

**Math 314 – 01**  
***Calculus of Several Variables***  
 Fall Semester 2010

**Professor:** *Vianey Villamizar*  
**Office:** 342 TMCB

**Class:** 9:00 - 9:50 a.m. MWF 136 TMCB  
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**Web page:** [www.math.byu.edu/~vianey](http://www.math.byu.edu/~vianey)

**Office Hours:** Wednesday 4:00 – 5:00 p.m. (office),  
**Problem Solving Session:** Thursday 5:00 - 6:30 p.m. at 120 TMCB,

**Grader:** *Luis Paredes*                      **Email:** [lfparedes\\_99@yahoo.com](mailto:lfparedes_99@yahoo.com)

**Text:** *Multivariable Calculus Early Transcendentals, 6th Edition, James Stewart, Thomson Brooks/Cole 2008.*

| Week # | Date            | Sections                      | Comments   |
|--------|-----------------|-------------------------------|--|
| 1      | Aug 30 – Sep 3  | Intr -12.1, 12.2, 12.3        | <b>Work Hard, Enjoy, and Have a Great Semester!</b>  |
| 2      | Sep 6 – Sep 10  | 12.4, 12.5                    | Monday Sep 6 Labor Day Holiday<br>Quiz # 1: Sep 10 - 11 (Fr-Sat).  |
| 3      | Sep 13 – Sep 17 | 12.6, 13.1-13.2, 13.3         | <b>Monday, Sep 13: Last day to drop the class w/o W</b>  |
| 4      | Sep 20 – Sep 24 | 13.3, 13.4, 14.1              | Quiz # 2: Sep 24 - 25 (Fr-Sat).  |
| 5      | Sep 27 – Oct 1  | 14.2, 14.3, 14.3-14.4         | <b>GENERAL CONFERENCE</b><br>October 2-3 (Sat-Sun)   |
| 6      | Oct 4– Oct 8    | 14.4, Review, 14.5            | <b>First Midterm Oct 8 - 9 (Fr – Sat)<br/>and Monday, Oct 11</b><br><b>Review Session Thu Oct 7 5:00-6:30 p.m.</b>     |
| 7      | Oct 11 – Oct 15 | 14.6, 14.7, 14.7-14.8         | Quiz # 3: Oct 15- 16 (Fr-Sat)  |
| 8      | Oct 18 – Oct 22 | 14.8-15.1, 15.2, 15.3         | .  |
| 9      | Oct 25 – Oct 29 | 15.3-15.4, 15.5,<br>15.5-15.6 | Quiz # 4: Oct 29 – Oct 30 (Fr-Sat).  |
| 10     | Nov 1 – Nov 5   | 15.6, 15.7, 15.8              |  |
| 11     | Nov 8 – Nov 12  | 15.9, 16.1-16.2, 16.2         | <b>Second Midterm Nov 12 – 13 (Fr – Sat)<br/>and Monday, Nov 15</b><br><b>Review Session Thu Nov 11 5:00-6:30 p.m.</b> |
| 12     | Nov 15 – Nov 19 | 16.3, 16.4, 16.4-16.5         | Quiz # 5 Nov 19 - 20 (Fr-Sat).   |
| 13     | Nov 22 – Nov 26 | 16.6, 16.7                    | Tuesday Nov 23 Friday Instruction<br><b>Nov 24-26 Thanksgiving Holiday</b>   |
| 14     | Nov 29 – Dec 3  | 16.7, 16.8                    | Quiz # 6 Dec 3 - 4 (Fr-Sat)  |
| 15     | Dec 6 – Dec 10  | 16.8-16.9, 16.9               | Dec 10 Exam Preparation Day<br><b>Review Session TBA</b>   |
| 16     | Dec 13- Dec 17  | Final Exams                   | <b>Final Exam:</b><br><b>Thu Dec 16, 11:00 a.m. - 2:00 p.m. (Classroom)</b>  |

**Objectives:** The main purpose of this course is to extend the concepts of Calculus (112 and 113) to functions of several variables and also to vector functions. Following M. Spivak, I will “attempt to present the material as the evolution of one idea, not as a collection of topics.” The emphasis is on both understanding concepts

and developing computational skills. I support the statement that “Calculus is only learned by doing.” During some of my classes, I will complement the traditional lecture with graphical MAPLE demonstrations. You can find the corresponding worksheets on my web page. MAPLE is very valuable Mathematical software for graphical representations, numerical computations, and symbolic manipulations. Although, it will not be a requirement for the students to learn how to use it, I highly recommend you to get some expertise in its use and syntaxes. It will enable you to increase your understanding of the concepts to be taught in Math 214 and other math courses.

