can expect notification of financial aid awards beginning March 15. Current RIT students can expect award notification beginning in June.

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. Only in rare cases will any combination of merit-based and need-based scholarships and grants 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 from RIT vary up to $20,000 per academic year. RIT also awards grants under the federally funded Supplemental Education Opportunity 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. RIT also awards Federal Perkins Loans. 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.

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.

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 6,000 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 2016-17 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 exceptional or 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
3. Divorce/separation within the student's immediate family creating a demonstrable financial/emotional disruption sufficient to affect progress

TAP Satisfactory Academic Progress Standards for non-remedial (HEOP) students who received their first TAP award in 2010-2011 and thereafter

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	6	9	9	12	12	12

TAP Satisfactory Academic Progress Standards for HEOP students and students who first received state payments prior to July 1, 2010.

Before being certified for this payment	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
a student must gave accrued at least this many credits	0	3	9	21	33	45	60	75	90	105
with at least this grade point average	0	1.1	1.2	1.3	2.0	2.0	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	6	9	9	12	12	12	12	12

Please note: *Only students in the HEOP program are eligible for more than four years of undergraduate awards.*

4. Circumstances that the student feels were extenuating; applicants must explain why circumstances were extenuating and beyond their control

These regulations are subject to legislative change.

Academic progress requirements for federal aid programs

Federal regulations require financial aid recipients to maintain minimum standards of satisfactory academic progress (SAP) for continued receipt of federally sponsored aid. All students receiving federal assistance must remain admitted in a degree program. Regulations require a maximum time frame for degree completion, a quantitative measurement (credits attempted versus earned toward a degree) and a qualitative measurement (cumulative grade-point average). The annual review of academic progress at the end of the spring semester each year considers all terms of enrollment, including terms in which no federal aid was received.

Students are allowed a maximum of 150 percent of the published program length to complete their program (i.e. 120 credit program = 180 credit maximum).

The minimum qualitative, or grade point average requirement, is outline below:

Completion of 1st semester—minimum cumulative GPA = 1.5

Completion of 2nd semester—minimum cumulative GPA = 1.5

Completion of 3rd semester—minimum cumulative GPA = 1.8

Completion of semesters 4 through 12—minimum cumulative GPA = 2.0

In order to successfully meet the quantitative component of satisfactory academic progress, students must complete 66.67 percent of credits attempted. The following are considered attempted credits:

- withdrawals
- repeated courses
- non-matriculated courses
- incompletes
- grade exclusions
- credit by exam

Additional eligibility requirements

Transfer students

Cumulative grade-point average requirements are the same as for nontransfer students (i.e., students must obtain a 2.0 GPA at the end of their second year). Transfer students are expected to complete 66.67 percent of credits attempted. Transfer students also are allowed a maximum of 150 percent of the published program length to complete their program.

Repeated course work

Students repeating a course previously passed may do so only once. A course repeated more than once will not be included when determining enrollment status for federally sponsored financial aid.

The federal standards of satisfactory academic progress are applicable to the following aid programs: Federal Work-Study, Federal Pell and SEOG grants, and Federal Perkins, Direct Subsidized, Direct Unsubsidized, and Direct PLUS loans.

Student loan recipients also should note that all Federal Direct Loan Programs have specific annual and cumulative maximum amounts. The loan limits are listed in the Undergraduate Financial Aid Programs 2016-2017 chart and in the U.S. Department of Education Student Guide. Copies of the guide are available in the Office of Financial Aid and Scholarships.

Notification and appeal

Students whose academic progress is not in compliance with federal regulations will be notified of the deficiency. Students who do not meet minimum SAP standards may continue to receive federal aid during a probationary period, not to exceed one payment period, as the result of a successful appeal. After one payment period on probation students must make SAP or must be meeting the requirements of an academic plan. Students may appeal due to special circumstances such as death of a relative, or injury or illness of the student. The following information must be provided to the Office of Financial Aid and Scholarships no later than three weeks prior to the start of the term to be considered for receipt of federally sponsored financial aid during a probationary period and under an academic plan:

- Documentation of student's special circumstances

- Written letter from student indicating why the student failed to make SAP and what has changed in the student's situation that would allow the student to meet SAP standards, and
- A written plan of work from the student's academic adviser that outlines the courses required and the minimum GPA requirements for the next academic year

Academic progress requirements for RIT grants and scholarships

Academic progress requirements for RIT need-based grants are the same as the requirements for federal aid programs. 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.

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 Perkins 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

Instituional 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

- 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 the Office of Financial Aid and Scholarships.
- 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.

Merit-Based Scholarship General Guidelines

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 15 (Early Decision), January 15 (Regular Decision), or November 1 for spring entry. **Students who meet the eligibility requirements for more than one RIT merit-based scholarship will be awarded only the highest valued scholarship.**

Merit-Based Scholarships	Eligibility	Amount
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.	$10,000 to $16,000 per year. Renewable.
RIT Founders Scholarships	Named to recognize the founders of RIT and its forerunners, Founders Scholarships are awarded to admitted freshmen who are outstanding 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.	$7,000 to $10,000 per year. Renewable.
RIT Founders Scholarships for International Students	The Founders Scholarship for International Students is awarded to highly qualified admitted international students. Amounts vary; based on merit.	Amount varies based on merit. Renewable.
RIT Recognition Scholarship	Provided to a select number of students who demonstrate meritorious academics, community involvement, leadership, or other characteristics that the university deems of value.	Minimum award is $1,000. Renewable.

In addition to the award criteria listed above, the following merit-based scholarships have specific selection criteria and/or application procedures.

Merit-Based Scholarships	Eligibility	Amount	Additional Information
RIT National Merit Scholarship/ RIT NMSC Recognition Award	Awarded to admitted freshmen who are National Merit Scholar finalists and name RIT as their 1st choice school for NMSC.	$1,000 or $2,000 per year depending on need. Renewable as long as student meets NMSC guidelines.	RIT will receive finalist rosters from NMSC. Combination of the two awards equals $2,000.
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.	$6,000 per year. Renewable. Up to 10 awarded each year.	Submit scholarship application online at: www.waceinc.org.
RIT/FIRST Robotics Scholarships	Awarded to outstanding admitted freshman applicants who have participated on a high school FIRST team.	$7,000 per year. Renewable. Up to 20 awarded each year.	Download scholarship application at: www.usfirst.org.
RIT Project Lead The Way Scholarships	Awarded to outstanding admitted freshmen who have completed two or more PLTW courses.	$7,000 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. Recipients are identified based on involvement in the Hillside Work-Scholarship Connection program.	$10,000 per year. Renewable.	
RIT Computing Medal Scholarships	Award recipients nominated by their high schools who are admitted and enroll at RIT in the fall immediately following graduation from high school.	$7,000 per year. Renewable.	Eligible students must be nominated by their high schools in the junior year for consideration.
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.	$7,000 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
RIT ROTC Room and Board Scholarships	Awarded to Army, Air Force, or Navy ROTC cadets awarded three- or four-year 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.
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.	Visit our Military & Veterans website: www.rit.edu/emcs/ptgrad/veterans1.php or contact the Veterans and Military Services Office at 585-475-6641.

