

Mathematics 110B
Spring, 2007

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Hours: M 10-11, TTh 3-4, F 10-11
and by appointments

Textbook: James Stewart, *Essential Calculus: Early Transcendentals*, Brooks/Cole
the textbook website: <http://www.stewartcalculus.com/>

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

Content of Mathematics 110A: Review of algebra, functions, trigonometric functions, logarithms and exponents. Calculus topics include limits, continuity, derivative, differentiation, extrema, Intermediate Value Theorem, Mean Value Theorem, graphing polynomial and rational functions, optimization problems.

Content of Mathematics 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, mathematical induction, antiderivatives, Fundamental Theorem of Calculus, definite integral, area, volume, separable differential equations, substitution method of integration.

Course Goals: After completion of the sequence Mathematics 110A/B, the student should be able to do the following: to find the limit, derivative, antiderivative, and definite derivative of a function; to understand the basic theoretical underpinnings of these processes; to understand the relationships between these processes and rates of change; to understand the relationships between these processes and the graph of a function; and to apply these processes in solving problems on rates, extrema, area, and volume. An overall goal is to provide the student with a solid foundation for Math 112 Calculus II.

Class Attendance: The student is responsible for work covered in class, therefore the student is expected to attend all classes. Furthermore you are expected to have done the reading for each class. An inordinate number of absences will be handled in accordance with the College's policies. Entering class late by ten or more minutes is considered an absence.

Homework: Assignments from the textbook and handouts are for the benefit of the student and will be collected on every Friday in class. It is important for the success of the student that the assignments be completed as they are assigned. Collaboration is encouraged. However each student should be sure that he or she can **solve problems unaided by notes, the textbook, or other people**. Use good style on homework. Daily practice develops valuable mental habits. In general the student will need to study at least six good hours per week exclusive of the time spent on quizzes and review for tests.

Homework will be graded on 3 points scale. Roughly, 3 points is assigned to a paper if all problems are attempted with serious effort. 2 points is assigned if 70% of problems are attempted. 1 point is assigned to the rest. Homework paper should be sorted and stapled when hand-in.

Gateway Test: In order to pass the course, the student must pass an examination on differentiation. All 100 points will be given for a perfect paper. If the student has two mistakes or less, the student passes the Gateway and receives a score of 80 points for one mistake and 60 for two mistakes. The Gateway tests are scheduled in the class calendar.

Quizzes: Quizzes will be given in class and topics will announce on the class conference.

Tests: Calculators will not be allowed on tests. See the calendar which follows this syllabus for the schedule of tests. The student is expected to take tests at the scheduled times. Any conflicts or problems will be handled on an individual basis. For excuses deemed legitimate arrangements will be made to take a test **prior to** the testing time.

Final: A cumulative final exam will be given at the time scheduled by the Registrar.

Grading: Evaluation will be based on the following written work:

| | |
|---------------------|------------|
| Tests (4 @ 100 pts) | 400 points |
| Homework | 100 points |
| Gateway Test | 100 points |
| Quizzes | 100 points |
| Final | 200 points |
| Total | 800 points |

The plus/minus system will be used with the following rough guide to letter grades:

| | |
|---|-------------------|
| A | 720 points and up |
| B | 640 - 719 points |
| C | 560 - 639 points |
| D | 440 - 559 points |
| F | below 440 |

Learnlink: There is a class conference on Learnlink. Students should have the class conference on their desktop and should consult it frequently for announcements, SI sessions, tutoring, outlines for tests, posting of grade distributions, etc. Students may ask questions of a general nature on this conference. Individual concerns should be sent directly to your instructor.

SI/Help Sessions/Tutoring: 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 (but probably not as complete as the instructor), and knows how to succeed in the course. The SI leads organized study sessions. They are not tutoring sessions and are not for going over homework. The sessions will help to make the student's efforts more productive.

Student tutors will be available and a schedule will be announced.

Written Style: Thoughts are expressed by sentences: just so in mathematics. Pay attention to your textbook: it is written in sentences. **Your written work must be in complete sentences.** Note " $1 + 1 = 2$ " is a complete sentence (it has a subject " $1+1$ ", verb " $=$ " and predicate " 2 "). Use mathematical symbols wherever appropriate; do not use a lot of words. Your work needs to be neat and orderly to be intelligible. It is a common practice to rewrite solutions once they are found.

Honor Code: The Honor Code of Oxford College applies to all work submitted for credit in this course. To receive credit for work submitted you must place your name on it. By placing your name on such work, you pledge that the work has been done in accordance with the given instructions and that you have witnessed no Honor Code violations in the conduct of the assignment.

January 14, 2007