

UC 10746 09F

APPROVED DEC 09 2009

TO: Lawrence Williams, Chair
Undergraduate Council

FROM: Richard Scamell
Degree Programs Committee: Programs

SUBJECT: UC 10639 09F: Change in Math Requirements For Chemistry
UC 10640 09F: Removal of the Pairing of MATH 3396 and MATH 4389 for NS&M
Capstone Credit
UC 10641 09F: Bachelor of Science in Mathematics – Option in Mathematical Finance

DATE: December 9, 2009

The Committee met on Wednesday, December 2 to review three proposals that involve courses in the Department of Mathematics. UC 10639 09F comes from the Department of Chemistry and requests the addition of MATH 3321: Engineering Mathematics as a required course for students working toward both the BA and BS in Chemistry. UC 10640 09F and UC 10641 09F apply to selected students in the various undergraduate options in the Department of Mathematics. Participating in the consideration of these proposals were Betty Barr, Miranda Bennett, Debbie Hermann, Iain Morrison and Richard Scamell.

UC 10639 09F

Currently both the Bachelor of Science and Bachelor of Arts degrees in Chemistry require students take MATH 1431: Calculus I, MATH 1432: Calculus II, and MATH 2433: Calculus III. The purpose of UC 10639 09F is to formalize the requirement that students take MATH 3321: Engineering Mathematics as a fourth required Math course. MATH 3321, which focuses more on differential equations, matrices, determinants, eigenvectors, and eigenvalues has up until this proposal been strongly suggested as an elective but not required for all Chemistry students. The net effect of this change is to reduce the number of elective hours in both programs by three semester hours. Both programs remain 120 semester hour programs.

In reviewing the suggested Bachelor of Science in Chemistry Degree Program, the committee noted that CHEM 4372: Physical Chemistry II is to be taken in the Fall Semester of the third year and CHEM 4370: Physical Chemistry I is to be taken in the Spring Semester of the third year. The Committee assumes that the CBM 003 forms for CHEM 4370 and CHEM 4372 provide the rationale for what is described in UC 10639 09F as "...allowing a long-desired switch in the order in which two classes, 4370 and 4372 are offered." The Undergraduate Studies Catalog: 2005-2007 indicates that the prerequisite for CHEM 4372 is "credit for or concurrent enrollment in CHEM 4370" which, unless stated otherwise in recently submitted CBM 003 forms seems inconsistent with the suggested degree program in UC 10639 09F which does not allow for concurrent enrollment in CHEM 4370 and CHEM 4372.

UC 10640 09F

With the creation of MATH 4389: Survey of Undergraduate Mathematics as a required course for all students majoring in Mathematics effective for students entering the program beginning with the Fall 2008 semester, it is no longer necessary to use taking MATH 3396: Senior Research and MATH 4389 as one of the options to satisfy the Natural Sciences and Mathematics capstone credit requirement. UC 10640 09F requests that change be approved for students entering Mathematics programs in Fall 2010 or later. Implementation of this change means that the Natural Sciences and Mathematics capstone requirement for all students majoring in Mathematics includes five options: (a) completing a minor in another discipline, or (b) completing a double major, or (c) completing a senior honors thesis MATH 3399; 4399 over the course of two semesters, or (d) completing MATH 3396; 4396: Senior Research Project over the course of two semesters, or (e) completing an approved Natural Sciences and Mathematics capstone sequence.

UC 10746 09F

UC 10641 09F

The Department of Mathematics offers a Bachelor of Science in Mathematics with an option in Mathematical Finance. UC 10641 09F seeks approval for the following two degree requirement changes:

1. Reduce the number of advanced semester hours in Mathematics from 36 to 33.
2. Eliminate the requirements for MATH 3363: Introduction to Partial Differential Equations and MATH 3364: Introduction to Complex Analysis. However, MATH 3364 remains part of the 33 semester hours requirement in Mathematics and becomes one the three courses (MATH 3334: Advanced Multivariable Calculus, MATH 3335: Vector Analysis, or MATH 3364: Introduction to Complex Analysis) that can be used to satisfy three of the 33 semester hours requirement. The Bachelor of Science in Mathematics with an option in Mathematical Finance remains a 120 semester hour program with three hours of electives replacing the MATH 3363 requirement. Students are encouraged to include a course in computer science to fulfill this elective requirement. MATH 3363 remains an elective for students in the other undergraduate Mathematics program or for students in degree programs outside the Department of Mathematics.

Recommendation

The Committee recommends approval of UC 10639 09F, UC 10640 09F, and UC 10641 09F

JAN 13 1990