Need-Based Grants	Eligibility	Amount	Where to Apply
RIT Grants	Students demonstrating financial need.	Amounts vary depending on need.	File the Free Application for Federal Student Aid (FAFSA) by February 15 for priority consideration.
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 the 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.	$606 to $5,920 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	Eligibility	Amount	Where to Apply
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: $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: $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 www.studentloans.gov.

Employment	Eligibility	Amount	Where to Apply
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 $9.70 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 $9.70 per hour.	RIT Student Employment Office.

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 Scholarships 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.

Academic Excellence Endowed Scholarship
Harriet Thayer Adams Scholarship
Max Adler Scholarship
Advantage Federal Credit Union Endowed Scholarship
George Alden Scholarship Fund
Susan E. and Scott E. Alexander NRS Scholarship
Mary R. Alexander Scholarship
Fanny Knapp Allen Scholarship
Theodore & Betty Jane Altier Scholarship
Ames Amzalek Scholarship
Salvador Anchondo Jr. Memorial Scholarship
Robert W. Anderson Endowed Scholarship
Betsy L. Andrews Scholarship
Clara L. Andrews Scholarship
Ezra R. Andrews Scholarship
Kate Rider Andrews Scholarship
Frank & Geraldine Annunziata Endowed Scholarship
Anonymous NTID Scholarship
Susan and Robert Appleby Endowed Scholarship
Howard Applegate Scholarship
Association of Energy Engineers Scholarship
Lee Augustine Memorial Scholarship
Ralph Avery Scholarship
Helen Bader Foundation
David Baldwin Scholarship
Thomas Ward Ball Scholarship
Barlow Endowed Scholarship Fund
John & Mary Bartholomew Scholarship
Nancy and Bruce Bates NRS/Science
The Bates Scholarship Endowment
Bausch & Lomb Scholarship
John Bausch Scholarship
Clarence & Birdice Beal Scholarship
Alice Beardsley Memorial Endowed Scholarship Fund for Interpreting Students at NTID
Ned Behnke Memorial Scholarship at NTID
Richard Benjamin Memorial Scholarship
Hillary Blair Benner Memorial Scholarship in New Media Design & Imaging
Bennett Family Scholarship
Ruth L. Bernhardt Scholarship
Beta Gamma Sigma Scholarship
John and Donna Beusch Endowed Scholarship
Ruth E. Bice Endowed Chemistry Scholarship
Fanny R. Bigelow Scholarship
Roscoe Bills Scholarship
Howard Bingham/Eastman Kodak Scholarship
Blacksberg Family Endowed Fund
Helen & Frederick Blaessig Memorial Scholarship
Doris W. Blanchard Endowed Scholarship Fund
Joseph & Helen Blatecky Scholarship
Harriet Blickwede Scholarship
Karin A. Blood Endowed Scholarship
Boeing Company Scholarship
Matthew David Bouffard Memorial Scholarship
Donald N. and Jeris J. Boyce Endowed Scholarship
Farid Bozorgi Memorial Scholarship Fund
John and Honorable Caroline Branch
Andrew & Mary Brenneman Annual Scholarship
Joseph Briggs Endowed Scholarship
Chester W. Brink Scholarship
Stephen Briody Scholarship
Adam D. Brody Memorial Phi Kappa Psi "Hero" Endowed Scholarship
Dr. Bernard B. Brody Medical Science Scholarship
Steffan Brown Scholarship
Angela Buckley Endowed Scholarship
Nettie Bullis Scholarship
Francis '76 and Catherine Burzik Endowed Scholarship
College of Business Recent Alumni
Business Alumni Scholarship
Business Faculty Endowed Scholarship
Business Women's Alumni Network
Owen Butler Scholarship
Orilla Wright Butts Scholarship Fund
Harold Cadmus Memorial Scholarship
Julia A. and Charles F. Cala NRS Scholarship in Science
Cala Family Endowment
Donn J. Calabrese Family Scholarship
The Cameros Family NRS Scholarship
Campus Connections Books and Supplies Scholarship
Richard Capella Scholarship
Caption First Scholarship at NTID
Carlson Imaging Excellence Scholarship
Howard F. Carver Scholarship
Howard T. Case Scholarship
CAST- Packaging Science General Scholarships
CAST Alumni Endowed Scholarship
Center for Multidisciplinary Studies Scholarship
Theodore Chapman Scholarship
Check Family Endowed Scholarship
Dr. Kathleen C. Chen Endowed Scholarship
Arunas Chesonis Scholarship in the Saunders College of Business
Adam Childs Memorial Scholarship
John & Ruth Christie Scholarship
CIAS General Scholarships
Citigroup Foundation Endowed Scholarship Fund at NTID
Ruth and Brackett Clark Scholarship
Adele Hathaway Clark Scholarship
Florence Clark Scholarship
Hugh Elmer Clark Memorial Scholarship
Jack & Barbara Clarq Endowed Scholarship
Class of '69 Scholarship

