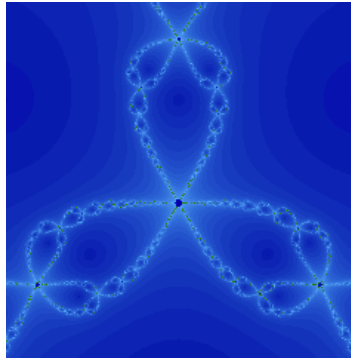


Mathematics 110A  
Calculus I with Precalculus  
Spring, 2009  
Senior Lecturer: Mrs. Susan Riner



Fractals: Newton Fractal and Microwave-irradiated DVD

**Gottfried Wilhelm Leibniz (1646-1716)**

The imaginary number is a fine and wonderful recourse of the divine spirit, almost an amphibian between being and not being.

**Hermann Weyl (1885 - 1955)**

A modern mathematical proof is not very different from a modern machine, or a modern test setup: the simple fundamental principles are hidden and almost invisible under a mass of technical details.

**Philip J. Davis**

One of the endlessly alluring aspects of mathematics is that its thorniest paradoxes have a way of blooming into beautiful theories.

**Jules Henri Poincaré (1854-1912)**

Mathematics is the art of giving the same name to different things.

**Havelock Ellis**

It is here [in mathematics] that the artist has the fullest scope of his imagination.

**Mathematics 110A**  
**Calculus I with Precalculus**  
**Spring, 2009**

**Instructor:** Mrs. Susan Riner  
**Office:** 120B Pierce Hall  
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**Textbook:** James Stewart, *Essential Calculus: Early Transcendentals*.

**Course Content:** Mathematics 110A is the first part of a two-semester course, Mathematics 110A/B, which provides students with an integrative approach to Calculus I that includes the necessary precalculus topics.

**Content for Math 110A**

Review of algebra; functions; trigonometric, logarithmic, and exponential-functions. Calculus topics include limits, continuity, definition of derivative, differentiation, extrema, Intermediate Value Theorem, Mean Value Theorem, graphing polynomial and rational functions, optimization problems.

**Content for Math 110B**

Review of inverse trigonometric functions and differentiation, and graphing. New topics include implicit differentiation, logarithmic differentiation, related rates, graphing vertical tangents, logarithmic and exponential graphs, sums and sigma notation, induction, antiderivatives, Fundamental Theorem of Calculus, definite integral, area, volume, separable differential equations, substitution method of integration.

**Course Goals:** By the completion of the sequence Math 110A and 110B, the student should have a basic conceptual understanding of the following: (1) limits and their relationship to the graph of a function, (2) the derivative and its relationship to the graph of a function and to the concept of "rate of change," and (3) the definite integral and its relationship to area and volume. The student should be able to calculate derivatives and to evaluate limits and integrals (both definite and indefinite). An overall goal is to provide the student with a solid foundation for Mathematics 112.

**Gateway Tests:** In order to pass this course, the student must demonstrate a mastery of fundamental skills needed for success in learning calculus by passing an examination on

basic algebra and trigonometry. The student will be given three opportunities to pass the exam. There are eight problems on each test. To pass this test, a student must complete at least six problems correctly. Points will be earned as follows: all eight problems correct = 100 points, seven problems correct = 80 points, six problems correct = 60 points.

**Tests:** Four tests will be given outside the regular class time. Tentative test dates follow with other important dates.

Note: Test dates are subject to change if the instructor deems it necessary.

A cumulative final exam will be given at the time scheduled by the registrar.

**Test Attendance:** Students are expected to take tests at the scheduled times. The instructor will handle any conflicts, problems, or emergencies on an individual basis. If a student has an excuse deemed legitimate by the instructor, arrangements will be made for the student to take a test prior to the testing time. Any student who needs special accommodations must provide documentation several days in advance of the needed accommodation in order for appropriate arrangements to be made.

**Evaluation:** The following written work will provide the basis of the student's evaluation:

Gateway Test	100 points
Problem Sets/Quizzes	100 points
Tests (4 @ 100 points)	400 points
<u>Final Exam</u>	<u>200 points</u>
Total	800 points

In general, letter grades will be determined as follows:

A:	720 or more points
B:	640-719 points
C:	560-639 points
D:	480 - 559 points
F:	Fewer than 480 points

Grades of A-, B+, B-, C+, C-, D+ may be assigned for sums of points near the above cut-off scores in total points.

**Calculators:** Calculators will not be allowed on tests or quizzes.

**Religious Holiday Observance:** Any conflicts between the course schedule and religious holy days are to be negotiated in advance by the student with the instructor.

**Homework:** Daily homework assignments are for the student's benefit and will not be collected. The most important factor contributing to success in Math 110A is the regular

(done at least every other day) and successful (exercises correctly done with a degree of confidence) completion of the exercises. Daily practice is recommended with a minimum of 6-8 hours of study each week. The goal is that the student be able to solve problems in good style, unaided by books, notes, tutors, or calculator and *to understand the reasoning behind the solution method*.

**Written Work:** Express your thoughts in complete sentences; e.g.  $2+3 = 5$ , where  $2+3$  is the subject, "=" is the verb, and "5" is the predicate. Use mathematical symbols wherever appropriate and make your work neat and legible. Pay attention to the way problems are solved in class and in the textbook and duplicate those methods. You will more clearly understand the concepts if your work is done logically, step by step.

**Tutoring/SI/Help Sessions:** The SI program is a program of supplemental instruction. The supplemental instructor (SI) is a student who has taken the course before, has a good understanding of the material, and knows how to succeed in the course. The SI leads organized study sessions. These sessions are not tutoring sessions and are not for going over homework. The sessions will help to make the student's efforts more productive.

Help Sessions will be scheduled per demand.

Tutoring will be available in the Mathematics Center, and a schedule will be announced.

**Learnlink:** There is a class conference on Learnlink. Announcements from your SI leaders and from your instructor will be posted. Students may ask questions and make requests of a general nature on this conference. Individual concerns should be sent directly to your professor.

**Blackboard/e-Reserves:** The student is responsible for obtaining the handouts on Blackboard and library e-Reserves. Handouts include information and exercises to supplement the textbook.

**Class Attendance:** The student is responsible for the course material discussed in class and for any announced changes to this syllabus. Therefore, the student is expected to attend all classes. Attendance will be taken. After 3 absences (excused or unexcused), any unexcused absence will result in a deduction of 5 points from your grade total. Entering class late by ten or more minutes is considered an absence.

**Some Important Dates:**

Jan. 21	Last Drop/Add Day
Mar. 6	Last Day to Drop with W
March 9 –13	Spring Break
April 27	Class Ends
Apr 30 – May 6	Final Exams

<b>Tentative Test Dates:</b>	Thurs. Feb. 5	8:00 - 9:45 a.m.	Test 1
	Thurs. Mar. 3	8:00 - 9:45 a.m.	Test 2

**Gateway Test Dates:**

Fri. Mar. 20	3:15 p.m.
Fri. Apr. 3	3:15 p.m.
Fri. Apr. 17	3:15 p.m.

**THE HONOR CODE OF OXFORD COLLEGE APPLIES TO ALL WORK SUBMITTED FOR CREDIT IN THIS COURSE. WHEN YOU WRITE YOUR NAME ON SUCH WORK, YOU ARE PLEDGING THAT THE WORK WAS DONE IN ACCORDANCE WITH THE RULES STIPULATED ON THE WORK OR IN THIS SYLLABUS AND THAT YOU HAVE WITNESSED NO HONOR CODE VIOLATIONS IN THE CONDUCT OF THE GIVEN ASSIGNMENT.**