Report of the ad hoc committee on curriculum revision

9/26/07

Courses

Calc. I & II vs Calc. A & B

The committee agrees that for departmental purposes (i.e. prerequisites, etc.) Calculus I and Calculus A should be viewed as equivalent and that, provided the content of Calculus B be adjusted accordingly, Calculus II and Calculus B should also be viewed as equivalent.

Intro. to Abstract Mathematics

In order to improve the efficiency of this course in achieving these goals, and as a service to our majors and those teaching upper division courses, the committee proposes that the content of Introduction to Abstract Mathematics be standardized, both the methods and techniques of proof that are presented, as well as the mathematical concepts used to illustrate them. The number of new definitions would be kept to a minimum so that students could spend less time digesting new ideas and more time focused on proof. Suggested subject matter includes basic real analysis, basic point-set topology and basic abstract algebra.

The standardization and revision of Introduction to Abstract Mathematics will likely occur over several semesters, and the committee proposes to begin with a "pilot" version of the revised course this Spring (2008). The course would be team-taught by Cabral, Ryan and Brian. Each would be expected to contribute to and attend the lectures of the others to ensure a coherent overall presentation. This arrangement is plausible given the lightened teaching demands on the department this Spring. In addition to providing the first iteration of the standard syllabus, the lecture notes from the Spring 2008 offering would be written into a formal document which, in subsequent offerings of the course, would be refined and could eventually be used as the course text. This proposal has been approved by Academic Affairs and the committees intends for Cabral, Ryan and Brian to apply for one of Trinity's Curricular and Pedagogical Innovations Grants to fund the writing project.

The committee furthermore proposes to offer Introduction to Abstract Mathematics as a course every semester. The hope is that this would allow additional schedule flexibility for our majors as well as decrease the number of semesters it takes to enroll in upper division courses that have Introduction to Abstract Mathematics as a prerequisite. Once standardized, this new arrangement should not seriously increase the department's teaching responsibilities.

Upper Division Course Schedule

With the aim of increasing enrollments while maximizing availability, beginning in the Fall of 2008 the committee proposes moving to the following two year schedule of upper division course offerings.

F	S	F	S
Algebra I	Algebra II	Analysis I	Analysis II
	Analysis I		Algebra I
Topology	Combinatorics II	Complex Analysis	Advanced DE's
Stochastic Processes	Optimization	Linear Algebra II	Number Theory II

It should be noted that Stochastic Processes would not fill its indicated slot until 2010, being offered outside of this block in the near future.

Revision of Course Descriptions, Prerequisites and Numbers

Brian will fill in...

Handbook Tracks

The committee proposes to remove the suggested course tracks (The Major, III., a. - e.) from the course handbook and replace them with a suggested track for the first four semesters only: Calculus I/A, Calculus II/B, Calculus III, Linear Algebra and Introduction to Abstract Mathematics. More detailed track information would instead be placed on the departmental web site where it could easily be modified as necessary.

The Revised Minor

To accommodate the changes in course numbering and prerequisites being proposed above, the committee proposes changing the mathematics minor requirements to MATH 1311, 1312, 2321 and nine hours of upper division (3000 level or above) mathematics. This allows Introduction to Abstract Mathematics to count toward the minor, but prevents it from being a requirement.

BA/BS

The committee explored the possibility of offering both a BA and BS degree in mathematics. It was originally proposed to simply allow each student to choose a label for his degree. However, the committee has ascertained that it may be rather difficult to get the UCC to agree to this idea without additional research. Before this topic is taken up again, it is suggested that: (i) a poll be taken of our majors (current and former) to determine the actual desire students may have for a BS degree; (ii) data be gathered on what types of degrees are offered at comparable institutions.

Technology

The committee proposes the following solution to the problem of inclusion of technology (Maple, Matlab, LaTeX, etc.) in the department's curriculum. A common pool of problems meant to be solved with the use of a program such as Maple or Matlab would be created. At the beginning of every semester it is offered, the instructor of the Junior Majors' Seminar would choose a certain number of these problems and hand them out to the students. The students would have the entire semester to complete the assigned problems and would be required to turn in solutions written in LaTeX. The students would be expected to research and learn the computer syntax necessary to complete the assignments on their own (through reading of the vast amounts of available documentation), thereby not disturbing the current structure of the Majors' Seminar.