Memorial to the Class of 1949 Photographic Technology Endowed Scholarship Fund
COB Class Gift Endowed Scholarship
Albert G. Coenen Scholarship
Eugene Colby Scholarship
Coleman Corporation Scholarship
Wells Coleman Scholarship
College of Science Student Advisory Board
Ward D. Collister Scholarship
Computer Science House Scholarship
Anonymous Computer Science Scholarship
Comstock Foundation Scholarship
Karen Conner Annual Scholarship
Continental Corporation Scholarship Endowed Fund at NTID
Henry and Pinney Cooke Scholarship
Jerome Countryman Memorial
Lillian M. Cowin Memorial Endowed Scholarship Fund
Walter Crighton Scholarship
Alvin Cronig Scholarship
CSX Scholarship
Bryon Culver Scholarship
Curtice Burns Scholarship
Dorothy E. Ann Fund (D.E.A.F.) Endowed Scholarship
Robert R. and Donna E. Davila Endowed Scholarship Fund
Nancy J. Davis Scholarship
Alfred L. Davis & Ruby C. Davis Continuing Education Scholarship
Alfred L. Davis & Ruby C. Davis Leadership Award
Alfred L. and Ruby C. Davis International Student Scholarship
Alfred L. Davis International Student Scholarship
Donald F. and Maxine B. Davison Scholarship
Donald, Betty and Kevin Day Scholarship
Peter Debraal Memorial Endowed Scholarship
De Ridder Corporation Scholarship
James J. Decaro Endowed Scholarship Fund
Del Rosso Family Scholarship
Delta Sigma Phi Fraternity Endowed Scholarship
Valentine R. and John DePaul Founders Fund
Elliot & Justin Derman Scholarship
DiMarco Constructors LLC NRS Endowment Fund
Michael DiRoma Memorial Scholarship
Division of Government and Community Relations Endowed Scholarship
Ronald Dodge Memorial Endowed Fund at NTID
Ronald Dodge Memorial Endowed Scholarship Fund
Patrick Donovan Memorial
Doolittle/Merrill Scholarship
Thomas HW. Dougherty Scholarship
Bill DuBois Endowed Scholarships
Chris Dudek Memorial Scholarship
Mr. and Mrs. Joseph F. Dyer Endowed Scholarship Fund
Eberly Family Scholarship
ECI Systems & Engineering
ECTET General Scholarships
Educational Technology Center Instructional Services Scholarship
Eisenhart Memorial Scholarship
Robert Elder Scholarship
Ellingson Memorial Scholarship
Fred Emerson Foundation Scholarship
Isabel & Benjamin Emerson Scholarship
Raymond Englert
Gerald Ephraim Scholarship
Louise Epstein Supply Scholarship in SAC
Excellence in Engineering Endowed Scholarship
Eyer Foundation Scholarship
Max Factor Family Foundation Endowed Scholarship Fund
Barbara M. Fallon KPMG Memorial Endowed Scholarship
Max & Marian Farash Charitable Foundation Scholarship
John Doane Fay Scholarship
Rose & George Feigenbaum Scholarship Endowed Scholarship Fund
Nancy and Len Fein Endowed Scholarship
William & Mildred Feinbloom Scholarship
Ruth H. Fenyvessy Memorial Endowed Scholarship Fund
Joseph Ferraro Memorial Scholarship
Curt & Jean Feuer Scholarship at NTID
James Fitz Memorial Scholarship
Flora J. Foley Scholarship
Maurice & Maxine Forman Endowed Scholarship Fund
Donald J. Forst Endowed Scholarship
J. Andrew Foster Senior and J. Andrew Foster Junior Scholarship
Dr. Eugene Fram Scholarship
Ron Francis Scholarship
Howard Freckleton and Roy Hamel Endowed Fund
R.T. French Scholarship
Dr. Robert Frisina Scholarship
Ann Wadsworth Frisina Memorial
Max & Helene Frumkes Memorial
Karl Fuchs Scholarship
Emma Fulton Memorial Scholarship
Fundamentals of Engineering Exam Endowed Scholarship
Garelick Family Endowed Scholarship
Garlinghouse Endowed Scholarship Fund
Garthwaite-Brennan Endowed Scholarship
GCCIS Alumni Endowed Scholarship
Gegeheimer/McClure Scholarship
Frank Geist Scholarship
Gelsomino Entrepreneurship Scholarship
General Motors Scholarship
George T. Georgantas Memorial Scholarship
Sarah Margaret Gillam Scholarship
Jean Gillings Scholarship
Kate Gleason Scholarship
Kate Gleason COE Alumni Endowed Scholarship
Gleason Memorial Scholarship Fund
George & Anne Gleason Memorial Scholarship
Warren R. Goldman Endowed Scholarship Fund at NTID
Good Samaritan Association Scholarship
Allen & Gloria Gopen Endowed Scholarship Fund
George Gordon Scholarship
Isaac Gordon Scholarship
Donald and Veda Gotts Memorial Scholarship
Goulds Pumps Inc. Award

