Syllabus
MATH 2210-005 Fall 2014

- **Instructor**: Radhika Gupta
- **E-mail address**: gupta@math.utah.edu
- **Webpage**: www.math.utah.edu/~gupta
- **Time**: 2:00-2:50 p.m. MWF **Venue**: WEB L110
- **Office Hours**: TBD, in JWB 307, also by appointment
- **Office Location**: JWB 307
- **Text**:
  - Lecture notes from class which will be posted on the course webpage http://www.math.utah.edu/~gupta/MATH2210Fall2014.html.
  - *(Optional)* ‘Calculus and Analytic Geometry’, by George Thomas and Ross Finney. I really like how concepts are explained in this book (I used it when I learnt Calculus 3).
  - *(Optional)* ‘div, grad, curl and all that’ by H.M. Schey. This is an excellent book for learning Calculus 3 from a Physics point of view.
- **Course Information**: Math2210, Calculus III is a 3-credit semester course.
- **Prerequisites**: Prerequisites: “C” or better in (MATH 1220 OR MATH 1250 OR MATH 1320) OR AP Calculus BC score of at least 4.
- **Course Description**: Vectors in the plane and in 3-space, differential calculus in several variables, integration and its applications in several variables, vector fields and line, surface, and volume integrals. Green’s and Stokes’ theorems.
- **Expected learning Outcomes**: Upon successful completion of this course, a student should be able to:
  - Compute dot and cross products of two vectors, projection of one vector onto another vector.
  - Convert between cylindrical, rectangular and spherical coordinates.
  - Determine the equation of a plane in 3-d, including a tangent plane to a surface in 3-d.
  - Find the parametric equations of a line in 3-d.
  - Perform calculus operations on functions of several variables, including limits, partial derivatives, directional derivatives, and gradients; understand what the gradient means geometrically.
  - Find maxima and minima of a function of two variables; use Lagrange Multipliers for constrained optimization problems.
  - Compute double and triple integrals in rectangular, spherical and cylindrical coordinates; proper use of double or triple integrals for finding surface area or volume of a 3-d region.
  - Compute line and surface integrals.

We will cover chapters 11 to 14 of the textbook.

- **Homework**: Homework will be collected every week. I will upload HW problems on my webpage. Late Homework assignments will be collected only ONE day after the deadline and will earn only HALF CREDIT.
  You can turn in hand-written or typed assignments (using LaTeX).
- **Presentation**: There will be considerable emphasis on the way you present your solutions on the Homworks and tests. It is as important to present math nicely as it is to know math. You might lose points if your the work is not presentable.
• **Quiz**: There will be a 15-20 minutes Quiz in class every Wednesday. Lowest 3 quizzes will be dropped, this includes any Quiz you miss. You can make-up a Quiz ONLY IF you inform me In ADVANCE.

• **Midterm**: We will have 3 midterms on

  **Friday, October 1**  
  **Wednesday, November 5**  
  **Wednesday, December 5**

The syllabus will be announced in class. You should tell me IN ADVANCE if you are unable to take the Midterm on these dates and would want to reschedule it.

• **Learning Celebration**: The Final exam (Learning Celebration) is scheduled for

  **Wednesday, Dec. 17, 2014**  
  **1:00 - 3:00 pm**

The Learning celebration will be comprehensive.

• **Grading**:  
  Homework : 15%  
  Quizzes : 15%  
  Midterms : 20% + 10% + 10% (Your highest Midterm score will count for 20% of your grade)  
  Final : 30%

• **Grading Scale**: The grade scale will be the usual:  
  A (93-100), A- (90-92), B+ (87-89), B (83-86), B- (80-82), C+ (77-79), C (73-76), C- (70-72), D+ (67-69), D (63-66), D- (60-62), E (0-59).  
In my experience this scale is not achieved often so I am not opposed to curving the grades if necessary.

• **Online Grades**: I will put your grades online on CANVAS. I would advise you to check your grades often to make sure there were no data entry mistakes. I’m always happy to correct any mistakes I’ve made. You just need to let me know about them. Also note the grades on CANVAS might not reflect different weights for different Midterms.

