

**Mathematics 110A**  
**Calculus I with Precalculus**  
**Spring, 2003**

<b>Instructor:</b> Mrs. Jan Smith	<b>Office Hours:</b> 9:30 a.m. -- 11:30 a.m. MWF
<b>Office:</b> Seney 115C	2:00 p.m. -- 4 :00 p.m. MW
<b>Phone #:</b> 784-4661	12:00 p.m. -- 3:00 p.m. Tues.
<b>E-mail:</b> oxfmajs@learnlink.emory.edu	(Other Times by Appointment)

**Textbook:** Larson, Hostetler and Edwards, *Calculus of a Single Variable: Early Transcendental Functions*, Houghton Mifflin Co., 3rd Edition.

**Course Content:** A two-semester course, Mathematics 110A, B provides students with an integrative approach to calculus that includes the necessary precalculus topics. Course content includes limits; continuity; the derivative; differentiation of algebraic, trigonometric, and the natural logarithmic and exponential functions; applications of derivatives; anti-derivatives; the definite integral; integration by substitution; and applications of the definite integral. Algebraic and transcendental functions are included. Math 110A does not count for a GER mathematics course. Math110B does count for a GER mathematics course.

**Content for Math 110A**

Review of algebra, functions, trigonometric functions, logarithms and exponents. 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). The sequential course for Math 110B is Math 112, Calculus II

**Gateway Exam:** In order to pass this course, the student must pass two Gateway Tests, one on algebra and one on transcendental functions. There will be four opportunities for the student to earn all 25 points for each test. A perfect paper earns 25 points. If the student misses only ONE problem, the student may choose to keep a score of 22 points and not retest. If the student misses TWO problems, the student may choose to keep 18 points and not retest. If the student misses more than two problems, the student fails the test. Gateway test will be given on Friday afternoons; dates are listed later in the syllabus.

**Gateway Test A** (Algebra) has eight problems as follows: one law of exponents problem, one factoring problem, one operations with fractions, one complex fraction to simplify, two solving equations, and two graphs of functions to sketch and label. The problem is correct only if everything related to the problem is correct. The student must have at least six problems completely correct to pass.

**Gateway Test B** (Transcendental Functions) has eight problems as follows: one trigonometric value, two trigonometric graphs to sketch and label, one trigonometric identity, one trigonometric equation to solve, two logarithmic/exponential equations to solve, one logarithmic or exponential function to sketch and label. The student must have at least six problems completely correct to pass.

**Tests:** Five tests will be given outside the regular class time, on Tuesday or Thursday mornings at 8:00 a.m. in Seney 310 and 322. Test dates are given on page 3, with other important dates.

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

Review sessions will be scheduled outside of class as needed.

**Test Attendance:** Students are expected to take tests at the scheduled times. Any conflicts or problems will be handled on an individual basis by the instructor. 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. In cases of documented emergencies or illness (not colds), make-up arrangements will be made. 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 Tests @ 25 pts.	50 points
Problem Sets @ 25 pts.	50 points
Tests (5 @ 100 points)	500 points
Final Exam	200 points
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 by the student with the instructor.

**Homework:** 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.

**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/Help Sessions:** Salina Lok, Joan Ball, and Amber Bandiali, are the Student Instructors for Math 110A this semester. They will schedule study sessions for students. Also, student tutors will be available in the evenings in the Gregory Room of the JRC; a schedule will be provided early in the semester.

**Learnlink:** There is a class conference on Learnlink, Math110A, Spring2003. 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.

**e-Reserves/WebSite:** The student is responsible for obtaining the handouts on 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.

<b>Some Important Dates:</b>	Jan. 20	Martin Luther King, Jr. holiday
	Jan. 22	Last Drop/Add Day
	Feb. 19	Last Day to Drop with W
	March 10-14	Spring Break
	Apr. 29	Last Class Day
	May 1,2,5,6,7	Final Exams

<b>Tentative Test Dates:</b>	Thurs., Jan. 30	Test 1
	Thurs., Feb. 13	Test 2
	Thurs., Feb. 27	Test 3
	Thurs., Mar. 27	Test 4
	Tues., Apr. 15	Test 5

**Gateway Test Dates:**      **Test A:** Feb., 7, 21, March 6, 21 (Friday Afternoons)

**Test T:** Apr. 4, 11, 18, 25 (Friday Afternoons)

**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.**