Syllabus for Math 251-501,502,504  Engineering Math III  Fall 2014

Instructor: Jennifer Lewis
Office: Blocker 243 B  Office hours  Tues & Thurs 11am-1:30 pm
Mon, Wed & Fri 10:30am-12:15pm
other times by appointment
webpage:  www.math.tamu.edu/~jlewis
email:  jlewis@math.tamu.edu

Course description:  Vector algebra, calculus of functions of several variables, partial derivatives, directional derivatives, gradient, multiple integration, line and surface integrals, Green's and Stokes' theorems.

Math 152 or equivalent is the prerequisite for this course.

Text: Stewart, Calculus: Early Vectors, Preliminary Edition
You have a copy of this book in your webassign homework page which was purchased with your fees.

Lecture Times: Section Time   Room
  501  8:00-8:50  Blocker 166
  502  9:10-10:00  Blocker 166
  504  12:40-1:30  Heldenfels 109
You may attend any of these provided seats are available after all regularly scheduled students are seated. Please put your section number on all papers that are handed in.

Course Objectives:  Visualize 3-dimensional graphs Extend calculus principles to functions of two or three variables.
Evaluate limits, extreme values of functions, derivatives and integrals of functions of two variables.
Apply vector calculus theorems to line and surface integrals and relate to engineering problems.

Your grade: There might be in class quizzes. You will have four major exams as shown in the weekly schedule below. You also have online homework on webassign.

Your grade will assigned according to the total out of 600 points as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
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<tbody>
<tr>
<td>Homework &amp; Quizzes</td>
<td>50</td>
</tr>
<tr>
<td>Exam I</td>
<td>100</td>
</tr>
<tr>
<td>Exam II</td>
<td>100</td>
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<tr>
<td>Exam III</td>
<td>100</td>
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<tr>
<td>Exam IV</td>
<td>100</td>
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<tr>
<td>Final Exam</td>
<td>150</td>
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<tr>
<td>Total</td>
<td>600</td>
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<tr>
<td>Grade</td>
<td>540-600=A, 480-539 = B, 420-479=C, 360-419 = D, 0-359 = F</td>
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You are strongly advised to do the suggested problems listed on my webpage as webassign is not enough practice for exams or quizzes.

**Make-ups:** If you are ill before an exam or when an assignment is due, contact me within 24 hours to arrange a make-up exam or turn in time.

**Religious Holidays:** Please let me know of any approved religious holidays which you observe.

**Academic Integrity Statement:** "An Aggie does not lie, cheat or steal or tolerate those who do." Please see the Honor Council Rules and Procedures on the web at http://www.tamu.edu/aggiehonor.

**Students with Disabilities:** The American with disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Room 126 of the Koldus Building or call 845-1637.

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### Weekly Schedule

- **Sept 1-Sept 5**

- **Sept 8-Sept 12**
  Quadric surfaces, vector functions and space curves, arclength, motion in space. *Sections 11.5, 11.6, 11.7, 11.8.*

- **Sept 15-Sept 19 Exam 1** on Fri. Sept 19 over Chapter 11
  Functions of several variables, limits and continuity *(optional)*, partial derivatives, tangent planes, differentials. *Sections 12.1, (12.2), 12.3, 12.4.*

- **Sept 22-Sept 26**
  Chain rule, directional derivatives, gradients, max/min problems. *Sections 12.5, 12.6, 12.7.*

- **Sept 29-Oct 3**
  Lagrange multipliers. Section 12.8. **Exam 2** on Fri Oct 3 over Chapter 12

- **Oct 6-Oct 10**

- **Oct 13-Oct 17**
  Polar coordinates (rapidly), integrals in polar coordinates, applications of double integrals, triple integrals. *Sections 13.4, 13.5, 13.6, 13.8.*
• Oct 20-Oct 24 Cylindrical and spherical coordinates, integrals in cylindrical and spherical coordinates, change of variables in multiple integrals.  
  Sections 13.9, 13.10, 13.11.

• Oct 27-Oct 29 Exam III on Wed Oct 29 over Chapter 13  
  Vector fields, line integrals. Section 14.1, 14.2.

• Nov 3-Nov 7 Fundamental theorem for line integrals, Green's Theorem.  
  Sections 14.3, 14.4.

• Nov 10- Nov 14  Curl and divergence, parametric surfaces and their areas.  
  Sections 14.5, 14.6.

• Nov 17-Nov 21 Surface integrals, Stokes' Theorem.  
  Sections 14.7, Section 14.8.

• Nov 24&Nov 26  Divergence Theorem.  
  Section 14.9

• Dec 1-Dec 5 Exam 4 on Wed Dec 3 or Fri Dec 5 (TBA)

December 8 is the last class day for MWF classes.

Final Exam schedule:

<table>
<thead>
<tr>
<th>Section</th>
<th>Final Exam</th>
<th>Lecture Time</th>
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<tbody>
<tr>
<td>501</td>
<td>Fri, Dec 12</td>
<td>8-8:50</td>
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<tr>
<td>502</td>
<td>Mon, Dec 15</td>
<td>9:10 -10:00</td>
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<tr>
<td>504</td>
<td>Mon, Dec 15</td>
<td>12:40-1:30</td>
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