Graflex Scholarship
Philip L. Graham Scholarship
Robert P. and Mary B. Gulick NRS Scholarship Endowment
The Hakim Family NRS Endowed Scholarship Endowment
Edward A. Halbleib Endowed Scholarship
Ezra Hale Scholarship
William B. Hale Scholarship
Mildred F. Hall Endowed Scholarship
Sil Hall Scholarship
Hamilton Relay Scholarship
Carter Harmon Scholarship
Jane King Harris Endowed Scholarship
Denton P. and Alice F. Harris Endowed Scholarship
Dr. Howard N. Harrison Scholarship
Harter, Secrest and Emery NRS Scholarship Endowment
Franz Haverstick Scholarship
G. Sherwin Haxton Scholarship
Safford Hazlett
Healthcare Purchasing Scholarship
William Randolph Hearst Endowed Scholarship
Mary Jane Hellyar Endowed Scholarship
Hermance Family Scholarship
Herstmonceux Study Abroad Program
Sol Heumann Scholarship
John and Catherine Hill Endowed Scholarship
Francis Sallie Ann Hillard Scholarship
Laura Church Hillman Scholarship
Hites Family Higher Education Challenge Grant Endowment
Richard Hoerner Endowed Scholarship
Hoffend Scholarship Fund
Edward G. Hoffmann and Bert G. Guerreri Scholarship Fund
Hogadone & Larwood Scholarship
Holmes Family Endowed Scholarship
Eric Honsberger Endowed Memorial Scholarship
Diane Hope Student Support Fund
Charles C. Horn Scholarship
Frank Horton Center Endowed Memorial Scholarship
Frank Horton Scholarship-NTID
Frank Horton Undergraduate Scholarship
William "Dummy" Hoy Old Time Baseball Endowed Scholarship
HP Digital Publishing Innovations
Ying-Yuan Huang and Li-Chu Huang NRS Endowed Scholarship
Jerry Hughes Endowed Scholarship
Forrest and Robert Hurlbut Residence College Fund
T. Alan & Vicki T. Hurwitz Family Endowed Scholarship
Frank Hutchins Scholarship
Ralph Hymes Endowed Scholarship Fund
Arthur Ingle Scholarship
Institute of Fellows Scholarship
International Education & Global Program
Interpretek Scholarship
ISTA Educational Foundation/R. David LeButt Memorial Scholarship
JHB Anonymous Endowed Scholarship
Louis & Sylvia Jackson Scholarship
Andrew R. Jacobson Annual Scholarship
Robert L. Jacoby '77 Endowed Scholarship
Elizabeth M. Jaenike Memorial Endowed Scholarship
Candy Thompson Jagus Endowed Memorial Scholarship
Dorothy B. James Scholarship
Sharyn & Steven Janis Scholarship
Jack Jenkins Endowment Scholarship
Lucille Ritter Jennings Endowed Scholarship Fund
Jephson Educational Trusts Scholarship
Leo Joachim Graphic Arts Scholarship
The Johnson Scholarship Foundation Endowed Scholarship for Innovation & Entrepreneurship
Helen Lucille Jones Memorial Scholarship
John Wiley Jones International Scholarship
Isaac Jordan Memorial Scholarship
Thomas F. Judson Sr. NRS Scholarship Endowment Fund
Thomas F. and Elisabeth Judson NRS Scholarship
Abraham & Teresa Katz Scholarship
Robert & Doris Kaufman Memorial Endowed Scholarship
David T. Kearns Endowed Fund for Technical Excellence
Ron & Lyn Kelly Endowed Scholarship for Deaf and Hard of Hearing Students
Stephen J. Kersting Memorial Scholarship
Drew and Francis King Endowment Fund
Dorothy and Elizabeth Kitizing Endowed Scholarship
Ruth Klee Endowed Scholarship
David L. Kleinman Endowed Scholarship
Kodak Professional Imaging Award
Loweel Koenig Memorial Scholarship
Bernard & May Kozel Entreprenurial Scholarship
Jack Kronenberg Endowed Scholarship
Sara L. Kuhnert Endowed Scholarship Fund at NTID
Los Angeles Times Endowed Scholarship in Newspaper Production Management
Lancer Graphics Industries, Inc. Scholarship
Sheldon A. Lane Memorial NRS Scholarship Endowment
Johanna Larson Endowed Scholarship in the Allied Health Disciplines
Michael E. Lawson Endowed Scholarship
Learning Support Services Scholarship
LeChase Corp. Scholarship
Leenhouts Family Scholarship
Jay and Stephanie M. Levine Scholarship
Levine Family Endowed Scholarship in Entrepreneurship
Richard B. Lewis Memorial Endowed Scholarship
Liberal Arts Alumni and Friends Endowed Scholarship
The Edward H. Lichtenstein Memorial Endowed Scholarship Fund
Abe Lincoln Scholarship
Dawn and Jacques Lipson M.D. Scholarship
Lockheed Martin Scholarship
Mildred Pembroke Loeffler Scholarship
Lomb Citizen Soldier Scholarship
Lomb People Scholarship
Dr. Frank W. Lovejoy Jr. Endowed Scholarship
Eugene Lowenthal Jr. Memorial Scholarship
Max Lowenthal Memorial Scholarship
Patrick T. Lynch Memorial Scholarship

M&T Bank Urban Scholars Scholarship
M/E Engineering Scholarship
Barbara MacCameron Scholarship
Lois C. Macy Scholarship
Magazine Publishing Endowed Scholarship
Thomas H. Maguire Memorial Scholarship
Earl W. Mahuson Endowed Scholarship
Max Sullivan Maisel Memorial Scholarship
Maltby Endowed Scholarship
Manufacturers Hanover Endowed Scholarship
Donald Margolis Scholarship
Dr. James C. Marsters Endowed Scholarship Fund
Clara Martin Scholarship
Lois G. Martin Endowed Scholarship in Hospitality and Service Management
Mathematics & Statistics Fund of Rochester Scholarship
Warren and Lois McClure Endowed Scholarship
Margaret McEwen-Craven Scholarship
Welliver McGuire Fund
John McIntee Scholarship
McIntosh Education Fund Scholarship
Dean McWhirter Memorial Scholarship
Alice Melnyk Scholarship
Norman Miles Scholarship
Norman Miller Electrical Engineering Scholarship
Paul & Louise Miller Endowed Scholarship
Paul A. and Francena L. Miller Professorship
Barbara Milliman Scholarship
Abraham & Sadie Milstein Scholarship
Class Gift for the MMET/PS Department Scholarship Fund
Helen Monar Short Scholarship
Bernice Skinner Morecock Scholarship
Earl Morecock Scholarship
Clifford Waite Morgan Scholarship
Moore Working Scholarship Endowed Fund
Michael and Jean Morley NRS Endowment
Michael P. Morley '69 Endowed Scholarship
Catherine Morse Scholarship
Kevin Mowl Memorial Endowed Scholarship
Mowris-Mulligan Endowed Scholarship
Charles W., Sue L., Freda L. Muffitt Scholarship
Dennis & Cathy Mullen Endowed Scholarship
Center for Multidisciplinary Studies Merit Scholarship
Irene L. Muntz Endowed Scholarship
Nicholas F. Murray Endowed Memorial Scholarship
Michelle "Shelley" Nageotte Memorial Scholarship
Ganpat Rai Nangea Memorial Scholarship
M.L. Navrat Endowed Scholarship at NTID
M.L. Navrat RIT/Rochester City Scholars Scholarship
Don Naylor Scholarship
C.B. Neblette Memorial Scholarship
Evaline and Louis Neff Scholarship
New Haven Craftsmen's Club Scholarship
Grace B. Norton Scholarship
Joseph F. Noveck Memorial Scholarship
Nathaniel Rochester Society Scholarships
NTID Scholarship
NTID Alumni Association Endowed Scholarship Fund
NTID Architectural Technology Scholarship
NTID Business Careers Endowed Scholarship
NTID Endowed Scholarship in Visual Arts Disciplines
NTID Foundation Endowed Scholarship Fund
NTID Performing Arts Endowed Scholarship Fund
NTID Science/Engineering Careers Endowed Scholarship Fund
NTID Student Leadership Endowed Fund
NTID Visual Communication Endowed Scholarship Fund
NYS Federation of Home Bureaus, Inc. Endowed Scholarship Fund in Honor of Martha Perry
Milton H. & Ray B. Ohringer Endowed Scholarship Fund
Dr. David Olsson Memorial Endowed Scholarship
Oneida Air Future Craftsmen Award
Osher Reentry Scholarship Program
Palmer Food Services Scholarship
Robert F. Panara Endowed Scholarship Fund
Mary and John Parke NRS Scholarship
Sandra Parker Scholarship
Mohal T. Patel Scholarship
SJ Paterson & ML Hall Endowed Scholarship
Barbara Paul Memorial Scholarship
Charles J. "Chuck" Pease Jr. Memorial Scholarship
Gerald & Pamela Pelano Scholarship
Paul Pelletier Memorial Scholarship
Terry "Zippy" Peploski Memorial Endowed Scholarship
Anthony J. Petrucelli '61 Memorial Scholarship
Pharmaceutical Packaging Studies Scholarship
Philips ECG Inc. Scholarship
Physics Faculty and Alumni Endowed Scholarship
Wayne R. Pierce '42 Restricted Scholarship
Leonard T. Pimental Scholarship
William & Jacqueline Pittenger NRS Scholarship
Seth Policzer and Syed Ali Turab Memorial Endowed Scholarship
Eugene and Wanda Polisseni Scholarship
Paul W. Porter Memorial Scholarship
Ann Conway Powers Endowed Memorial Scholarship
Prentice Family Scholarship
David Presco Memorial Scholarship
School of Print Media Scholarship for Women
Women in Printing Network Endowed Scholarship
John Myers Pritchard Endowed Scholarship
Pulver Family Endowed Scholarship Fund
Venkat Purushotham Endowed Scholarship for International Students
Q.C.I. Corporation Scholarship
Queens Group Scholarship
Kamran Rab '05 Memorial Endowed Scholarship
Harold Rafael Memorial Scholarship
Byron J. Ramseyer Memorial Scholarship
Eustis and Thelma Rawcliffe Memorial Scholarship in Printing
Real Time Enterprises Scholarship
Redcom Laboratories Undergraduate Scholarship
William A. Reedy Memorial Scholarship
Russell Reilly Memorial Scholarship

