# COURSE DESCRIPTION
# CALCULUS II
# MA 126 – 6D
# FALL 2012

DEPARTMENT OF MATHEMATICS
UNIVERSITY OF ALABAMA AT BIRMINGHAM

**Course Instructor:** Professor P. Jung
**Office:** CH 493B
**Phone#:** (205) 934-2154
**E-mail:** pjung@uab.edu
**Office Hours:** Tuesday 2 PM – 4 PM or by appointment (I will be gone 8/28 and 9/25, please schedule appointments if you want to meet those weeks)

---

**Class Meeting times:** MW 2:30 PM – 4:20 PM
**Class Meeting location:** EB 146
**Prerequisite:** Grade of C or better in MA 124, MA 125 or equivalent
**Credits:** 4 semester hours
**Textbook:** *Essential Calculus — Early Transcendentals* by James Stewart, Thomson-Brooks/Cole, 2007 or later (**must have Enhanced WebAssign Access Code**); Topics to be covered can be found in Chapter 10, Chapters 5 — 8 and parts of Chapter 9. (See below for more detail.)

---

**Important dates:**

**First day of class:** August 15, 2012
**Last day to drop without paying full tuition:** August 22, 2012
**Labor Day Holiday:** September 03, 2012
**Fall Break:** October 11 – 14, 2012
**Last day to withdraw with a "W":** October 26, 2012
**Thanksgiving Holidays:** November 22 – 25, 2012
**Last day of class:** December 05, 2012
**Weather Make-up Day:** December 06 – 07, 2012

**Major exams (tests):**
Test I: near Wed, September 05;
Test II: near Mon, October 01;
Test III: near Mon, October 29;
Test IV: near Wed, November 28.

(These dates are approximate and may be slightly shifted due to unforeseen circumstances.)

---

*Date*: last modified on August 21, 2012.

**Quizzes:** Aug 27, Sep 3 (G), Sep 17, Sep 24 (G), Oct 10, Oct 17 (G), Nov 7, Nov 14 (G). (These dates are also approximate. (G) means that the quiz will follow a group exercise)

**Final exam:** Saturday, December 08, 2012, 4:30 PM – 7:00 PM (Location to be announced.)

---

### 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 your are contacted by the Early Alert Program, you should consider taking advantage of the services it offers. Various services to assist you are also listed in the *Student Resources* section of the *Blazernet* web site.
- If you wish to request a disability accommodation please contact DSS at 934-4205 or at *dss@uab.edu*.
- The two lowest quiz grades and the two lowest homework grades 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.

---

### Methods of teaching and learning:

- 31-32 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 Enhanced WebAssign will be used (look for more information below).
- We will have some work sessions in class where exercises are solved in small groups followed by an individual quiz. This will be part of the assessment and will count towards the course grade.

---

### Aims of the course:

Upon successful completion of the course a student

- understands the concept of a vector, can perform basic vector calculations, and is able to use vectors to describe lines and planes in space;
- understands the concept of vector-valued functions, and is able to use vector functions to describe parametric curves, tangent vectors and velocity;
- understands the concept of definite integral;
- is able to apply the definite integral to find volumes, work, arc length, etc;
- knows the basic techniques of integration;
- is able to apply the concepts of Calculus to problems in Physics and Engineering such as center of mass, etc;
- is able to determine the convergence/divergence of improper integrals, sequences, and infinite series; and

- can find power series representations of functions and use them for approximation, evaluation of integrals and limits, etc.

---

**Course content:**

- Vectors in three dimensions, their geometric and algebraic representation, dot product and cross product
- Equations of lines and planes
- Vector-valued functions and parametric curves, tangent vectors, velocity and speed
- Riemann sums, the definite integral, area and distances
- The fundamental theorem of calculus
- Basic techniques of integration (substitution, integration by parts, partial fractions, use of tables)
- Applications of integration (area, volume, arc length)
- Applications to Physics and Engineering
- Sequences and series, power series (Taylor/Maclaurin series)

---

**Assessment procedures:**

- Student achievement will be assessed by the following measures:
    - **Regular online homework.** Homework will be due more or less one week after assignment. 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. Ten attempts are allowed during the week in which the set is available. Homework contributes 10% to the course average. Problems on tests are modeled after homework problems and group work sessions. Staying on top of homework and group sessions is therefore extremely important.
    - **Group work sessions and individual quizzes.** We will have group-work sessions in class where exercises are solved in small groups. Quizzes will also be given. Group sessions and quiz problems are taken from the homework problem sets and classroom work. This allows students to gauge whether they are ready to work problems in a test situation. Group work sessions and individual quizzes contribute 8% and 12%, respectively, 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 (including word-problems) for which partial credit is awarded where appropriate. Each test contributes 10% 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.
- 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 |
| --- | --- | --- | --- | --- | --- |
| Final Grade: | A | B | C | D | F |

**Tips:**
- Help is available in the Math Learning Lab (HHB 202).
- 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.

**How to get started on Enhanced WebAssign:**

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

$$\textbf{uab 0262 8367}$$

and proceed. (If prompted for your institution, enter *uab*)
(3) The system will prompt you to enter your access code. Enter the access access and all the requested info. (Note: You may choose the option "trial period." the system will let you in for about two weeks. It will prompt you to enter your access code before the expiration of the trial period for you to continue its use!)
(4) After your first registration, you can sign in as a returning user.
(5) Should you run into technical problems Enhanced WebAssign provides technical support online and/or by phone.

**Sections to be covered:** *Essential Calculus — Early Transcendentals* by James Stewart, Thomson-Brooks/Cole, 2007 or later (**must have Enhanced WebAssign Access Code**).
- Chapter 10: 10.1 – 10.5, 10.7.
- Chapter 5: 5.1 – 5.5.
- Chapter 6: 6.1 – 6.3, 6.6.
- Chapter 7: 7.1 – 7.2, 7.5, 9.2 and 10.8 (from Chapters 9 and 10).
- Chapter 8: 8.1 – 8.7.

**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.