MCS College Council Meeting Minutes  |  May 11, 2017

**Members Present:**
- Tom Bohman
- Maggie Braun
- Roy Briere
- Jason D’Antonio
- Rebecca Doerge
- Daniel Evans
- Stephen Garoff

**Guests:**
- David Hackney (for A. Mitchell)
- Ken Hovis
- Giovanni Leoni
- Sharon McCarl
- Curtis Meyer
- Linda Peteanu
- Logan Plath

**Absent:**
- Rachel Mandelbaum
- Manfred Paulini
- Aaron Mitchell

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**New Course Proposal: 03-428/03-728 Genome Editing Biotechnology**

David Hackney for Aaron Mitchell

- Offered last fall on a test run.
- Focused on changing DNA.
- Taught by Aaron Mitchell with some outside guests.
- Very well received.
- Students are very interested in the multi-dimensional aspects of biology.
- Cross-listing factor: Challenges the undergrads in a positive way. Sometimes there are some logistical issues with the registration process which can be frustrating.

**Vote:** Unanimous approval.

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**New Course Proposal: 09-216 Chemistry Tech II to Lab II Transition**

Linda Peteanu

- Taught by Susan Graul.
- Non-chemistry majors who take Tech II rather than Lab II may later opt to transfer to Chemistry or pick up an additional major. This class serves to fill the gap between the two courses.
- Students are walked through the underlying science in Tech II.
- Prepare them to move onto Lab III.
- Estimated enrollment: two to three students.
- Pathway to a dual major or transfer to Chemistry.
- Individual projects are the item missing from the more elementary course. (Tech II vs. Lab II)
- No lab component.
- Effectively an independent study executed in a systematic manner.
- A carryover from the implementation of the new core and the development of the two courses.
- Could be waived if someone had completed Tech II very successfully, but would still need to make up the units.
- A standardization of the degree.

**Vote:** Twelve in favor, one opposed.
Linda Peteanu

- Expected to be taught in the fall. Some students are enrolled now.
  - Potentially offered every fall (depending upon interest).
- Taught by Neil Donahue.
- 9 units.
- Expected to reach a broad segment of the student population.
- Designed to allow the students to help each other through group work.
- An attempt to make students climate-literate.
- Matches the interdisciplinary nature of our new core.
- Fits the physical sciences requirement in the core curriculum.

Vote: Unanimous approval.

Requirement Changes for the “Operations Research and Statistics Concentration” and the “Statistics Concentration”
Tom Bohman

- Largely due to change in the Economics curriculum.
- The Math curriculum committee had a long discussion about whether or not the courses belong in the major.
- Kept the required number of units the same.
- Made a decision to ultimately minimize the change.
- No discussion about reserving seats in the economics courses for the math students.
  - Tom will investigate.

Vote: Unanimous approval.

Changes to the Mathematical Sciences Honors Degree Program
Tom Bohman

- The program has been going through a series of iterative changes.
- Change is to the co/prerequisite structure for the sophomore level courses.
  - If you get a C in Math Studies I, you should not be permitted to continue. It is an honors-level course, which should require “B” or better work.
- Students must apply to get into the honors sequence.
- Affects one or two students (out of currently 14 students)

Vote: Technically, co/prerequisite changes do not need to be approved by College Council.
Redesign of the Graduate Program
Manfred Paulini and Steve Garoff

- Rachel and Manfred chaired the working group charged with evaluating the program.
- Three major changes:
  1. Replace the written qualifying exam at the beginning of the second year more intense final exams on required courses.
  2. Involve students in research earlier. Consider research readiness when passing onto Ph.D. candidacy.
  3. Modify the Oral Qualifying Exam to serve as an oral exam emphasizing the assessment of the student’s research aptitude and readiness.
- Students have to now take research projects in first, second, summer and third semesters. (One per semester, or can carry on) Encouraged to do rotations. Give them some flexibility.
  - Students will present on research rotations.
  - Students can sample different research groups. Will help students find their thesis advisor much earlier.
  - Some training on certain instrumentations take a lot of time. As a result, students may require more than one semester for a single project.
- Reducing required courses from five to four so that students can focus on significant research.
  - Omitted course is Mathematical Physics. The primary topics of this course will be absorbed by other required courses.
    - Course is still be offered as an elective.
- Breath remains unchanged: one course outside of thesis concentration.
- Will affect the class entering in Fall 2017.
  - Current students will have an opportunity to choose between the new and old paths.
- Why are we removing the written exams?
  - Preparing for the qualifier takes time and resources from the student and advisor. It is more advantageous for the students to spend their time on research.
  - More emphasis on introductory courses and a greater weight on their exams.
    - There is currently a strong correlation between success in these exams and progress in the program.
    - Written qualifier covered the content in the first year courses.
- Students will be asked how their research relates to any subject in the basic physics area (like quantum mechanics).
  - The same model that Chemical Engineering uses.
- Oral exam: Not a thesis proposal exam. Based on research already done
  - When the committee hears the presentation, they will have some information on the student’s research in advance. Expectations can adjust according to this.
  - Research advisor will be present but silence during the oral exam.
- What if they fail one of the two course? They can retake it. They should have both done by the end of the second year.
  - Would have to push back their candidacy for the exam.
- The candidacy is approve by the entire department.
  - Based upon core courses and the oral exam.
  - Requires some care to put together the committee so that there’s representation from the different research areas.

Vote: 12 in favor, one opposed.