R. Bruce Reinecker Scholarship
Jack Renfro Scholarship
Carl Reynolds Computer Science Endowed Scholarship
Robert W. Rice Endowed Scholarship
Richards Endowed Scholarship
Edward J. Ries Memorial Scholarship
RIT Alumni Legacy Endowed Scholarship
RIT Department of Service Systems
RIT Facilities Management Employer Endowed Scholarship
RIT Greek Organization Service Scholarship
RIT International Student Alumni Scholarship
RIT Memorial Fund Scholarship
RIT Memorial Fund Endowed Scholarship
RIT Miscellaneous Endowed Scholarship
RIT Parents Endowed Scholarship
RIT Bill Reedy Memorial Endowed Kodak Scholarship
RIT Residence College Fund
Frank Ritter Memorial Scholarship
Ritz Dinner General Support
Robbins & Meyers Scholarship
Jon and Jessie Roberts Endowed Scholarship in Performing Arts
Archibald & Mary Robinson Scholarship
Rochester Area Business Ethics Foundation Scholarship
Rochester City Scholars Program Scholarship
Rochester Midland Corporation Endowed Scholarship
Rock-Tenn Packaging Scholarship
Ian Rodgers Memorial Scholarship
Roosevelt Paper Scholarship
Robert Root Endowed Scholarship
M. Richard and Clarice Rose NRS Scholarship
Rebecca Rosenberg Memorial Scholarship
Dr. Ellie Rosenfield Endowed Scholarship
Philip Rosenzweig Memorial Scholarship
Madelon and Richard Rosett Scholarship
Rubens Family Scholarship
Bud & Joan Rusitzky Scholarship
Laura Bradford Russell Memorial Scholarship
David & Fannie Rutty Memorial Scholarship
Janet R. Salitan Liberal Arts Scholarship
Jay P. Samuels/ Pictorial Offset NRS Scholarship
Ester Gosnell Sanders Endowed Scholarship
Nelson & Celeste Sanford Memorial Scholarship
Elizabeth Dunlap Sargent Memorial
Endowed Scholarship Fund at NTID
Sasakawa-DeCaro Endowed Scholarship Fund
E. Philip Saunders Endowed Business Scholarship
Savlov Family Endowed Performing Arts Fund
Alan & Michele Scheff Endowed Fund
Robert J. Scheiber Memorial Scholarship
Robert Pitman Schmidt Memorial Scholarship
Paul & Katherine Schmidt Scholarship
Charles W. Schmitt Memorial Endowed Scholarship
William J. Schmitt Memorial Scholarship
Killian J. & Caroline Schmitt International Scholarship
Martin L. Schultz Memorial Endowed Scholarship
Ruth S. Schumacher Fund
General Scholarships for College of Science
Marlene E. Scott Memorial Scholarship
Robert P. Scripps Graphic Arts Endowed Scholarship
Robert P. Scripps Graphic Arts Scholarship/ Melbert B. Carey Fund
James Scudder Memorial Scholarship
Wilfrid and Isabel Searjeant Endowed Scholarship
James Sedgwick of New York Scholarship Fund
Norman C. and Mercedes S. Selke Memorial Scholarship
Eric Senna Scholarship
Martin Setto Memorial Scholarship
Shot Endowed Scholarship Fund
F. Ritter and Hettie Shumway NRS Scholarship Endowment
F. Ritter Shumway Scholarship
S. Richard Silverman Endowed
Fred Simmon Memorial Scholarship
Carolie R. Simone Endowed Scholarship at NTID
Albert J. Simone Endowed Scholarship for
Innovation and Entrepreneurship
Albert & Carolie Simone Margaret's House Scholarship
Albert & Carolie Simone NRS Scholarship
John T. & Leona G. Skalny Scholarship
Joseph & Deidre Smialowski Scholarship
Susan Smigel International Student Scholarship
Kevin Smith Memorial Scholarship
David Smith Memorial Endowment Scholarship
David Alan Smith Engineering and Entrepreneurship Scholarship
Eric Allen Smith Memorial Endowed Scholarship
Sidney Smith Family Endowed Scholarship
Dr. Fred W. Smith Endowed Scholarship
Norma M. Snyder NRS Endowed Scholarship
Robert L. and Norma M. Snyder NRS Scholarship Endowment
Software Engineering General Scholarship Fund
John G. Sommers Sr. Memorial Endowed Printing Scholarship
Benjamin Soukup Endowed Scholarship Fund at NTID
Southwest School of Printing Management Scholarship
C. Sherwood Southwick Jr. Endowed Scholarship
Harry Speck Scholarship
Spectrum Support Program
Karl Sperber Scholarship
Sprint Scholarship Fund @ NTID
Statler Foundation Study Abroad Scholarship
Arthur L. Stern Fund
Hattie m. Strong Scholarship
Pearl Hewlett Stutz Scholarship
Frank B. Sullivan Memorial Scholarship
Matthew Sullivan Memorial Scholarship
Solon E. Summerfield Foundation Endowed Scholarship Fund
William Swart Endowed Scholarship
Michael A. Swartzman Memorial Endowed Scholarship Fund
David F. Sykes Endowed
Peter H. Sykes Endowed Scholarship
George Taenzer Memorial Scholarship
Paul and Sally Taylor Endowed Scholarship
Daniel D. Tessoni EMBA Endowed Scholarship
Thermal Analysis Prize

