

COURSE DESCRIPTION
CALCULUS I
MA 125–6C
FALL 2009

DEPARTMENT OF MATHEMATICS
UNIVERSITY OF ALABAMA AT BIRMINGHAM

Course Instructor: Dr. N. Chernov
Office: CH 492A
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Office Hours: Tue and Thu 9:50-10:50am; appointments and walk-ins welcome

Meeting times: Mon and Wed 12noon-1:50pm
Meeting location: EB 230
Prerequisite: Grade of C or better in MA 106, MA 107 or equivalent. *Any student who has not fulfilled the prerequisite will be dropped from the class.*
Credits: 4 semester hours
Textbook: *Essential Calculus — Early Transcendentals* by James Stewart, Thomson-Brooks/Cole, 2007, Chapters 1 — 4.

Important dates:

First day of classes: August 19, 2009
Labor Day Holiday: September 07, 2009
Early alert ends: October 7, 2009
Last Day to Withdraw: October 14
Fall break: October 15-18, 2009
Thanksgiving Holidays: November 25 – 27, 2009
Last day of class: December 02, 2008
Weather Make-up Day: December 04, 2008
Test I: near Wednesday, September 9; 1.1–1.6
Test II: near Monday, October 5; 2.1–2.7
Major exams (tests): Test III: near Wednesday, November 4; 2.8, 4.6, 3.1, 3.2, 3.3, 3.5, 3.7
Test IV: near Wednesday, December 2, 4.1–4.5, 4.7
(These dates are approximate and may be slightly shifted due to unforeseen circumstances.)
Final exam: Friday, December 11, 2009, 1:30–4 p.m. (Location to be announced.)

Date: August 18, 2008.

Course policies:

- Please make sure that you are able to receive e-mail through your Blazer-ID account. Official course announcements may be sent to that address.
- If you wish to request a disability accommodation please contact DSS at 934-4205 or at *dss@uab.edu*.
- You will be dropped from the class if you have not met the prerequisite.
- The two lowest quiz grades and the two lowest homework grade will be dropped to account for any missed assignments due to illness or any other circumstance. If a test is missed due to a serious verifiable circumstance or official university business, the test grade will be replaced with the properly rescaled final exam score. You have to advise the instructor of such circumstances at the earliest possibility.
- No books, notes, or calculators will be allowed during any of the tests or quizzes.
- The online homework system Enhanced WebAssign will be used (look for more information below).

Methods of teaching and learning:

- 29 class meetings of 110 minutes consisting of lectures and discussions of examples and homework problems. Time for quizzes and four in-class tests is also included.
- Students are expected to undertake at least 8 hours of private study and homework per week.
- The online homework system Webassign will be used (look for more information below).

Aims of the course:

Upon successful completion of the course a student

- understands limits from a numerical, graphical and analytic point of view;
- uses limits to define the concepts of continuity and differentiability;
- has a solid understanding of the major results of differential calculus;
- can apply the rules of differentiation;
- is able to apply derivatives to problems related to rates of changes, linear approximations, optimization, and curve sketching; and
- knows the concept of antiderivatives and its use in determining distances and areas.

Course content:

- Motivation: Slopes of tangents, velocity and other difference quotients
- Definition of limit, limit laws, limits involving infinity
- Continuity and classification of discontinuities (singularities), Intermediate Value Theorem
- Tangents, velocities, other rates of change, definition of derivative, and derivatives as functions
- Derivatives of polynomial, exponential functions and trigonometric functions
- Product and quotient rules
- Chain rule, implicit differentiation, related rates
- Derivatives of inverse trigonometric and logarithmic functions
- Indeterminate forms, l'Hospital's Rule
- Linear Approximations and Newton's Method
- Maximum and minimum values, Mean Value Theorem, shapes of curves
- Optimization problems
- Antiderivatives, motion problems

Assessment procedures:

- Student achievement will be assessed by the following measures:
 - **Regular online homework.** Homework will be due normally by Monday morning. Feedback is provided when wrong answers are given. Students are encouraged to retake the homework problems (with randomly changed parameters) until they obtain correct answers. A large number of takes is allowed during the week in which the set is available. Homework contributes 5% to the course average. Problems on tests are modeled after homework problems. Staying on top of homework is therefore extremely important.
 - **Sporadic unannounced quizzes.** Quiz problems are taken from the homework problem sets. This allows students to gauge whether they are ready to work problems in a test situation. Quizzes contribute 5% to the course average.
 - **Four 50-minute tests in class** including short questions for which either full credit or no credit is awarded (Part I) as well as problems requiring in depth understanding for which partial credit is awarded where appropriate. Each test contributes 15% to the course average.
 - **A 150-minute comprehensive final examination** including Part I and Part II type problems. The final contributes 30% to the course average. Moreover, if you do well on the final your grade for the course may be raised (normally by at most one letter grade).
- Your course performance is your course average (including the final exam score). This is a number between 0 and 100.
- Your final grade is determined according to the following table:

Course performance: 88-100 75-87 62-74 50-61 below 50

In addition your grade maybe raised by a strong performance on the final exam (normally at most one letter grade).

Final Grade: A B C D F

Tips:

- Help is available in the Math Learning Lab (HH202).
- By working steadily and regularly, you will increase your chances to succeed in this course.
- Remember, being a full-time student is a full-time job.

Sections to be covered: *Essential Calculus — Early Transcendentals* by James Stewart, Thomson-Brooks/Cole, 2007.

- Chapter 1: 1.1 – 1.6.
 - Chapter 2: 2.1 – 2.8, 4.6 (from Chapter 4).
 - Chapter 3: [3.1 – 3.2,] 3.3, 3.5, 3.7.
 - Chapter 4: 4.1 – 4.7.
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Common Courtesies for Any Class:

- Putting your head on your desk resting or sleeping during class is rude. If you need sleep, please go to your room or home - not to class.
 - If you need to leave class early, it is polite to tell the instructor before the class starts. Class attendance is expected.
 - Please arrive for class a few minutes early so that class can begin without interruption. If there is a problem, let the instructor know.
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How to get started on Enhanced WebAssign:

- (1) Go to www.webassign.net and click on *I HAVE A CLASS KEY* in the *signin* link.
- (2) Enter the following course key:

uab 4849 6678

and proceed. (If prompted for your institution, enter *uab*)

- (3) When prompted to purchase an access code, select “... **trial period**” Do not purchase an access code at this time. However, you must purchase an access code within two weeks for you to continue using the system beyond the two-week trial period. The system will prompt you to enter your access code when the deadline approaches. Your book may have an access code bundled with it, in that case you can use it. Otherwise you will have to buy an access code on-line.
 - (4) After your first registration, you can sign in as returning user.
 - (5) Should you run into technical problems Enhanced WebAssign provides technical support online and/or by phone.
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