Math 125 Calculus and Analytic Geometry II Fall 2010

Instructor	Dr. Amites Sarkar
Text	Calculus: Single Variable (5^{th} ed.) Hughes-Hallett et al.
Class meetings	MTWRF 2pm
Calculator	TI-86 or TI-89

Course content

This course is an introduction to integral calculus. I will assume familiarity with differential calculus, although I will provide a short review at the start.

As regards the book, I will aim to cover Chapters 5 to 8.

Relation to overall program goals

Among other things, this course will (i) enhance your problem-solving skills; (ii) help you recognize that a problem can have different useful representations (graphical, numerical, or symbolic); (iii) increase your appreciation of the role of mathematics in the sciences and the real world; (iv) inform you about the historical context of the area of mathematics studied.

Exams

Midterm 1	Friday 22 October
Midterm 2	Friday 19 November
Final	Thursday 9 December 8–10 am

Grading

The midterms are each worth 20%, the final is worth 30%, and there will be 30 minute quizzes on 1, 8, 15, 29 October and 5, 12 November, which will be worth 5% each. If you feel too ill to take an exam, don't take it, but bring a doctor's certificate to me when you feel better and I will make arrangements.

Office hours

My office hours are 3–4 on Mondays, Tuesdays, Wednesdays, Thursdays and Fridays, in 216 Bond Hall. My phone number is 650 7569 and my e-mail is amites.sarkar@wwu.edu

Course objectives

The successful student will demonstrate:

1. Understanding of the basic analytic ideas of integration. These include the construction of Riemann sums and understanding their role in the definition of the definite integral, and the relation between integration and differentiation, as described by the fundamental theorem of calculus.

2. Understanding of the geometric and practical interpretations of the integral. These include the connection between an integral and the area of a region in the plane, and the use of the integral to calculate the average value of a function, and the calculation of the total change of a function.

3. Proficiency in calculating integrals analytically (by the fundamental theorem, substitution, integration by parts etc).

4. Ability to implement some basic numerical integration techniques, and to analyze the error produced by these methods (for specific examples).

5. The ability to set up and solve geometric and physical problems that require the use of integration. Some examples are: the calculation of geometric quantities such as length, area and volume, the determination of an object's center of mass, and the analysis of a moving object.