Michael Thomas Endowed Scholarship Fund in the Performing Arts
Eloise Thornberry Endowed Scholarship
Louis C. Tiffany Foundation
Hollis Todd Scholarship
Kenneth & Barbara Tornvall Endowed Scholarship
Kate Louise Trahey Scholarship
Vincent F. & Jeanette Traniello Memorial Endowed Scholarship
Donald and Christina Truesdale Endowed Scholarship
Fred Tucker Endowed Scholarship
Clarence Tuites Scholarship
Turri & Brown Endowed Scholarship
Phil Tyler Endowed Scholarship
Clifford & Ruth Ulp Memorial Scholarship
United Way Child Care Scholarship
University Studies Program General Support
W. Paul Urich Memorial Endowed Scholarship Fund
Walter Vanderweel Memorial Scholarship
Elizabeth VanHorne Memorial Scholarship
Al VanNevel Memorial Foundation Scholarship
James Ventimiglia Memorial Printing Award
Charles and Andrea Volpe Scholarship
Volpe Scholars Annual Fund
Joseph Waldinsperger Scholarship
Dewitt Wallace/ Reader's Digest Endowed Scholarship
Walls-Olsen Memorial Scholarship
Stephanie Warren Scholarship for Excellence in Emergency Medicine
J. Watumull Scholarship Fund
Kathleen Wayland-Smith Scholarship
Louis A. Wehle Scholarship
David Weinstein Scholarship
Harold J. Weisburg Scholarship
Mark & Beulah Welch Scholarship
Cy Welcher Scholarship
James Weldon and Lillie Chaney Brumfield Scholarship
Peter S. Wells Endowed Scholarship
Edwin Welter Fund
Western New York Village Superintendents Scholarship
Nelson Whitaker Scholarship
Ronald & JoAnn White Scholarship
Whitman Family Scholarship for School for American Crafts
Whitman Family Scholarship
Eloise Wilkin Memorial Scholarship
Elizabeth W. Williams Endowed Fund for the Performing Arts
Norman Williams Family Scholarship
Daniel D. Wilson Memorial Scholarship
James Wilson Memorial Scholarship
Wallace & Paula Wilson Scholarship
Thomas B. Wilson Scholarship
Windstream Scholarship Program
Jim Winter Memorial Scholarship
John J. Wittman II Memorial Endowed Scholarship
Joseph C. & Loretta F. Wolf Endowed Scholarship Fund
Henry Wolf Scholarships
L. & M. Wolk Foundation Physician Assistant Scholarship
Louis S. and Molly B. Wolk Foundation Endowed Scholarship Fund for Deaf Students at RIT
Rudolph Wollner Scholarship
Rose Wollner Scholarship
Women's Council of RIT Endowed Scholarship
Women's Club of Rochester Endowed NTID Scholarship
Women's Council Endowed NTID Scholarship
William D. Wright Scholarship
Wurzer NRS Endowed Scholarship Fund
Xerox Endowed Scholarship
Myles G. Yerden Endowed Memorial Scholarship
Young Printing Executive Club Scholarship
Richard and Lois Zakia Scholarship
Jeffrey W. Zielasko Memorial Scholarship
Donald Zrebiec Scholarship

University Policies and Procedures

Academic Policies and Procedures

RIT's educational mission is to prepare men and women for living and working in a democratic and technological society by offering curricula that meet those needs within an educational community that supports and encourages individual achievement in an atmosphere of pluralism and diversity. 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 adviser, 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 quarters 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 program cumulative grade-point average of at least 2.0. The physician assistant program requires a program 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

At least 30 of the credit hours used toward a degree program must be earned by successfully completing RIT courses. In addition, at least 20 of the final 30 credit hours of any program must be earned through RIT courses. 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 courses—two courses in the first year that introduce students to the intellectual life of the university, and provide a focus on communication skills to prepare students for future coursework and life-long learning.

a. First Year Writing: UWRT-150, ENGL-150, ISTE-101

b. First Year LAS Elective

2. Perspectives—eight courses 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.

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 will be free 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 adviser 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 adviser. Most students also have a faculty adviser. Advisers 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 adviser during their first year. These advising sessions allow students and advisers time to build their advising relationship and plan for success. Students can find their advisers 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

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 advisers, 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 in writing and should include the student's full name (or name used while at RIT), student identifica-

tion number, dates of attendance, and signature to assure proper identification of the record requested. Transcripts are usually prepared and available within one week after the request is received.

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 adviser(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 adviser 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 adviser 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. The registration process is uncomplicated and can be accomplished in a variety of ways. Typically, students start selecting courses six to eight weeks before the academic term begins and can register online or in person at their home department or the Registrar's office. 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 annual Enrollment Guide. 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 twelfth 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. Under exceptional situations, a dean may approve a course withdrawal following the twelfth week. In all other academic sessions and for courses offered in time frames different from the standard semesters (fall and spring), 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. 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, intersession, 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

All degree-seeking students at RIT are expected to meet or exceed certain minimal academic standards. Failure to do so will result in being placed on academic probation or suspension. All such actions are taken by the college at the end of each term; once the action is made, it may be changed or revoked only by a dean. The RIT educational policy governing probation and suspension is specific (see the RIT Institute Policies and Procedures, Section D5.0). Two grade-point averages (GPAs) are calculated and used in probation/suspension decisions:

University Term GPA: grade average of all courses taken in a term that are applicable to a student's degree requirements.

University Cumulative GPA: grade average of all course work taken as either an undergraduate or graduate student at RIT.

Academic probation

A student will be placed on probation if his or her term or cumulative grade-point average falls below 2.0* (a C average). A student placed on probation is expected to sufficiently raise their GPA in the succeeding term so that the probationary status can be removed

Academic suspension

- Any student who is on probation, as given above, and who is not removed from probation in the two succeeding terms (including summer session) in which credit is earned will be suspended from RIT for a period of one calendar year.
- Any student who has been placed on probation after having been removed from probation and whose cumulative grade-point average is below 2.0* will be suspended. Any student who has been placed on probation after having been removed from probation and whose cumulative grade-point average is 2.0* or above will be granted one term to be removed from probation before suspension.
- Any student whose term grade-point average falls below 1.00 will be suspended for a period of one calendar year.
- Students who have been readmitted to their original program after having been suspended and then qualify for probation will be suspended. A suspended student cannot enroll in any credit or non-credit course at the university while on suspension.