I believe that my role as your instructor is to help and assist you in the process of learning mathematics. I will do my best to fulfill this role. I know that we will enjoy this class as we go along by making a consistent effort throughout the semester. **My best advice to you is found in D&C 4:2 replacing the first line by ... O ye that embark in Math 214, see that ye work with all ....**

**Homework:** Homework consists of three to five written problems per Section (60%) that will be handed in and some additional problems (40%) that will be reported as completed or not. Homework will be collected and reported **each week on Friday by 6 p.m.** Place completed homework in the manila folder corresponding to your Math 214 Section by my office door. Exams will be based in all problems (written and reported). You are strongly encouraged to work on homework problems everyday. You should be willing to put in at least two or three hours outside the classroom for each hour of class. A lower time commitment is likely to lead to an average grade B-/C+ or lower. To achieve excellence, students may need to invest even more hours. **I expect that you do not work on your homework during the class period.** Late homework will not be accepted. To make up for this, one week of homework (the one with the lowest grade) will be dropped. Discussion of homework assignments is allowed, but you should keep in mind that homework is an individual work. If you can reach the point where you can do fresh problems without help in all sections, I can anticipate that you will be able to successfully solve all problems on the midterms and final exam.

**Homework Format (PLEASE ADHERE TO THE FOLLOWING HOMEWORK FORMAT):** Use one side only of standard letter-sized paper. Put your name at the top of each sheet. Keep problems in order, and label each problem with its number and page. Place only one problem in any horizontal space; visually separate consecutive problems by drawing a line between them entirely across the page. If the problem has a numerical answer, highlight it in some way. If the answer to a problem involves an explanation, use correct grammar and complete sentences.

To submit homework, stack the sheets in order and fold the stack lengthwise to form a “book” with the back of the last sheet on the outside. On the front of the “book,” write your name, your Math 214 section, and the section of the text from which these problems are taken. Homework sets should contain problems from only one section of the text. Homework problems to be graded will be chosen among the whole set of problems. Incomplete homework will receive partial credit according to the amount of problems worked out.

**Exams:** There will be Midterms, quizzes, and Final exams. The Midterm exams will be based on the material (theory and homework problems) covered until the **previous Monday**. Quizzes will be based on the material (theory and homework problems) covered until the **previous Wednesday**. The final exam will be comprehensive. It will be in our regular classroom with 3 hours time limit. The Midterm exams will be given in the testing center without a time limit.

The questions will be similar to those discussed in class, or those assigned as homework, but some of them will require a good understanding of the concepts and techniques. The best way to prepare for the exams is to go over the homework problems and the examples worked in class (they constitute your best study guide) and then try to solve related problems that you haven’t seen before.

Quizzes one hour long (six in total) will be given in the testing center on certain Fridays and Saturdays (see schedule). Make up exams and quizzes cannot be arranged except in case of an emergency or absence due to official university business. **Exam and quizzes dates will be strictly enforced.** The University Final Exam Policy states: “**Scheduled final examinations are to be administered in accord with the published Final Examination Schedule as to date, time, and place. They are not to be given or taken early.**” Only basic scientific calculators (no graphic or symbolic ones) will be allowed in all exams and quizzes. No books and no other notes will be allowed.

**Grading:** Grades will be based on cumulative points earned as follows:  
Homework 15 %, Midterms 20 % each (2 in total), Quizzes 20 %, Final 25 %.

At the end of the semester, **I will compute your grade based on each one of the above forms of evaluations with their corresponding weights. Then, a Gaussian curve will help me to determine your final grade.**

Keep in mind that a good grade is the end result of a good learning process. All of you can get a good grade by successfully experiencing this learning process.

