Call To Order: 12:06 p.m.

Communication Officer’s Report
Approved Minutes of 4/2/2015: https://ritdml.rit.edu/handle/1850/17457
[If you experience any difficulty with the DML links, please email the DML department at: ritscholarworks@rit.edu.]

Executive Committee Report
- Please try to attend Carl Lundgren’s retirement party on May 7, 2015 from 2:00-4:00 p.m. in CIMS/2210. He has served on the Academic Senate for many years during his tenure here.

Strategic Plan Update – Presentation by President Destler
PPt Presentation: https://ritdml.rit.edu/handle/1850/17456

- For full details of this report see link above to view the PPT that was presented.
- The update on the new Strategic Plan and the progress made thus far on its implementation was reported and the prioritization of the Difference Makers has been accomplished.
- Work on this SP began October 13, 2013 with hundreds of people involved.
- A spreadsheet listing all of the plan priorities has been developed by the various VPs and the fiscal implications associated with these priorities are being evaluated as we move ahead.
- There will be a major strategic fundraising campaign associated with the Strategic Plan.
- A matrix and preliminary dashboard are being prepared, along with a timeline.
- Among our possible challenges: How are we to eliminate structural impediments to institutional agility?
- Most of what President Destler reported on will soon be on the web.
- He is welcoming comments from the RIT Community.

Discussion/Q&A ensued.

- J. Ettlie: One concern I have is interdisciplinarity and this might be a real threat to the junior faculty, given the way things currently stand. Chairs must orchestrate the delivery of courses and course content and they might not always be so flexible and accommodating with respect to this issue.
  - President Destler: That is an excellent point. Thank you.
- T. Policano: I have two concerns.
  - We keep saying STEM, but shouldn’t we also be saying STEAM to include the arts, since this is one of our strengths.
  - Secondly, I believe that the vision statement needs to be revised.
    - President Destler: STEAM is in the plan. Yet STEM is a pressing national concern, which is why it is being highlighted here. And yes, we need to revise the vision statement.
G. Hintz: I would like to underscore that education in the sciences is intrinsically tied to visual information, to imagery and symbols. We must not lose track of this.

President Destler: We should start thinking about this more.

**ICC: Proposed AAS Mobile Application Development Program (NTID)**

See full details on this site is which includes the PPT, executive summary and full proposal:  
https://ritdml.rit.edu/handle/1850/17450

- Brian Trager, assistant professor in Information & Computing Studies at NTID presented the program.
- Dawn Hollenback, ICC chair reported that ICC voted unanimously to approve this program.
- This program prepares students for work in the software development industry with a focus on application design and development for mobile platforms.
- This program is unique in a number of ways.
- This program will incorporate a learning support community to reinforce student retention and success.
- This program will be a new and innovative addition to the NTID academic portfolio that will allow students to earn an associates’ degree in the new and rapidly growing field of mobile computing.
- A maximum of 12 students will be accepted per year.
- The program will offer two opportunities for experiential learning, co-op and capstone.
- This degree will prepare students for careers in industry through four major area of focus that we have identified: fundamentals, development, design and others.
- Space has been allocated for this program and it will be in a new building.

Discussion/Q&A ensued.

- J. Ettlie: How do you foster creativity and select creative students. And how do you know they are creative when they leave the program?
  - B. Trager: Students are asked to submit a letter/portfolio once they have completed the program. There is also the summer NTID program that gives the opportunity for staff and faculty to meet students before the school year begins.
- R. Vullo: My colleagues and I in GCCIS are very supportive of this program.
- E. Holden: I would second the support of this program on behalf of my colleagues.
- G. Hintz: Who would develop and control the creative content for the apps? Is there a possibility for crossover from other areas and greater collaboration with other colleges and departments? My colleagues and I would be very interested in such a venture. We welcome you with open arms.
- S. Ramkumar: On page 4 of this proposal you list 12 courses that will be new courses. Do you actually have the bandwidth to accomplish this? Are the developers of these apps going to be independent contractors/developers? What exactly will their status be? Will they be working for local companies that desire these apps?
  - B. Trager: We have a plan in place for course development for students who would start the program in 2016. We already have some ideas for courses and it is doable. This program prepares students for careers in industry.
- S. Ramkumar: So the skill sets that you will provide will presumably provide the expertise to work across platforms and go into almost any industry?
  - B. Trager: Yes. We expect that students will be comfortable across multiple platforms and can work in any industry.
- L. Villasmil: All is housed at NTID and suggested that RIT students can take some of these courses to foster more integration.