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. Members of the campus community, including students, trustees, faculty, staff, and administrators, have adopted an honor code to:

- demonstrate civility, respect, decency, and sensitivity toward our fellow RIT community members, recognizing that all individuals at this university are part of the larger RIT family and as such are entitled to support and respect.
- 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.

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.

Student alcohol and drug policy

RIT is a learning community. The best environment for learning occurs when the community promotes and supports healthy and responsible behavior among its members. Students ultimately are responsible for their behavior and must assume full consequences for it. This includes the responsible and legal use of alcohol. The goal of RIT's student alcohol and drug policy is to promote individual responsibility and advance the goals and expectations stated in the previous section, "Expectations for Community Behavior."

This policy applies to all student members of the RIT community and their guests. It also applies to all student activities on the RIT campus and to all RIT-sponsored events where students are present. Faculty, staff, and their guests are governed by a separate policy.

RIT students are subject to federal, state, and local laws regarding alcohol and drug use. Serious civil and criminal legal liabilities can result from possessing, using, serving, selling, or unlawfully manufacturing drugs/alcohol. RIT will not protect individuals or groups from law enforcement by legal authorities with respect to drugs and alcohol use or abuse.

Individuals or organizations who hold private parties or sponsor private events where alcohol is served or consumed assume full personal responsibility and liability for compliance with the law and conduct related to the consumption of alcohol by attendees, participants, and guests. Officers of organizations that sponsor parties or events, or other hosts or people whose apartment, residence hall room, or office is the site where drinking occurs, will be held responsible for complying with the provisions of this policy.

Provisions governing the possession and use of alcohol

- Alcohol may not be illegally used, possessed, manufactured, or exchanged on RIT-owned or -operated property or at RIT-sponsored events. No alcohol may be sold or exchanged for money on RIT property or at RIT-sponsored events without a New York state liquor license. The RITskeller is a licensed premise and is permitted to serve alcohol to individuals who are at least 21 years of age.
- The consumption or possession of alcoholic beverages is prohibited in all RIT residence halls (including Greek houses and house basements), regardless of age or circumstances.
- The consumption or possession of alcoholic beverages is permitted in RIT-operated apartments 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. Parties in apartments are to be limited to invited guests of a number that is defined by building occupancy

codes and can be accommodated without disturbing the community. These numbers may be found in the RIT apartment contract for a particular facility or obtained from apartment management.
- Guests at all privately sponsored parties where alcohol is to be served must be invited by direct personal invitation only. General "come all" posters, flyers, or mass electronic invitations will not be permitted for events designated as private parties. Only the RITskeller or an institutionally designated space can be used for a community-wide event where alcohol is to be served to students or student groups.
- Public Safety and other RIT officials have the right to terminate events and take appropriate action if they determine that it is probable that university policy and/or New York state law is being violated at any gathering on the RIT campus, in RIT-operated facilities, or at campus-sponsored functions.
- Bulk containers of beer (kegs or beer balls) are prohibited in all RIT-operated apartments. Such containers are permitted only in institutionally designated party areas where alcohol can be served for parties or special events, or in areas that are covered by a New York state liquor license.
- Open containers of alcohol are not permitted outdoors on the RIT campus without prior authorization. Authorization will be given in situations where alcohol is to be served in conjunction with an officially sponsored RIT student event. The authorization process for use of alcohol in these situations is coordinated through the Center for Campus Life in the Student Alumni Union. (See "Registration Procedures for Events Where Alcohol Is Served/Consumed on the RIT Campus" for specifics.)
- 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 restricted further by existing municipal and state ordinances. Prior to planning any activity or event where alcohol is to be served, individuals/groups should consult the Center for Campus Life, located in the Student Alumni Union, regarding the provisions and restrictions governing alcohol use at RIT activities and events.
- Student-sponsored parties/events where alcohol is served may be held in designated areas on the RIT campus. (Private parties held in RIT-operated apartments are covered in item No. 3.) Alcoholic beverages can be served at these student-sponsored parties and events on campus only by RIT Food Service or by an approved third-party vendor. Registration and authorization for such events can be obtained through the Center for Campus Life. The center coordinates the procedures for securing authorization from the State Liquor Board to sell/serve alcohol; this process takes a minimum of 10 business days.
- Behavior that is dangerous to oneself or others and/or disturbs the learning and/or living environment in RIT-operated facilities or at any RIT-sponsored activity/event is strictly prohibited. Such behavior will result in Public Safety intervention and campus judicial action.
- Serving, selling, or providing alcohol to those under 21 years of age or possession of alcohol by someone under 21 years of age is prohibited by both New York state law and RIT regulations. Any person who exhibits behavior that suggests excessive drinking has occurred cannot be served or permitted continued access to alcohol. Individuals who serve such individuals alcoholic beverages will face Public Safety intervention, campus judicial action, and possible civil and criminal prosecution.
- Use of false or altered identification or other misrepresentation of one's age in order to possess or consume alcohol is explicitly forbidden.
- In order to avoid the dangerous and possibly fatal effects of alcohol poisoning, an individual who has "passed out" or shows other signs of serious effects from alcohol consumption should immediately be brought to the attention of Public Safety, RIT Ambulance, the Residence Life staff, or some other person able to assist or get assistance. Seeking such help is encouraged by RIT.
- Students violating the RIT Student Alcohol and Drug Policy will be subject to the campus judicial process published in the Student Rights and Responsibilities Handbook, as well as the judicial actions and sanctions described in this policy. All guests or visitors to the campus also must comply with the provisions of this policy or risk removal from the campus and possible future restriction from campus property.

