MAT 241 Calculus I
Evan Wantland
Spidel 206 -- 828.771.2004
wantland@warren-wilson.edu
Spring 2010

Catalog Description
Topics covered include limits, the concept of the derivative, differentiation techniques, using the first and second derivatives to graph functions, related rates, maxima and minima problems, calculus of exponential and logarithmic functions, and an introduction to integration. Graphing calculators are used extensively to explore and reinforce the mathematical ideas. This course satisfies the Triad Education Mathematics course requirement. Prerequisite: MAT 150 Precalculus

Course Goals
The goals of this course are to enable each student:
- To read and communicate in the language of calculus
- To comprehend calculus algebraically, graphically, numerically and verbally
- To apply calculus techniques in a variety of situations
- To develop an intuitive understanding of calculus
- To refine critical thinking and problem solving skills
- To use appropriate mathematical software and technology

Objectives
In the process of taking this course each student will encounter:
- A brief review of precalculus
- The concept of a limit, calculating limits, and applying limits as a tool
- Derivatives: calculating techniques and extensive applications
- The basic calculus of algebraic, trigonometric, exponential and logarithmic functions
- An introduction to integration, antiderivatives and The Fundamental Theorem of Calculus
- Using technology (graphing calculators and a computer algebra system) as a tool for computation, investigation and understanding

Required Materials
Text: Single Variable Calculus: Early Transcendentals (6th Ed.) by James Stewart
Technology: Access to the WWW, e-mail and a TI-83/84ish calculator (please bring to class)

It will be useful for you to have access to a textbook and a graphing calculator every day in class. You will need your own calculator for exams. You will also use Maple, a general-purpose computer algebra system. Maple is available throughout campus.
**Course Structure**

- **Course Overview**
  
  I will assume that you have read the required material before class.

  The course will essentially follow the text (see attached schedule). There are also numerous resources available in Café Spidel (Spidel 209) and through the Internet that you may use in and out of class. We will also use the Maple software package (in and out of class). Please read assigned material before we cover it in class to facilitate comprehension.

- **Class**
  
  **Arrive on time, prepared and with appropriate materials or assignments ready.**

  Most of our class time will be in a lecture/discussion format, and I will do numerous examples. We may also go to the computer lab one or two times to use Maple (available to you any time). All I ask is that you be polite, treat everyone in the class with respect, and at times remember that I am the one in charge. **Class will begin promptly at 9:30am!**

- **Assessment**
  
  - **Exams & Quizzes -- You may not make-up an exam or quiz.**

    There will be 4 in-class exams. The exams will consist of sample problems from recently covered material, vocabulary and short discussion questions. There will be 11 in-class quizzes. The quizzes will consist of one or two problems, definitions or short-answer questions. The exams will be 100 points each, and the quizzes will be 10 points each.

  - **Homework and Participation**

    Attendance and full participation is expected. Homework exercises will be assigned daily. Although you will not be asked to turn in homework, I will be working on the assumption that you have successfully completed the assignments or, at the very least, sought assistance.

- **Final Grades**

  Your final point total will be calculated as follows:

  - **Exams** 400 points
  - **Quizzes** 100 points

  Your final grade will be calculated as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>$\infty - 450$</td>
</tr>
<tr>
<td>B</td>
<td>449 – 400</td>
</tr>
<tr>
<td>C</td>
<td>399 – 350</td>
</tr>
<tr>
<td>D</td>
<td>349 – 300</td>
</tr>
</tbody>
</table>

**A Few Important Dates**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 18 (M)</td>
<td>Triad Day – MLK Day Celebration</td>
</tr>
<tr>
<td>January 21 (Th)</td>
<td>Deadline for Semester 1/Term 1 add/drops (4:30pm)</td>
</tr>
<tr>
<td>February 3 (W)</td>
<td><strong>Exam 1</strong></td>
</tr>
<tr>
<td>March 1 (M)</td>
<td><strong>Exam 2</strong></td>
</tr>
<tr>
<td>March 13 – 21</td>
<td>Spring Break</td>
</tr>
<tr>
<td>March 26 (F)</td>
<td>Deadline to Withdraw (non-punitive)</td>
</tr>
<tr>
<td>April 7 (W)</td>
<td>Work Day (No Classes)</td>
</tr>
<tr>
<td>April 9 (F)</td>
<td><strong>Exam 3</strong></td>
</tr>
<tr>
<td>May 12 (W)</td>
<td><strong>Exam 4</strong></td>
</tr>
<tr>
<td>May 13 (Th)</td>
<td>Last Day of Classes</td>
</tr>
</tbody>
</table>