COURSE DESCRIPTION
CALCULUS II
MA 126–CT, SPRING 2014

DEPARTMENT OF MATHEMATICS
UNIVERSITY OF ALABAMA AT BIRMINGHAM

Course Instructor: Professor Ian Knowles
Office: CH481A
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E-mail: iknowles@uab.edu
Office Hours: Tuesday and Thursday 9-10; you can also phone or email for an appointment.

Meeting times: MTuWTh 8:00am-8:50am.
Meeting location: CH443.
Prerequisite: Grade of C or better in MA 125 or equivalent.
Credits: 4 semester hours.

Important dates:
First day of classes: Monday January 06, 2014.
Last day to drop/add classes: Monday January 13, 2014.
Last day to withdraw with a “W”: Monday March 31, 2014.
Last day of classes: Friday April 18, 2014.

Test 1: near Thursday January 30, 2014; 10.1-10.5, 10.7;
Test 2: near Thursday February 20, 2014; 5.1-5.5, 6.1-6.2;
Test 3: near Thursday March 13, 2014; 6.3, 6.6, 7.1-7.2, 7.6, 10.8;

These dates are tentative.
Exam Week: Monday April 21 – Friday April 25, 2014.
Final exam: April, 2014; room and time and date to be announced.

Date: January 9, 2014.
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 are contacted by the Early Alert Program, you should consider taking advantage of the services offered. These are listed in the Student Resources section of the Blazernet website.
- For disability accommodations contact DSS at 934-4205 or at dss@uab.edu.
- 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 must advise the instructor of such circumstances at the earliest possibility before the exam takes place.
- No books, notes or calculators will be allowed during any of the tests. If you need a basic formula, just ask me.

Methods of teaching and learning.
- 55 class meetings of 50 minutes duration consisting of lectures and discussions of examples and homework problems. Time for four in-class tests and quizzes is included.
- Students are expected to undertake at least 10 hours of private study and homework per week.
- The online homework system WebAssign will be used (see below).

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, and arc length;
- knows the basic techniques of integration;
- is able to apply Calculus concepts to problems in Physics and Engineering;
- 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.

The understanding of a concept is demonstrated by an ability to solve pertinent problems related to that concept.

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, indefinite integrals and antiderivatives.
• Basic techniques of integration including substitution, integration by parts, partial fractions and the use of tables.
• Applications of integration (area, volumes, arc length).
• Applications to Physics and Engineering.
• Sequences and series, power series.

Assessment procedures.
• Student achievement will be assessed by the following measures:
  – **Regular online homework** via the commercial WebAssign website affiliated with the textbook publishers. Homework will be due 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; 3 re-takes are allowed during the week in which the set is available. After the homework expires, you may download the correct solutions. Online homework contributes 10% to the course average. Problems on tests are modeled after homework problems. Staying on top of homework is therefore extremely important.
  – **Quizzes.** Quiz problems are similar to the homework problem sets and are designed to allow students to gauge whether they are ready to work problems in a test situation. Quizzes contribute 5% to the course average.
  – **Four 50-minute in-class tests.** Each test contributes 13% to the course average and may include short questions with limited partial credit (“Part 1” type) and problems requiring in depth understanding (including “word” problems) for which partial credit is awarded when appropriate (“Part 2” type).
  – **150-minute comprehensive final examination.** The final includes Part 1 and Part 2 type problems and contributes 33% to the course average.

• Your course performance is your course average (including your final exam grade). This is a number between 0 and 100.
• Your final grade is determined according to the following table:
<table>
<thead>
<tr>
<th>Course performance:</th>
<th>88-100</th>
<th>75-87</th>
<th>62-74</th>
<th>50-61</th>
<th>below 50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Grade:</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>F</td>
</tr>
</tbody>
</table>
  | After the final exam score and grades have been entered, grades may be checked through the web site [www.math.uab.edu](http://www.math.uab.edu) under the heading Student Resources and under that Check Grades.

Tips.
• Help is available in the Math Learning Lab (HHB202), if you can’t find me.
• Working steadily and regularly increases your chances of success.
• Remember, being a full-time student is a full-time job.
WebAssign.

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

and proceed; enter uab if prompted for your institution.
(3) You will be prompted to purchase/acquire an access code.
(4) After your first registration, you can sign in as a returning user.
(5) Should you run into technical problems WebAssign provides technical support online and by phone.