

MATH 126 – Calculus for the Social Sciences 2  
MTR 2:00 - 2:50 PM, Swords 359

Syllabus

**Instructor:** Prof. David Damiano, 341 Swords, 793-2476/3374  
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**Office Hours:** TF 9-10 AM, MWF 1-2 PM and by appointment.

**Course Home Page:** <http://mathcs.holycross.edu/~dbd/math126/math126.html>

**Course Materials** (available in the College Bookstore): *Single Variable Calculus: Concepts and Contexts 3*, James Stewart, Thomson Brooks-Cole.

**Quick Summary:** MATH 126 is the second semester of a two semester sequence in single variable calculus, MATH 125-126. We will study integration of functions defined on subsets of the real numbers and that take values in the real numbers. We will also study the applications of these concepts to the social sciences. This semester we will cover material in Chapters 5-8 of the text. We will make use of graphing calculators throughout the semester.

**Intended Audience:** This course is an introductory course designed for students who are interested in pursuing a major in the social sciences. This course or the equivalent is required of economics and economics/accounting majors. Successful completion of MATH 126 alone satisfies the mathematics requirement for the Economics and Economics/Accounting majors. If you are potentially interested in intermediate level mathematics courses, you should consider taking Math 132 or Math 136 instead of this course.

**Prerequisites:** One semester of college calculus (Math 125, Math 131, or Math 133 or an equivalent course) or one year of high school calculus. and should enroll in Math 241 or Math 243 if you are interested in taking further courses in mathematics. (You may wish to check the department's calculus recommendations at <http://math.holycross.edu/HpFYInfo.htm> for information about other calculus courses offered by the department.) If you have questions about your high school calculus background, please speak to me or to the chair of the department, Prof. John Anderson.

**AP Credit:** (1) If you have received a score of 4 or 5 on the AP Calculus AB exam, you will receive credit for the first semester of one variable calculus. (2) If you have received a score of 4 or 5 on the AP Calculus BC exam, you will receive credit for two semesters of one variable calculus and should not be in this course. (In fact, if you were to take this course, you would lose the second of your AP Calculus credits.) If you would like to take further mathematics courses, you should consider MATH 241, Multivariable Calculus, or MATH 243, Algebraic Structures, both of which are offered this semester.

**Class Format:** This is a lecture course. Because it meets three days a week (as opposed to four days a week) there will be limited time to go over homework in class.

**Calculators:** Graphing calculators have become the de facto norm for high school and college mathematics courses. On particular occasions, including assignments, quizzes, and tests, the use of

calculators *may* be prohibited. This will be announced in class when the activity is announced so that you have the necessary time to prepare for working without a calculator. Keep in mind that while it is useful to be fluent in the use of calculators, calculator fluency alone is not a substitute for understanding.

**The Calculus Workshop:** This is a drop-in tutoring center for students with questions about calculus. The hours are 7-9 PM, Sunday through Thursday in Swords 328. The tutors are upper class mathematics majors.

**Grading:** Your total course percentage will be made up from homework, participation, quiz and exam grades as follows:

Homework	10 %
Weekly Quizzes (5 × 4% each)	20 %
Hour Exams (2 × 20% each)	40 %
Final Exam	30 %
Total	100 %

Homework will usually be due on Mondays. There will be six quizzes and you may drop one quiz grade for a total of five quizzes that count for credit. Each graded assignment, quiz and exam will receive a numerical score which will contribute to the appropriate percentage. At the end of the semester, total course percentages will be used to determine final grades. I do not use an absolute scale to determine letter grades.

**Academic Honesty:** The Department of Mathematics and Computer Science adheres to the College's policy on Academic Honesty, which may be found in the College Catalogue. In addition, the department has formulated the attached statement intended to amplify the policy as to how it might apply in mathematics and computer science.

**Course Schedule** (As of 8/30/06): Any changes to the schedule of assignments, quizzes, or exams will be announced in class. The material covered by a quiz or test will be announced a week in advance.

- Quiz 1: Monday, September 11.
- Quiz 2: Monday, September 25.
- **Test 1: Thursday, October 5.**
- Quiz 3: Monday, October 16.
- Quiz 4: Monday, October 30.
- **Test 2: Monday, November 6.**
- Quiz 5: Tuesday, November 21.
- Quiz 6: Tuesday, December 5.
- **Final Exam: Wednesday, December 13, 2:30 - 5:30 PM.**

**Learning Tips.** Here are several suggestions to help you learn calculus.

- In class: Take careful notes. If you don't understand an idea or point being made or calculation, ask about it. We have plenty of time to answer questions but you must ask them. When opportunities arise to talk in groups or present material at the board, take advantage of them. Talking about mathematics is an important way to formulate your understanding of the concepts.
- Out of class: Reread your class notes as soon after class as possible. Summarize your notes for the next class and reread your summaries to prepare for the next class. Read the text before attempting assignments. Mark up the text not just by highlighting but by commenting about concepts and calculations in the margins. Rewrite ideas in your own words and fill in the gaps in the text's calculations. Also, note things that you don't understand so that you can ask about them in class.
- Using the Book: Mathematics text books are notoriously difficult to read. In part, this is because language of mathematics has developed over many hundreds of years into a precise and concise mode of expression. In particular, mathematics, including calculus, is expressed in a dense but rich symbolic language. Learning calculus necessarily involves mastering this symbolic language. Accordingly, mathematics must be read differently than ordinary prose. One must be attentive to every line and every word of the text and to every symbol that appears on the page.
- Homework: The goal of assignments is to help you develop your understanding of the material. This is accomplished both by basic calculations which help to become fluent in the symbolic language of mathematics, and by more open-ended thought problems which allow you to explore ideas. You should attempt homework problems *after reading the text and your notes*. The least effective way to learn the material is to parrot examples in the text that appear to be close to a particular homework problem. You may also find it helpful to discuss homework problems with other students in the class. It is, however, essential that you write up your own solutions and do not copy those of anyone else.
- Office Hours: If you find that you have additional questions that you would like to ask outside of class, which is quite common in calculus, please see me in office hours. While I'm pleased to speak with students about calculus any time, it's important for your benefit that you seek assistance before assignments are due.
- Quiz and Test Preparation: There will be six quizzes during the semester. These will consist of two or three questions and will cover homework which is handed in on that day. These will be given at the beginning of class, so it is important that you have your questions answered prior to that class. There will be two in-class hour exams that will cover the material covered since the preceding test. You should begin studying for tests at least one week in advance; you should organize your studying so that you progress through all the material that is covered on the test; you should study from the text and class notes; and you should make use of office hours and the Calculus Workshop. It is important to break up your studying into manageable chunks of time that are spread over each day of the week before the test. The final exam is a three-hour comprehensive exam, so you should allow more time to study for the final than you do for hour exams. To help you prepare, there will be sample quizzes and tests that we will review in class prior to the quiz or test. These will either be distributed in class or be posted on the course webpage.