Syllabus: MAC 2313

Calculus—Analytic Geometry III

Department of Mathematical Sciences
Charles E. Schmidt College of Science
Florida Atlantic University

Spring 2008. MAC 2313 (sec 13294),
Calculus—Analytic Geometry III, 4 credits.

Instructor
Rainer Steinwandt, Office SE 280
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Email: rsteinwa@fau.edu

Class Time and Place
Monday, Wednesday, Thursday and Friday: 9:00 – 9:50 a.m., AL 343.

Office Hours
Monday, Wednesday, Friday: 2:30 p.m. – 4:00 p.m. or by appointment. Also, feel free to come to the office anytime—whenever time permits, questions and discussions are welcome. (If there should be any timing conflicts, like inevitable meetings during regular office hours, this will be announced beforehand in class, whenever possible.)

Course Web Site
http://www.math.fau.edu/~srainer/MAC2313/

Required Text and Materials
The course material is taken from Multivariable Calculus, Early Transcendentals (James Stewart, 5th edition, Thomson Brooks/Cole, 2003). If supplementary material is necessary, this will be distributed in class or on the course web site as needed.

Course Objectives
The course provides an introduction to standard techniques from multivariable calculus. The main focus is on 2- and 3-dimensional real space. In particular, after completion of
the course, you should be acquainted with the basic concepts of three-dimensional analytic geometry. You should know how to compute derivatives and integrals of vector-valued functions, and you should be able to apply basic concepts of multivariable calculus. After completion of the course, you should be acquainted with multiple integrals and vector fields, and you should be able to explain the similarities between the Fundamental Theorem for line integrals, Green’s Theorem, Stokes’ Theorem and the Divergence Theorem. Finally, you should be able to solve simple differential equations of second order.

**Lecture Schedule**

The lectures cover Chapter 12—Chapter 17 of the book *Multivariable Calculus, Early Transcendentals* (James Stewart, 5th edition, Thomson Brooks/Cole, 2003). The material will be presented in the same order as in the textbook:

1. Vectors and the geometry of space
2. Vector functions
3. Partial derivatives
4. Multiple integrals
5. Vector calculus
6. Second-order differential equations

The exact time frame per item varies (also in dependence of previous knowledge of the course participants), but a typical time frame is three weeks per item. In the last week of classes a review of the covered material will be provided.

**Assessment Procedures**

There will be three homework projects \{H_1, H_2, H_3\}, a midterm exam \(X_1\) and a comprehensive final exam \(X_2\). The scheduled dates and maximum number of points for each of these items are given in the following table.

<table>
<thead>
<tr>
<th>Item</th>
<th>Date</th>
<th>Max. points</th>
</tr>
</thead>
<tbody>
<tr>
<td>(H_1)</td>
<td>Jan 18, 2008</td>
<td>20</td>
</tr>
<tr>
<td>(H_2)</td>
<td>Feb 11, 2008</td>
<td>20</td>
</tr>
<tr>
<td>(X_1)</td>
<td>Mar 12, 2008</td>
<td>20</td>
</tr>
<tr>
<td>(H_3)</td>
<td>Apr 7, 2008</td>
<td>20</td>
</tr>
<tr>
<td>(X_2)</td>
<td>Apr 27, 2008</td>
<td>40</td>
</tr>
</tbody>
</table>

Exams will be given in class or as take-home exam. Homework projects and take-home exams will be assigned in class at the date specified above and collected on the date specified on the assignment. Late assignments will not be accepted and graded with 0 points.

Your overall grade in the course is derived from your cumulative performance as follows:
1. The lowest number of points achieved in the items \( \{H_1, H_2, H_3\} \) is dropped. The points from the remaining two items and of the two items \( \{X_1, X_2\} \) are added, yielding a final number of points \( 0 \leq P \leq 100 \).
2. Your grade is derived from \( P \) according to the following table.

<table>
<thead>
<tr>
<th>Value of ( P )</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 94</td>
<td>A</td>
</tr>
<tr>
<td>&gt; 90 – 94</td>
<td>A−</td>
</tr>
<tr>
<td>&gt; 87 – 90</td>
<td>B+</td>
</tr>
<tr>
<td>&gt; 83 – 87</td>
<td>B</td>
</tr>
<tr>
<td>&gt; 80 – 83</td>
<td>B−</td>
</tr>
<tr>
<td>&gt; 75 – 80</td>
<td>C+</td>
</tr>
<tr>
<td>&gt; 65 – 75</td>
<td>C</td>
</tr>
<tr>
<td>&gt; 60 – 65</td>
<td>C−</td>
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<tr>
<td>&gt; 57 – 60</td>
<td>D+</td>
</tr>
<tr>
<td>&gt; 53 – 57</td>
<td>D</td>
</tr>
<tr>
<td>≥ 50 – 53</td>
<td>D−</td>
</tr>
<tr>
<td>&lt;50</td>
<td>F</td>
</tr>
</tbody>
</table>

Graded exams and homework projects will be returned in class or can be picked up during office hours at the instructor’s office. At the end of the course, the final grades will, in anonymized form, be available in front of the instructor’s office (room SE 280).

Please keep all your exams and documentation of homework projects, so that a possible disagreement about your grade can be resolved.

**Make-up Tests and Extra Credit**

If you cannot attend an exam or hand in a homework project in time due to a relevant reason like significant health problems or being involved in a major traffic accident, you can make up the respective assignment.

Extra credit work is not possible.

**Course Procedure**

The course is conducted in lecture/discussion style.

**Students with Disabilities**

In compliance with the Americans with Disabilities Act (A.D.A.) – Students who require special accommodations due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) located in Boca – SU 133 (561-297-3880), in Davie – MOD I (964-236-1222), or in Jupiter – SR 117 (561-799-8585) and follow all OSD procedures.
**Incomplete Grades**

A grade of I (incomplete) will only be given under certain conditions and in accordance with the academic policies and regulations put forward in FAU’s *University Catalog*. The student has to show exceptional circumstances why requirements cannot be met. A request for an incomplete grade has to be made in writing with supporting documentation, where appropriate.

**Classroom Etiquette and Academic Integrity**

Please refer to FAU’s *Student Handbook* (http://www.fau.edu/handbook/boca.htm).