Sanctions regarding violations of RIT student alcohol policy

If a student or student organization violates the RIT alcohol policy, the following judicial outcomes should be anticipated:

BEHAVIOR	CONSEQUENCES
Possession of alcohol • In residence halls and Greek houses regardless of age • Under 21 years of age • Possession of bulk alcohol	First offense: Disciplinary probation Second offense: Deferred disciplinary suspension/deferred removal from housing and possible referral for a chemical dependency screening Third offense: Disciplinary suspension or removal from housing, with appropriate conditions
Behavior that suggests the excessive consumption of alcohol	First offense: Probable deferred disciplinary suspension/deferred removal from housing; possible referral to alternative educational sanction program or a chemical dependency screening Second offense: Disciplinary suspension and/or removal from housing, with appropriate conditions
Serious policy violations (including serving alcohol to minors, hazing events involving alcohol, or dangerous behavior as a result of alcohol)	First offense: Probable disciplinary suspension and/or removal from housing, with appropriate conditions
DWI on campus	First offense: Referral to local law enforcement agency and disciplinary suspension
Student organizational violations related to alcohol	First offense: Educational/community related sanctions; possible disciplinary suspension of organization and/or removal of recognition

These guidelines are examples of responses that will most likely result when there have been violations of the RIT alcohol policy. Each incident is handled individually. The prior judicial background of the student(s) involved and the impact of the incident on the student and the RIT community are considered when decisions are rendered. In some cases, even with first offenses, the impact of an incident may call for a more serious response. A sanction of deferred suspension or higher will require the dependent student to notify his or her parents or legal guardians about the decision and have the parents/legal guardians contact the Center for Student Conduct and Conflict Management Services for verification.

Registration procedures for student-sponsored events where alcohol is served/consumed on the RIT campus

The following procedures do not apply to private parties held in RIT-operated apartments.

- Student-sponsored events where alcoholic beverages are to be served require that an event registration form be initiated and approved. This process takes a minimum of 10 business days prior to the event. Such events can be arranged on a space-available basis. Inquiries regarding the availability of space/rooms for events where alcohol is permitted can be obtained at the Center for Campus Life.
- Alcohol can be provided, possessed, or consumed by students only in institutionally designated spaces on the RIT campus. RIT Dining Services or an approved third-party vendor must dispense all alcohol at these parties/events. Arrangements for private parties where alcoholic beverages are served can be made through the Center for Campus Life. Only individuals who are at least 21 years of age may register an event where alcoholic beverages are to be served.
- Public Safety will determine the security staffing levels for each event where alcoholic beverages are to be served. The required number of officers must be present for the duration of the event. The costs of these officers will be billed directly to the sponsoring/host organization. Public Safety will discuss requirements for security with the sponsoring individuals or groups prior to the event.
- The guests at all privately sponsored parties where alcoholic beverages are to be served must be invited by direct personal invitation only. General "come all" posters, flyers, or mass electronic invitations will not be permitted for events designated as private parties. Only the RITskeller or an institutionally designated space can be used for a community-wide event where alcoholic beverages are to be served to students or student groups.
- When alcoholic beverages are served at student-sponsored parties/events, nonalcoholic beverages and food also must be served. Guidelines may be obtained at the Center for Campus Life.
- Individuals/officers of the student organization sponsoring the event will be held responsible for the behavior of guests. An officer of the organization must be present for the duration of the event. The organization officer is also responsible for assuring that only individuals who are at least 21 years of age are consuming alcohol during the party/event.
- Student organizers of a party/event should ensure that appropriate transportation is available for individuals who have been consuming alcohol during the party. They should ensure that individuals who have been drinking do not drive while intoxicated.

Provisions governing the possession and use of illegal drugs

- RIT explicitly prohibits the use, possession, sale, manufacture, or trafficking of illegal drugs on RIT-owned or -operated property, or at RIT-sponsored events.
- In order to avoid the dangerous and possibly fatal effects of drug overdose, an individual who has "passed out" or shows other signs of serious effects from drug use should immediately be brought to the attention of Public Safety, RIT Ambulance, the Residence Life staff, or some other person able to assist or to get assistance. Seeking such help is encouraged by RIT.
- Students violating the RIT student alcohol and drug policy will be subject to the campus judicial process, published in the Student Rights and Responsibilities Handbook, and the judicial actions and sanctions described in this policy. RIT students will be held responsible for the behavior of their guests. All guests or visitors to the campus also must comply with the provisions of this policy or risk removal from the campus and possible future restriction from campus property.

Sanctions Regarding Violations of RIT Student Drug Policy

If a student or student organization violates the RIT drug policy, the following judicial outcomes should be anticipated:

BEHAVIOR	CONSEQUENCES
Use/possession of illegal drugs	First Offense: Deferred disciplinary suspension; deferred removal or removal from RIT housing; possible referral for a chemical dependency screening and alternative education program Second Offense: Disciplinary suspension or dismissal; drug treatment while on suspension from the university
Selling or trafficking of illegal drugs	Disciplinary suspension, dismissal or expulsion; referral to local law enforcement agencies

These guidelines are examples of responses that will most likely result when there have been violations of the RIT drug policy. Each incident is handled individually. The prior judicial background of the student(s) involved and the impact of the incident on the student and the RIT community are considered when decisions are rendered. In some cases, even though it may be a first offense, the impact of an incident may call for a more serious response. A sanction of deferred suspension or higher will require the dependent student to notify his/her parents or legal guardians about the decision and have the parents or legal guardians contact the Center for Student Conduct and Conflict Management Services for verification.

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

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 for the university overall at both the undergraduate and advanced degree candidate levels and reflect the career activities of graduates within 6 months of their degree certification. More information can be found at joboutlook.rit.edu

Outcomes rate describes 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 servicem and those not seeking employment at this time.

The outcomes rate for the class of 2016 undergraduates was 95.2 percent which is based on a knowledge rate of 93.4 percent. The outcomes rate for the class of 2016 graduate students was 97.4 percent which was based on a knowledge rate of 96.4 percent. (The knowledge rate is the percentage of graduates for whom RIT has verifiable information.)

Student Persistence and Graduation

Of the cohort of full-time degree-seeking undergraduate students who first enrolled at RIT in fall 2010, 66.5 percent had earned their bachelor's degrees as of August 2016. 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 academic program, thus extending the reported program length to five years.

Additionally, 87 percent of the first-time, full-time freshmen who entered in the fall of 2015 registered for their second year.

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 provide 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 may be used to request an escort, assist a motorist, report suspicious individuals or activity, or request access to a locked building or room.

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 on campus are stored by the Public Safety Department. To report an item lost, please visit rit.edu/publicsafety/safety/lostitems.html to submit information related to lost property (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 and offers a description of security practices and information on reported occurrences of crime. Access the report at http://bit.ly/RITreport.

Confidential tip line: This service is to obtain information that is unattainable through conventional methods and to alert public safety to endangering behavior that might go otherwise unreported. Individuals who utilize the tip line are encouraged to leave their names and contact information; however, they will not be contacted. 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 at the Department of Education website (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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