**Motion to approve the proposed AAS degree program in Mobile Application Development from NTID passes unanimously.**

**Graduate Council: Proposed PhD in Mathematical Modeling (COS)**

See full details of the PPT presented and the documents (executive summer and full proposal) distributed to Academic Senate the week prior to today’s meeting.  
https://ritdml.rit.edu/handle/1850/17451
• Joseph Hornak, Graduate Council Chair summarized Graduate Council’s work on reviewing the PhD in Mathematical Modeling and gave a brief overview. He introduced: Nathan Cahill, SMS Associate Professor, Mihail Barbosu, Professor and Head of SMS, and Sophia Maggelakis, Dean of COS.
• Vote of approval from Graduate Council was: 10 in favor, 3 Opposed and 1 abstention.
• This was one of the most exhaustively reviewed proposals that has come before Graduate Council in recent memory.
• Revisions have been made based on this very exhaustive review and feedback, and as a result the proposal has been strengthened.
• Sophia Maggelakis:
  o We in the COS are pleased to propose a PhD program in Mathematical Modeling that will provide graduates with a solid foundation in the development and application of mathematical models of real world systems and problems.
  o The proposed program is a distinct program firmly rooted in mathematics with emphasis in Mathematical Modeling.
  o This is a niche that has only begun to be explored across the academic community and RIT is well-positioned to have such a PhD program, which will be complementary and synergistic to our existing Ph.D. programs.
  o This initiative was part of the strategic plan of the School of Mathematical Sciences (SMS), when we created the school, and it also became part of the five-year COS strategic plan.
  o We have followed RIT process for introducing new Ph.D. programs. The concept paper was posted to be vetted by the RIT community. We only received encouraging feedback. We also discussed the concept paper with the SMS external advisory Board and with the external Advisory Board of our college. We received positive and encouraging feedback and proceeded to develop the proposal that was discussed and approved by the SMS Graduate Curriculum Committee and the SMS faculty. The proposal was approved unanimously by the COS Curriculum Committee and the SMS faculty. The proposal was submitted to the Graduate Council. As required by NYSED, we had external reviewers who were approved by NYSED, for a two-day site visit. The report we received was positive and it is included at the end of the proposal.
• Nathan Cahill:
  o This proposal has been many years in the making.
  o I am an RIT alumnus and took my first calculus courses under Professor Maggelakis.
  o Definition of Mathematical Sciences as formulated by the NRC was shared.
  o This program is unique, and there is not other quite like it.
  o It will be a first of its kind.
  o It is interdisciplinary, innovative and creative.
  o Five concentrations are proposed.
  o Overlap with application domains have been specified.
  o TA’s will not be teaching Calculus. Calculus courses are six contact hours: four of lecture and two of workshop. TA’s will lead workshops, while SMS faculty lecture. In SMS, adjuncts with MS degrees can be hired to teach low-level courses; TA’s with MS degrees could also teach these low-level courses in place of adjuncts.
  o It will also require an “interdisciplinary internship.” This is not a Co-Op.
  o Job prospects for such training are forecast to be very robust in the future.

Discussion/Q&A.

H. Shahmohamad read a script of his concerns, which are listed as follows:
• I would like to start by thanking and acknowledging the hard work of everyone involved here. Without a doubt we are all invested in the health, success and future of RIT.

• Should academic offerings always provide delight? Learning happens through challenging academic interactions and not necessarily always delightful. It is after graduation that one feels extraordinarily grateful for the learning that took place through the rigorous academic journey completed.

• No true PhD Program is without rigor, depth and breadth. A PhD in Mathematics is based on many profound foundations: Abstract Algebra, Real and functional Analysis, topology, Number Theory, Combinatorics and others.

• This proposal uses an inverted approach, turning historically core courses into electives (page 24). With this proposal, a PhD candidate can dodge his way through the curriculum and never experience classical foundations of Mathematics. This is unacceptable. This fact alone gives this proposal the appearance of being a quasi-PhD degree, an incomplete attempt, a way to bypass and to avoid the difficult and worthy mathematical subjects that are found in the core of respected Mathematics PhD programs. This proposal seems like a sprint towards a finish line, the promise of a future job in the industry.

• It seems to be forgotten that all great applied mathematicians first became great mathematicians through hard work and then started using their vast knowledge to solve various problems. This proposal is a downhill bike ride and surely not a Tour De France. However, this proposal is very successful in appeasing the industry.

• Entering graduate students with various and questionable levels of mathematical preparedness are assumed to be able to handle deep mathematical concepts with ease in their first year and beyond.

• Many failed attempts in finding a viable funding model have left weak options for support. The unprecedented choice of allowing graduate students to teach undergraduate courses paints a very bleak financial outlook.

• The greatest inventors in history have tested their creation against the most severe conditions, not the most favorable ones. That is not the case here. Seven letters of support, with only one from academia, written as early as 2 years prior to the completion of the document accompanied this proposal. All seven writers were discovered to be closely related to one of the co-chairs of the proposal. In some of these letters, hiring managers expressed interest in hiring our future graduates.

