

Proposal for reorganizing Calculus

The Undergraduate Affairs Committee in Mathematics agreed on December 7, 2004 to distribute for comment a possible reorganization of the calculus sequences in Mathematics. The following is a one page summary of this proposal. You can find more information about this proposal at <http://www.math.uiuc.edu/~randy/CalcProp/>

The Committee would like to know issues, concerns or praise you may have for this possible change.

Currently

Math 220 Calculus I (5 credits) 3 lectures/2 recitations

Math 230 Calculus II (3 credits) 2 lectures/2 recitations

Math 242 Calculus of Several Variables (3 credits) 2 lectures/2 recitations

Math 243 Calculus III Plus (4 credits) 4 lectures

Math 380 Advanced Calculus (3 credits) 3 lectures

Proposed

Math 220 Calculus I for Beginners (5 credits) 3 lectures/2 recitations

This is a renamed Math 220. Our current Math 220 assumes no previous exposure to calculus.

Math 221 Calculus I (4 credits) 2 lectures/2 recitations

This is Math 220 for those with previous exposure to calculus. That is, for students with a 2 or better on the AB advanced placement exam or a one year high school calculus course.

Math 231 Calculus II (3 credits) 2 lectures/2 recitations

This is a renumbered Math 230.

Math 236 Calculus with Applications (4 credits) 3 lectures/2 recitations

This is new course for science and engineering students with a 3 or better on the BC advanced placement exam. It will be co-created with engineering and team taught for two years after which the math department will run it independently. It is intended for students with a basic knowledge of calculus techniques but requiring the deeper understanding gained through applications.

Math 241 Calculus III (4 credits) 3 lectures/2 recitations

This is a renumbered Math 243 stressing 3 dimensions. In particular it will cover the vector integration theorems (Gauss, Green, Stokes and Divergence) currently taught in Math 243 and Math 380.

Scheduling The new Math 221 and Math 236 would be taught only in the fall. The audience for Math 221 is expected to be primarily engineering students. We currently teach approximately 300 engineering students Math 220 in the fall and we teach 15 in the spring.

Engineering: The recommended calculus sequence for engineering students would change as follows:

Currently: MA220, MA230, MA242 (11 credits total)

Proposed: MA221, MA231, MA241 (11 credits total)

However, the proposed sequence has an additional 16 hours on vector integration theorems compared to the sequences currently taught. Students in engineering who have campus credit for Math 221 and Math 231 (by way of a 3 or better on the BC advanced placement exam or junior college transfer) may be required by engineering to take Math 236 which is a review of the first year of calculus with a particular emphasis on problem solving techniques used in engineering.