**Honor Code:** The honor code states that "inappropriately providing or receiving information ... so as to gain unfair advantage over others" is academic misconduct. It is inappropriate for any student to provide any information he have acquired by taking the exam to anyone who will be taking the exam in the future, and he should agree that it is inappropriate for him to receive any information that someone else acquired by taking the exam, if he have yet to take the exam.

**Preventing Sexual harassment:** Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds. The act is intended to eliminate sex discrimination in education and pertains to admissions, academic and athletic programs, and university-sponsored activities. Title IX also prohibits sexual harassment of students by university employees, other students, and visitors to campus. If you encounter sexual harassment or gender-based discrimination, please talk to your professor; contact the Equal Employment Office at 801-422-5895 or 1-888-238-1062 (24-hours), or <http://www.ethicspoint.com>; or contact the Honor Code Office at 801-422-2847.

**HOMEWORK ASSIGNMENTS**  
**Math 314: Calculus of Several Variables – Fall 2010**  
**Instructor: Vianey Villamizar**

| Due Date | Sec-tions            | Problems   | Due Date | Sec-tions            | Problems  |
|----------|----------------------|--|----------|----------------------|---|
| Sep 3    | 12.1<br>12.2         | 3,5,8,11,17,22,34, 39<br>1,2,3,4,8,15,22,27,31, 33                                   | Oct 22   | 14.7<br>14.8<br>15.1 | 1,4,7,17,19,20,31,35,46,50,54<br>1,7,21,25,34,40,42<br>1,3,4,6,10,12              |
| Sep 10   | 12.3<br>12.4         | 1,2,5,7,10,11,24,28,39,47,58<br>3,6,8,13,15,26,34,39,46,47,49                        | Oct 29   | 15.2<br>15.3<br>15.4 | 7,13,16,20,26,29,31<br>6,14,20,31,33,41,47,49<br>1,4,8,13,16,27,31                |
| Sep 17   | 12.5<br>12.6<br>13.1 | 1,4,5,12,16,23,30,37,71,74<br>1,7,10,21-28,33,42,48,50<br>2,4,14,20,23,25,27,38,41   | Nov 5    | 15.5<br>15.6<br>15.7 | 2, 7, 10, 13, 17, 25, 29, 32<br>5, 17,21,22,28,29,33,34,36<br>2,10,16,19,22,23a   |
| Sep 24   | 13.2<br>13.3<br>13.4 | 2,20,22,23,32,34,46<br>6,9,12,15,16,18,19,25,32,40,45,46<br>2,8,14,16,23,28,33       | Nov 12   | 15.8<br>15.9         | 2,7,13,15,18,25,26,39<br>5,10,11,15,17,21,22                                      |
| Oct 1    | 14.1<br>14.2<br>14.3 | 6,28,30,32,46,55-60<br>7,8,11,14,26,35,38,40,44<br>4,8,10,12,29,30,65,72,74c, 75, 89 | Nov 19   | 16.1<br>16.2<br>16.3 | 3,5,11-14,15-16,23,25,30,35,36<br>1,10,12,17,20,29,41,46<br>1,4,11,17,20,23-24,33 |
| Oct 8    | 14.4                 | 6,13,19,22,25,34,40,46   | Nov 29   | 16.4<br>16.5         | 1,7,12,18,27 5,8,9,12adfh,<br>17,22,24,25,29,30c, 33,35,38ac                      |
| Oct 15   | 14.5<br>14.6         | 11,15,21,25,39,42,45,53<br>1,5,10,27,30,33,37b, 39,42,54, 59                         | Dec 3    | 16.6<br>16.7         | 4,5,13-18,21,23,34,38,43<br>4,6,21,23,28,41,43                                    |
|          |                      |  | Dec 8    | 16.8                 | 1,4,9,13,16,17,19   |
|          |                      |  | NTBH     | 16.9                 | 2,4,5,10,17,19,23,28,29,38  |

Remark: To emphasize some aspects not included in the above list of problems, I could make minor changes to these homework assignments during the semester.