

Department: Mathematics

Course No: 1125Q

Title: Calculus Ia

Credits: 3

Contact: David Gross

WQ: Q

Proposed Title and Complete Catalog Copy:

1125Q. Calculus Ia

Either semester. Three credits. Recommended preparation: some exposure to the content of Math 1060 (Precalculus) or the equivalent. Students cannot receive credit for MATH 1125 and Math 1120, 1131, 120 or 1151. Students who have not passed the Calculus Placement Survey take this course rather than MATH 1131 or 1151.

Limits, derivatives, and extreme values of algebraic, trigonometric, exponential and logarithmic functions, with supporting algebraic topics. Math 1125 covers the content of approximately the first half of Math 1131.

RATIONALE FOR ACTION REQUESTED

a) In the past, we have offered a slower paced freshman calculus sequence (Math 1120, 1121, 1122) and a normal paced sequence (Math 1131, 1132). Under the current fiscal climate, we find that we can have a more efficient system if we offer a slower paced Calculus I (the proposed Math 1125, 1126) which would prepare students to take Math 1132, if desired afterwards. Math 1125 will cover $\frac{3}{4}$ of the content in the current Math 1120, which will no longer be offered. Math 1125 will cover approximately $\frac{1}{2}$ of the content of Math 1131.

This course is designed for students with a weaker background and who therefore need more time to improve their algebra as they learn the calculus.

b) The course Math 1125 is replacing is a 1000 level course.

c) Since the material of this course is wholly contained in the content of Math 1120, 1131, 120 and 1151, students who have passed these courses should not be allowed to take Math 1125.

d) enrollment is not restricted

e) none

f) none

g) as mentioned in (c), the content of this course is entirely contained in the content of Math 1120, 1131, 120, 1151.

h) none

FOR ALL GENERAL EDUCATION COURSES

- a) This course is designed for those students who have had precalculus in the past, but whose precalculus skills are nonetheless deficient to the point where taking Math 1131 would be inappropriate. The goals of this course is to teach approximately half the material of Math 1131Q at a slower pace so one can reinforce those precalculus skills that are lacking or missing.
- b) There will be midsemester exams, online homework assignment, quizzes, projects, group work and a comprehensive final exam.
- c) The themes will be to over the concepts of limits, continuity, differentiation and applications of the derivative while reinforcing the missing or lacking precalculus skills.

Q Criteria

This course will teach the content of calculus while infusing a review of precalculus as needed. Therefore:

1. The mathematics contained herein will be at or above the basic algebra level and will be used as an integral part of the course.
2. It will include the use of formulas and functions (linear, quadratic, polynomial, rational, trigonometric, exponential and logarithmic) and their graphs. In particular, they will need to learn and use formulas in differentiating functions mentioned above.
3. It will require students to understand and carry out mathematical manipulations and interpret and draw conclusions from the results of those mathematical manipulations. In particular, they will need to carry out the manipulations of differentiation when investigating the exponential growth or decay of a substance. They will need to draw conclusions about the results of those manipulations in determining the results of the growth or decay of the substances.