

Math 121 ♦ Calculus I ♦ Fall 2006

Class Meetings

MTWF, 10:00 – 10:50 AM, in Keyes 102

Instructor

Otto Bretscher, Mudd 403

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Office Hours: MTWF, 9 – 10; MTWF 11 – Noon; MW, 1 – 2 PM; and by appointment

Problem Sets

Problem sets will be due on Wednesday by 2 PM, starting September 13. The grader will announce policies regarding late homework and other relevant matters.

Tests

There will be three exams, given in class on September 27, October 25, and November 29. You will be allowed a double-sided, hand-written reference sheet for the exams.

Grading

Course grades will be based upon three exams (counting 18% each), the final exam (30%), and the problem sets (16%). Active class participation will earn you up to four extra points.

Class Attendance

Students are expected to attend all of their classes and are responsible for any work missed. Failure to attend can lead to a warning, grading penalties, and dismissal from the course with a failing grade.

If you anticipate missing a class, for whatever reason, your absence is excused as long as you send me an e-mail in advance.

Without advance notice, students are excused only in the case of a critical emergency (verified by the Dean of Students Office) or illness (verified by the Colby Health Center).

Lecture Notes/ Optional Text

A set of lecture notes will be sold at the Colby bookstore; the problem sets will be assigned from these notes.

There is also an optional text for additional reading: *Single Variable Calculus*, by Hughes-Hallett et al. Instead of spending US\$100+ for the current, third edition, you might consider getting a copy of the first or second edition online, for a small fraction of that price. These older editions are at least as useful as the current one.

Calculators

A graphing calculator isn't required, but it can be useful (to check your answers in the problem sets, for example). Calculators will not be allowed in exams.

Calculus After Hours

There is an evening lab for all calculus courses, offered on Monday, Tuesday and Thursday from 7:00 PM until 9:00 PM, in Mudd 405. Professors and math majors will be available to help you with the problem sets and explain ideas that are troubling you. Many of my students in the past have found this program to be extremely helpful, a “life saver”. Check it out!

Syllabus**Chapter 1: Introduction to the Derivative**

- 1.1 What is Speed?
- 1.2 Rules of Differentiation

Chapter 2: Limits and Continuity

- 2.1 More on Limits
- 2.2 Continuous and Differentiable Functions
- 2.3 A Closer Look : e and d

Chapter 3: Using the Derivative to Analyze a Function

- 3.1 Maxima and Minima
- 3.2 The Mean Value Theorem
- 3.3 Concavity

Chapter 4: Introduction to the Integral

- 4.1 Riemann Sums
- 4.2 The Definite Integral
- 4.3 Antiderivatives and the Fundamental Theorem of Calculus
- 4.4 More on Antiderivatives

Chapter 5: Basic Rules of Calculus

- 5.1 Trigonometric Functions
- 5.2 Leibniz Notation, Chain Rule, and Implicit Differentiation
- 5.3 Integration by Substitution
- 5.4 Product Rule, Quotient Rule, and Integration by Parts

Chapter 6: Exponential and Logarithmic Functions

- 6.1 The Natural Logarithm
- 6.2 Exponential Functions and their Derivatives
- 6.3 Exponential Growth and Decay

Chapter 8: Applications of the Differential Calculus

- 8.1 Constrained Optimization
- 8.2 Related Rates

Otto's Schedule ♦ Fall 2006

	Monday	Tuesday	Wednesday	Friday
09:00 – 09:50 AM	Office Hour	Office Hour	Office Hour	Office Hour
10:00 – 10:50 AM	Math 121B	Math 121B	Math 121B	Math 121B
11:00 – 11:50 AM	Office Hour	Office Hour	Office Hour	Office Hour
12:00 – 01:00 PM	Math 311		Math 311	Math 311
01:00 – 02:00 PM	Office Hour		Office Hour	