To: Karen Campbell, Chair, Committee on Educational Programs

From: Dietmar Bisch, Chair, Mathematics
and Mark N. Ellingham, Director of Undergraduate Studies, Mathematics

Re: Proposed revisions to major and minor in mathematics

The Department of Mathematics currently has two regular calculus sequences, Math 150a-b-170a-b and Math 155a-b-175. Many years ago these were taught using different textbooks and with different emphases. Recently the same book has been used for both sequences. Therefore, there has been little difference between Math 170b and Math 175. Many students were substituting Math 175 for Math 170b due to scheduling issues. Hence, the Department of Mathematics recently proposed that Math 170b be deleted, with Math 175 being the final course for both sequences. Math 170a would also be renamed as Math 170. These changes have been approved by the Curriculum Committee.

As a result, we propose to make the following small changes to the math major and minor.

1. In the math major, in item 1 (calculus sequence), the two sequences “150a-150b-170a-170b” and “150a-150b-170a-175” will be replaced by the single sequence “150a-150b-170-175”.

2. In the math minor, in item 1 (completion of a calculus sequence), 170b will be deleted.

Current and proposed new catalog descriptions are attached. Please let me know if you have any questions.
Current catalog descriptions

Program of Concentration in Mathematics

Two programs of concentration are available. Program I is intended for most mathematics majors in the College of Arts and Science and requires a minimum of 32 hours in the department. Program II is intended for students in the School of Engineering who elect a second major in mathematics, but is also available for other students. Program II requires a minimum of 29 hours in the department in addition to 6 hours outside the department. Requirements for the two programs are summarized below.

Program I.
At least 32 hours in mathematics, as follows.
1. A calculus sequence: 150a-150b-170a-170b, 150a-150b-170a-175, 155a-155b-175, or 155a-155b-205a-205b.
2. Linear algebra and differential equations: 204 or 205a-205b, and 208.
3. At least 15 hours from 200, or 210 and above.
4. The remainder of the hours must be chosen from 200, or 210 and above.

Program II.
At least 29 hours in mathematics and 6 hours outside the department, as follows.
1. A calculus sequence as in Program I.
2. Linear algebra and differential equations—one of the following:
   (a) one of 194, 204, or 205a-205b, and one of 198 or 208; or
   (b) (not recommended) 196 and one of 204, 205a-205b, 226, 253, or 288.
3. At least 12 hours not used to satisfy item 2 from 200, or 210 and above, excluding 252.
4. The remainder of the hours in mathematics must be chosen from 200, or 210 and above.
5. At least 6 hours of advanced, mathematically based science or engineering courses approved by the director of undergraduate studies. This requirement is automatically fulfilled by students who complete a physics major or a major in the School of Engineering.

Minor in Mathematics

The minor in mathematics requires at least 15 hours in mathematics, including:
1. Completion of a calculus sequence: 170b, 175, or 205a-205b.
2. Linear algebra and differential equations: as in the Program II major.
3. At least 6 hours not used to satisfy item 2 from 200, or 210 and above.
Proposed new catalog descriptions

Program of Concentration in Mathematics

Two programs of concentration are available. Program I is intended for most mathematics majors in the College of Arts and Science and requires a minimum of 32 hours in the department. Program II is intended for students in the School of Engineering who elect a second major in mathematics, but is also available for other students. Program II requires a minimum of 29 hours in the department in addition to 6 hours outside the department. Requirements for the two programs are summarized below.

Program I.
At least 32 hours in mathematics, as follows.
1. A calculus sequence: 150a-150b-170-175, 155a-155b-175, or 155a-155b-205a-205b.
2. Linear algebra and differential equations: 204 or 205a-205b, and 208.
3. At least 15 hours from 200, or 210 and above.
4. The remainder of the hours must be chosen from 200, or 210 and above.

Program II.
At least 29 hours in mathematics and 6 hours outside the department, as follows.
1. A calculus sequence as in Program I.
2. Linear algebra and differential equations—one of the following:
   (a) one of 194, 204, or 205a-205b, and one of 198 or 208; or
   (b) (not recommended) 196 and one of 204, 205a-205b, 226, 253, or 288.
3. At least 12 hours not used to satisfy item 2 from 200, or 210 and above, excluding 252.
4. The remainder of the hours in mathematics must be chosen from 200, or 210 and above.
5. At least 6 hours of advanced, mathematically based science or engineering courses approved by the director of undergraduate studies. This requirement is automatically fulfilled by students who complete a physics major or a major in the School of Engineering.

Minor in Mathematics

The minor in mathematics requires at least 15 hours in mathematics, including:
1. Completion of a calculus sequence: 175 or 205a-205b.
2. Linear algebra and differential equations: as in the Program II major.
3. At least 6 hours not used to satisfy item 2 from 200, or 210 and above.