

## Mathematics 105 D - Calculus 1 Fall 2006

**Professor:** Caleb M. Shor, 205 Hathorn, [cshor@bates.edu](mailto:cshor@bates.edu), x6403.

**Office Hours:** M 3-4, W 9-10, R 1-2 (drop-ins welcome), and by appointment.

**Text:** Calculus from Graphical, Numerical, and Symbolic Points of View, second edition, by Ostebee and Zorn. (ISBN 0618247882)

**Course Description:** In this course, we will see the two central ideas of calculus - differentiation and integration. Differentiation is used to calculate rates of change, while integration is used to calculate sums of infinitely many infinitely small quantities. Amazingly, these seemingly unrelated ideas are actually quite closely connected. Their relationship is given by the Fundamental Theorem of Calculus, which we will see near the end of the course. Along the way, we will develop a number of differentiation techniques and see how they can be used for real-world applications. One important aspect that will be stressed in this course is how to communicate mathematics effectively.

This course will cover chapters 1-5 of the textbook. No prior knowledge of calculus is assumed. However, we will be using material from high school math - algebra, exponentials and logarithms, and trigonometric functions. If you have missed any of this material, the Math Workshop (details below) will be available to help you fill in the gaps.

**Course Webpage:** <http://abacus.bates.edu/~cshor/fall106/ma105/>

**Grading:** Grading for this course is given by: labs 5%, quizzes 20%, midterms 20% each, final exam 25%, class attendance and participation 10%.

I am happy to award partial credit where credit is due. For this reason, it is important to explain your answers clearly. For instance, if your final answer is incorrect, but the reasoning is valid, then you will at least get some partial credit. On the other hand, an incorrect answer with no supporting work is unlikely to get any credit.

**Labs:** Labs will meet during the weeks of September 18, October 2, October 23, November 6, and November 27 in Hathorn 209. You will sign up for a specific day and time during the first week of class. Please contact assistant-instruction Eric Towne ([etowne@bates.edu](mailto:etowne@bates.edu)) with any lab-related questions.

**Quizzes:** There will be a quiz every Monday covering material from the previous week's homework (homework details given below). There are no makeup quizzes after class. If you know you will miss a quiz, you can make arrangements to take an alternate quiz *before* the scheduled quiz. The lowest quiz score will be dropped.

**Midterm Exams:** Friday, October 6 and Friday, November 10.

**Final Exam:** Tuesday, December 12, at 8:00am.

**Note:** If you have a conflict with a midterm or the final, notify me at least one week before the exam. We will arrange an alternate exam *before* the scheduled exam. Late exams are permitted only in cases of emergency, with appropriate documentation.

**Class attendance and participation:** I expect you to attend every class, although I am aware that illnesses and unavoidable conflicts may occur. Thus, I will allow three unexcused absences. After that, unexcused absences will count against you.

As for participation, I believe that the best way to learn mathematics is by doing rather than simply listening. I expect students to participate in class by asking questions, answering questions, and solving problems at the board.

**Homework:** Homework is assigned every class. Since the course material is continually building upon itself, it is very important to keep up with the homework assignments. Your homework will not be graded - however, many problems on the quizzes will come directly from the homework.

I strongly encourage you to work with other students on the homework assignments. Working with fellow students is often quite valuable. However, to prepare for the quizzes and exams, you should make sure you can write up the solutions on your own in such a way that a classmate of yours could pick up your work and completely understand it.

**Walk-in Tutoring:** Available at the Mathematics and Statistics Workshop, Canham House 1 & 2, Sunday-Thursday 7-9pm, Monday-Thursday 1-4pm, and by appointment. More information is available from <http://abacus.bates.edu/acad/acad.support/msw/>

**Review Materials:** Pre-exam review sheets, copies of old exams and quizzes, and other study tools are online at <http://abacus.bates.edu/~etowne/mathresources.html>

**Review Sessions:** There will be one coursewide review prior to each midterm and two prior to the final (each covering half the course). They will be held by Eric Towne in Pettengill G52 (Keck Room) at the following times.

- Wednesday, October 4, 7 p.m.
- Wednesday, November 8, 7 p.m.
- Sunday, December 10, 7 p.m.
- Monday, December 11, 7 p.m.