• The 106-page long document received by the SMS faculty in September 2014 failed to mention two keywords throughout its pages: Undergraduate programs. Unlike the existing Color Science or AST PhD programs, which are stand-alone and do not have undergraduate programs, this proposal is self-funding and heavily dependent on the resources within the school. Draining time, energy and resources from faculty will undoubtedly affect our undergraduate students, undergraduate research, and quality of teaching across the broad range of seven courses that SMS offers. While the external reviewers on page 124 stated that they found no objective evidence of this, the current associate school head thinks that both the undergraduate research and quality of teaching will go down.

• The current version of the proposal has letters of support from heads of Physics, Chemistry and Center for Imaging Science. While this does not offer the highest form of independent “external” oversight, one can only wonder if the heads of other units were reached and what, if any, concerns they might have had.

• Over the past few years, RIT has adopted President Destler’s Peer Institute list and has used it for guidance, comparison and improvements on matters ranging from parking fees to salary benchmarking. Despite my frequent pleas, among the many letters of support available in this proposal, there is not one letter from a current PhD program director affiliated with a university on Peer institute list. In fact, of all the people passing expert opinion on this proposal, CEO, presidents, hiring managers, deans, senior lead technologists, program leaders, principal scientists, not one is a current University PhD program director.

• The last approved PhD proposal sailed through the Engineering College unanimously. The Senate needs to be reminded that 13 SMS faculty members did not vote for this PhD proposal. Grad Council’s 10-3-1 vote does not prove to be a slam dunk either. Both results indicate the presence of doubt and a great deal of concern.

• Without a question, SMS will one day offer a great PhD degree in Mathematics. I have remained a skeptic and I am not convinced that this is that proposal.

• J. Ettlie: Some of my best friends are applied mathematicians and I have been in a cohort with such individuals for many years. One key question I have: I don’t believe that the government forecast of jobs is sufficient for or against this program, especially since it is touted as so unique. Are these graduates solely going to be employed in industry? Will they be at a disadvantage in acquiring a job in academia? Where will your first graduating cohort likely be employed?
N. Cahill: He presented a larger presentation that they gave to Graduate Council, and viewed on the PPT at the meeting today a large listing of places where students could obtain employment in public or private sectors. Additionally, if graduates want to do an academic path, we can instruct them in this.

J. Ettlie: So it can be seen that graduates would be employed in public or private sectors but not in academia.

N. Cahill: While the primary focus is for PhD graduates to be employed outside of academia, they can also pursue jobs in academia. My own PhD is from the University of Oxford, from a pure research doctoral program that was at the boundary of applied mathematics and engineering and required no coursework in traditional pure mathematics and I ended up here at RIT in a faculty position.

E. Saber: Several points were addressed as follows:
- Mathematical Modeling is the foundation of what we do in Engineering with the PhD Program in Engineering. The high degree of intersection with our already existing programs is a concern to me.
- PhD programs bring prestige, but they are very expensive.
- We already have programs in the KGCOE PhD program that do these problems and do them very well.
- There is a very high degree of redundancy in this proposal, which seems very odd when looking at the other PhD programs already on campus that deal solely with their expertise (ie Color Science, Astro Physics).
- TA’s teaching either lower level courses if they hold an MS in related fields or holding workshops is a concern. This is not an image that we want our students to see and is not a good marketing idea. When students come to an Open House at RIT, we tell them every class is taught by faculty. We pride ourselves on having our faculty teach our courses and RIT’s math department is largely a service department that provides foundations for the rest of the university. We want to put the very best of the very best in our classes and to provide excellent professors in the classrooms. This is downgrading the 80-90% of the revenues that we get. I am concerned about the possibility that non-faculty might be teaching these courses. We are so largely revenue tuition driven, that we must provide the very best undergraduate courses.
- If you want a PhD program, do it, but provide the money to do it.

President Destler:
- I strongly encourage the senate to approve this program. I believe it is a signal moment on our campus.
- We were courageous enough to start a Sustainability PhD program at RIT and this program has had a unique place to play.
- When I was growing up science and engineering was a 2-legged stool, theory and experiment. It is now a 3-legged stool, - theory, experiment and modeling. We have a chance to advance with this PhD in Mathematical Modeling and assume a leadership position in this area.
- The faculty for this program are very impressive and fully able to support this program based on their own funding and research.
- We are admittedly taking a very tiny step in using TA’s in undergraduate courses, especially for non-major or more remedial courses. This is a concern for this program but not an overriding concern.
- We can build greatness by being different.

