CALCULUS 2 (MATH 220 SECTION 2, SPRING 2007)

DR. BRENTON LEMESURIER

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Class times: Monday, Wednesday and Friday 2-2:50pm and Tuesday 1:40-2:50.
Class room: Maybank 117.
Office hours: To be arranged; initially, Monday, Tuesday, Wednesday and Friday from 11am to noon.
Text: *Single Variable Calculus: Early Transcendentals* by James Stewart (4th edition), or the extended version *Calculus: Early Trancendentals*. You will need the latter if you go on to Calculus 3.
Web site: `http://www.cofc.edu/~lemesurierb/math220/`

Topics

The main topics are methods and applications of integration (Chapters 6 and 7, and selection from Chapters 8 and 9), and infinite sequences of numbers and sums of infinite sequences (Chapter 11). For example we study computing areas and volumes, lengths of curves, and solving differential equations which describe phenomena like population growth, and describing functions as "infinite polynomials", also called "power series".

We start by looking at a few new functions and their derivatives: inverses of trigonometric functions, hyperbolic functions and their inverses (Sections 3.6 and 3.9), and learning a bit more about l'Hôpital's rule for evaluating limits where simple substitution leads to meaningless expressions like $0 \cdot \infty$, $\infty - \infty$ and 0^0 (Section 4.4).

We end with some topics that combine calculus and geometry: parametric curves and polar coordinates (Chapter 10).

Course Objectives and Expected Outcomes

The main objective is to learn the above topics. In addition, it is hoped and expected that some generally useful mathematical skills will be developed.

- Learning correct use of mathematical notation and organization of thinking and written presentations so that it can be understood by peers and instructors.
- Facility and accuracy in basic computational manipulations so that these steps do not get in the way of understanding and solving the main questions at hand.
- Reading, working exercises and developing concise written summaries of important formulas, notation and ideas, to help with study and test preparation. Students will be allowed to use your brief hand-written summaries of formulas in

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tests and the final exam, but not in the quizzes: committing to memory the most important new material is an important study skill too.

Reading, homework, question time, and supplemental instruction

Reading assignments and homework exercises will be given for most classes. All classes (except tests) will start with a few minutes for questions about recent readings, classes, homework exercises or any related topics. I will also arrive well before the start of class to allow extra time for questions, and questions are welcomed at any time, not just at the start of classes.

Homework exercises will not be collected or graded, but quiz questions will often be based on them.

Assessment

Quizzes and assignments. There will be about ten quizzes, in Friday classes, and several graded homework assignments. Each assignment grade replaces one of your lowest quiz scores, so doing assignments well is the way to make of for missed quizzes or an occasional poor quiz grade.

In-class tests. There will be three tests held in Tuesday classes; provisionally on **February 13, March 20, and April 17.**

These will be *partially cumulative:* each will focus on material covered since the previous test, but some questions will rely on topics learned earlier in the semester: the objective is to work towards command of the whole syllabus by the end of the semester.

If you miss a test, the score can be made up only for **very convincing reasons**, documented through the Office of Undergraduate Studies. The make-up will usually be done by replacing that test's score by your score for the corresponding part of the final exam.

Final exam. The final exam will cover the whole syllabus including a few topics done after the last test. It will be held **Wednesday April 25, from noon to 3 pm.**

Final grade. The quiz/assignment total, the tests, and the final exam will each count 20% **but** the lowest test score can be replaced by the final exam score if the latter is higher.

Grading system. Quizzes, assignments, tests and such will graded on a letter grade scale, including A^+ for excellent work. For totaling and averaging these will be converted to numerical equivalents A^+=16, A=15, A^-=14 etc. Conversion to final grades will be done by rounding to an integer: 15 or 16 is an A, 14 is A^-, 13 is B^+ and so on. In detail, the minimum final average needed for each final grade is

A	A^-	B^+	B	B^-	C^+	C	C^-	D^+	D	D^-
14.5	13.5	12.5	11.5	10.5	9.5	8.5	7.5	6.5	5.5	4.5

Calculators

The recommended calculator for this and all calculus courses is the Texas Instruments TI-86. Calculators that can do symbolic mathematics such as the TI-89 or TI-92 are not allowed on quizzes, tests or the exam. I will do some demonstrations with a TI-86, and there are a few topics for which calculators can be useful: mainly evaluating definite integrals, approximate integration (Section 7.7) and summing series of numbers (Chapter 11).

Calculators will only be allowed in quizzes and tests where needed for these topics, and should only be used when numerical answers are asked for. Exact answers like "2π" should be left as such unless you are explicitly asked for a numerical approximation, so calculators are not needed or useful in that situation.

Attendance and participation

Since it is important to keep up with classes, reading, homework assignments and preparation for quizzes and tests, it is mandatory to hand-in all assessed work (assignments, quizzes and tests) or give some explanation. Students will be dropped for more than two missed and unexplained assessment items, or for excessive unexcused absences.

Also, you are responsible for knowing what happens in each class including reading and homework assignments, information about quiz and test topics, assignments problems for grading and due dates. Thus when you miss a class, get notes and assignments and find out about any other announcements, either from me or a reliable classmate; the course website can be useful for this.

Office hours and other help outside classes

In addition to my scheduled office hours, and time before each class, I am also available at many other times. However it is best to make an appointment or call to check before coming to my office outside my advertised office hours.

You can also get help with homework and any other questions at the **Math Lab., in room 214 of the Education Center.** The hours are expected to be **9am–9pm Monday to Tuesday, and 9am–noon on Friday.**

Some Important Dates

Friday January 12	Last day to add/drop courses
Monday January 15	Martin Luther King Junior Holiday — no classes
Tuesday February 13	Proposed date for Test 1, in the normal class period
Wednesday February 20	Last day to withdraw with a grade of "W"
Sun. March 4 – Sat. March 10	Spring Break — no classes
Tuesday March 20	Proposed date for Test 2, in the normal class period
Tuesday April 17	Proposed date for Test 3, in the normal class period
Monday April 23	Last day of classes
Wednesday April 25	Final Exam, noon till 3pm