• **Calculators**: Scientific calculators are allowed in class. There might be some tests where calculators will not be allowed.

• **Regarding Attendance**: I will operate under the assumption that you are attending all the lectures. If you happen to miss lectures it is your responsibility to keep up with the material. When you come to class try to pay full attention and not get lost in some far away land. You have made the effort to come to class, might as well get something out of it.

• **Collaboration**: I encourage you to work with friends on the Homeworks. Working together helps you learn a lot. It is good to work on problems together BUT when it comes to writing the solutions you should do it *alone*. You should write your solutions yourself to make sure you understand all the steps.

• **Tutoring Lab**: T. Benny Rushing Mathematics Student Center (adjacent to JWB and LCB), Room 155, Monday - Thursday 8 a.m. - 8 p.m. , Friday 8 a.m. 6 p.m.

• **Private Tutoring**: University Tutoring Services, 330 SSB (they offer subsidized tutors through the university, they charge 6 per hour) There is also a list of tutors at the Math Department office in JWB233. These tutors work privately with students. Students can call 581-6851 to get the list.

• **ADA Statement**: The Americans with Disabilities Act requires that reasonable accommodations be provided for students with physical, cognitive, systemic learning, and psychiatric disabilities, The student needs to have such a disability approved by the Disability Service Office (162 Union, 581-5020) in order to have the accommodations provided. The instructor needs to be informed about such a disability and approved accommodations at the beginning of the semester.
• **Student Responsibilities**: All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. You have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, collusion, fraud, theft, etc. Students should read the Code carefully and know you are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee. http://regulations.utah.edu/academics/6-400.php

• **Important Dates**:

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<thead>
<tr>
<th>Event</th>
<th>Date(s)</th>
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<tbody>
<tr>
<td>Labor Day</td>
<td>Monday, September 1</td>
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<tr>
<td>Last day to drop</td>
<td>Wednesday, September 3</td>
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<tr>
<td>Last day to add, elect CR/NC, audit classes</td>
<td>Monday, September 8</td>
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<tr>
<td>MIDTERM 1</td>
<td>Friday, October 1</td>
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<tr>
<td>Fall Break</td>
<td>October 12-19</td>
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<td>Last day to withdraw</td>
<td>Friday, October 24</td>
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<td>MIDTERM 2</td>
<td>Wednesday, November 5</td>
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<td>Thanksgiving Break</td>
<td>Thurs-Fri, November 27-28</td>
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<td>MIDTERM 3</td>
<td>Wednesday, December 5</td>
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<td>Last day to reverse CR/NC option</td>
<td>Friday, December 5</td>
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<td>Classes end</td>
<td>Friday, December 12</td>
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<tr>
<td>FINAL</td>
<td>Wednesday, December 17</td>
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**Warning**:

• Calculus III is a 3 credit course. There is a lot of NEW material to be learnt and not a ton of time. So the class will feel fast paced. But being prepared makes life easier. I strongly recommend looking at lecture notes and/or sections in the textbook before each class. It is ok if you don’t understand the material during this reading as the point of the class is for me to explain it to you.

• This course will have heavy emphasis on (besides computing things)
  
  – definitions (Ex. Gradient, Directional derivative etc.)
  – statement of some important theorems
  – geometric interpretation of certain methods (Ex. Lagrange’s method)
  – geometric meaning of terms (Ex. Gradient)

We will be doing a lot of calculations in this class but it is very very important to be conscious of WHAT you are calculating and be able to interpret the answer accordingly.

**Some Tips**:

• Throughout the semester, compile all definitions, theorems, formulas, methods, examples. The list will be a good guide to prepare for each test.

• A lot of times calculations can be made easier (less cumbersome) and less time consuming by using some algebraic tricks. Watch out for them. Try to pick them up during the course.

• **ASK QUESTIONS!** Help me understand what you don’t understand.

**DISCLAIMER**: This syllabus has been created as a preview to the course and I have tried to make it as accurate as possible. However, I reserve the right to make reasonable changes to the above policies as I deem appropriate. Any such changes will be announced in class.

Have a great semester!