Mathematics 111

Fall, 2003

Textbook: Larson, Hostetler and Edwards, Calculus of a Single Variable : Early Transcendental Functions, D. C. Heath and Company, 3rd edition

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Hours: MWF 2 – 3 or by appt.

Course Content: Mathematics 111 is the first semester of introductory calculus. Course content includes limits; continuity; the derivative; differentiation of algebraic, trigonometric, and the natural logarithmic and exponential functions; applications of derivatives; antiderivatives; the definite integral; simple integration by substitution; and applications of the definite integral.

Goals: By the completion of this course, the student should have a basic 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 primary purpose of this course is to provide a solid foundation for success in Mathematics 112 since both Mathematics 111 and 112 provide the student with a year of college calculus.

Class Attendance: The student is responsible for the course material discussed in class; therefore the student is expected to attend all classes. An inordinate number of absences will be handled in accordance with the College's policies. Students should make every effort to attend class on days in which quizzes are given out. (See "Quizzes" below.)

Homework: Homework assignments are for the student's benefit and will not be collected. **It is important, however, that the student thoughtfully complete most of the problems assigned**. The student will need to spend at least 6 good hours of study each week, not counting time spent taking quizzes, reviewing for tests, and preparing the graphing portfolio.

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

Gateway Exam: (50 points) In order to pass this course, the student must pass an examination on derivatives. All 50 points will be given for a perfect paper. There will be five opportunities for the student to earn all 50 points. If the student has only ONE mistake, the student may choose to get a score of 35 points and not retest. More than ONE mistake is not considered a passing grade. The first exam is offered at

8:30 am, Thursday, September 29.

Other test dates will be announced later.

Quizzes: (200 points) All quizzes are announced and ``take-home." The student must be present in class to receive each quiz. The student must work each quiz at one sitting and use only authorized materials. In general no books, notes, or calculators will be allowed. Each quiz is due in class at the class meeting following the receipt of the quiz. Some quiz is worth 28 points of which 3 points are devoted to "style" (see explanation next). Three quizzes will be given during each test unit and the best two of them will be counted. In total there will be 12 quizzes of which 8 will be counted.

Major Tests: In general, calculators will not be allowed on tests. Four tests (100 points each) will be given on the following days:

8 am, Thursday, September 16
8 am, Thurday, October 7
8 am, Tuesday, November 2
8 am, Tuesday, November 23

Graphing Portfolio: Using *Graphmatica*, a graphing application available through the campus network, the student is to prepare a portfolio of computer printouts. The specific requirements for this project will be assigned at the appropriate point in the semester.

Student may receive help with the use of the computer and software, but students must choose their own functions and create their own printouts and portfolio. Evaluation of the portfolio will be made on the selection of graphs, the documentation associated with the graphs, the completeness of the technical graphs, the creativity of the thematic graphs. This assignment is due on

Friday, November 5 at class time .

Grading: The student's final course grade will be determined as follows:

Major tests (4 @ 100 points)	400 points
Quizzes (8 out of 12, as noted above)	200 points
Graphing Portfolio	150 points
Gateway Exam	50 points
Final Exam	200 points
	1000 points

In general, letter grades will be determined as follows:

A: 900 or more points
B: 800-899 points
C: 700-799 points
D: 600-699 points
F: fewer than 600 points

Grades of A-, B+, B-, C+, C-, D+ may be assigned for sums of points near the above cut-off totals. In addition, the assignment of plus and minus is dependent on the overall class distribution of sums of points.

Scheduled Help Outside Class:

There is a class conference on Learnlink, Math 111. Announcements from your SI leaders and from your instructor will be posted there. Students may ask questions and make requests on this conference.

Written Style: Neatness is one way of showing courtesy toward your instructor and pride in your work. Thoughts in mathematics are expressed in sentences, such as "1+1=2". There is a subject "1+1", a verb "=", and a predicate "2". Remember that "=" should not be treated as a comma",". The student should strive to be neat and to use mathematical symbols appropriately.

THE HONOR CODE OF OXFORD COLLEGE APPLIES TO ALL WORK SUBMITTED FOR CREDIT IN THIS COURSE. BY YOUR SIGNATURE ON SUCH WORK YOU PLEDGE THAT WORK WAS DONE IN ACCORDANCE WITH THE RULES STIPULATED ON THE WORK OR IN THIS SYLLABUS.

Calculus Survival Guide

1. **How much to study:** Calculus is a hard subject. It is likely that it will be your most challenging course this semester. You should be spending 10 to15 hours a week studying calculus. If you need to make adjustments in your academic or work schedules, do so now. If you cannot make this level of time commitment this semester you will likely be better off taking calculus at another time.

2. **How to study:** Calculus texts are odd books. They are not meant to be read like a novel, or even like a history or biology text. Your calculus should be read in a series of passes. On the first pass through a section, which should be done **before** the lecturer covers it, the student should skim through it lightly, reading definition and theorems, and trying to **work** through some of the examples. But, and this is key, you won't fully understand much of what you've read until you start working on the exercises. In fact, you should spend most, perhaps **80%**, of your study time working problems. As you get stuck, you go back, rereading the section, studying the examples and derivations, on a "need-to-know" basis.

3. **Homework:** Work lots and lots of problems, not just the ones assigned as homework. If you are done with the current section, go back and work review problems. Furthermore, you are not done with a problem just because you got the right answer. You are only done when you understand **why** the methods you used had to have worked. If all you are doing is blindly applying formulas and mimicking examples, get extra help. The problems should make sense to you.

4. **Studying for tests:** If you were an athlete preparing for track meet, and you slacked off during the weeks before the meet, doing just what you needed so coach wouldn't get on your case, and then stayed up running the whole night before your meet, you'd loose. Yet this is just how many students prepare for exams. The right way to study for a test is to do your work at a steady pace throughout the semester. The point is, that while there are a few facts and formulas you'll need to remember for a test, the real way to do well is to think well. That is, you want your brain to be in top shape. You cannot achieve that by cramming. It is now known that as you learn the brain slowly rewires itself. As you study, you *gradually* get smarter. That is the whole point of college!

5. **Come to class:** Many college students treat class attendance as optional. This may be fine for some classes. However, for calculus you can get way behind very fast. You should come to class every period unless you are seriously ill.