H. Ghoneim voiced a few points of concern.
- We are rushing towards this PhD program.
- We recently passed the Engineering PhD program and shouldn’t we assess this first before going into another PhD program?
- TA’s are good for labs and lectures but not for teaching.
- There was a high percentage of faculty that objected to this degree program.
- I have concerns about the scarcity of funding for pure mathematical scholarship and research.
  - N. Cahill: Presented a list of faculty that are already getting much funding through external grants.
- H. Ghoneim: The history of awarded proposals for your faculty would be very helpful and I would like to have seen this. I do not know whether this is going up or down with this proposal as this was not a part of the proposal. With the KGCOE PhD proposal we provided a history of the awarded proposals.
  - N. Cahill: We have another five or six junior faculty getting External Grant support. And in our financial projections we were conservative and were told to cover two students per year on
stipends. We do have PI’s in SMS. Our present financial model of this program is based on the last five years of funding.

- S. Maggelakis:
  o In regards to the vote not being high for this proposal, the vote was: 30 in favor, 9 opposed and 4 abstentions.
  o In regards to TA’s, which Eli raised concerns about, I do believe in this philosophy also that we want the very best in our classrooms. Currently in COS we have many lecturers that do not have a PhD. We are not proposing that TA’s will be teaching courses, yet they can only teach if they have a Master’s Degree and have taken some of the PhD courses that will be required for teaching. Also, they need to have gone through the mandatory training, and only then will they be put in a classroom, in a low-level course. Currently 2/3 of the lecturers teaching in COS do not have a PhD. Currently we do use TA’s in the undergraduate workshops. We do not want to give the message that we are giving teaching loads to the TA’s in mathematics.

- S. Ramkumar:
  o In agreeing with Hany, I also could not discern in the proposal the trends and growth in scholarship and how much grant funding was coming in. On page 19 each of the areas had a group of faculty and some who had zero dollars in RAPID. The only group that had a large amount was in Geometry, Relativity and Gravitation, which already has a PhD.
    ▪ N. Cahill: Many in biomedical mathematics as well as in dynamical systems, are also PI’s on grants that are of the size that could support PhD student stipends.
  o Ram: What would be the mechanism if other faculty wanted to be involved with your program and wanted to pursue a PhD?
    ▪ N. Cahill: We have in the program said that anyone who wants to be involved in this program can be. We expect new hired faculty to grow and if other faculty on campus want to be a part of this that is great as well.
  o So will the focus area grow?
    ▪ N. Cahill: If there are a cluster of faculty who want to join together for an extra concentration, we can investigate in the future if this is appropriate to add to the program.

- C. Collison:
  o This program is different from the program in Engineering and I am excited that we can work collaboratively with scientists and mathematicians. This would provide more opportunity to receive external funding in offering large sums of funding for collaborative work.
  o This PhD program propels scholarship at RIT in the College of Science and would provide more growth in scholarship and external visibility for external funding as more doors may open with others such as the National Science Foundation, Department of Energy, etc. In looking at the Strategic Plan, we need to grow our scholarship and this is one of the areas where we can do this in the College of Science.

- L. Villasmil:
  o My scholarship work is based on the 3-legged stool Dr. Destler spoke of earlier as I work with modeling (fluid dynamics, and I understand mathematics and physics).
  o Interdisciplinary is mentioned much with this program but the program essentially mentions mathematics.
  o I work with modeling, and would this program be an overriding center. Implementation of this program needs to be discussed further.

- J. Capps:
  o Are there any MS programs in this area? I have already displayed some on my computer, so my query is rhetorical.
    ▪ N. Cahill: There are a few master’s programs that do simulation, which is related to mathematical modeling, but not exactly the same.
  o What would attract students to this program and what do we then add to this program that goes beyond other programs already in existence.
- N. Cahill: The master’s students would have the tools but doing the thesis and internship, one could even go into a manager’s job as a PI (project manager).

- J. Capps:
  - Won’t there be some logistic issues if we have five students spread across four or five different concentrations at the start? And some of these may be offered at the exact same time.
  - N. Cahill: When we get to the full number of students then this can be worked out, yet it will take some challenges in the first few years. It will take some strategic planning in how we get the program up and running.

- E. Saber: I move that we table this PhD proposal for today. It is very important to know who voted against this proposal or abstained in their vote, and come back to the senate with a stronger proposal that is largely supported by the faculty.
  - C. Collison: I object.
  - S. Maggelakis: Is it the expectation that the vote from the faculty has to be unanimous?
  - M. Laver: We as a body need to decide how we are going to address this today. We only have a few minutes left, and either we need to vote on this proposal or table until our next meeting.

**Motion to table the proposed PhD in Mathematical Modeling passes with a vote of 12 in favor, 8 opposed and 2 abstentions.**

**General Education Framework Proposal**
Deferred due to time constraints. Will return to Academic Senate on 4/16/2015.

Adjournment: 1:50 p.m.

Respectfully Submitted,
Chip Sheffield, Communications Officer
Vivian Gifford, Senior Staff Assistant