Math 314 – 03
Calculus of Several Variables
Winter Semester 2019

Professor: *Vianey Villamizar*   **Section 03 Class: 1:00 - 1:50 p.m. MWF 3104 JK**
Office: 342 TMCB   **Email/Phone: vianey@math.byu.edu/ (801) 422-1754**
                            Web page: www.math.byu.edu/~vianey
Office Hours: **Monday 3:00 -- 5:00 p.m. (office)**
                            Friday 3:00 – 4:00 p.m. (office)
Problem Solving Sessions: **Wednesday 5:00-6:30 p.m. at XXX**

Teaching Assistant: Samantha Sandberg (samantha.c.sandberg@gmail.com**)**
Grader: Nathan King
Text: Multivariable Calculus, 8th Edition, James Stewart, Thomson Brooks/Cole 2016.

Week #	Date	Sections	Comments
1	Jan 7 - Jan 11	Intr -12.1, 12.2, 12.3	**Work Hard, Learn Much and Have Joy**
2	Jan 14 - Jan 18	12.4, 12.5, 12.5	Mon Jan 14: Last day to drop the class w/o W
3	Jan 21 – Jan 25	12.6, 13.1-13.2	Mon Jan 21: Martin Luther King Holiday **Quiz # 1:** Jan 25-Jan 28 (Fri-Mon).
4	Jan 28 – Feb 1	13.3, 13.4, 14.1	
5	Feb 4 – Feb 8	14.2, 14.3, 14.4	
6	Feb 11 – Feb 15	Review, 14.4, 14.5	*1st Midterm:* **Feb 13 - Feb 15 (Wed – Fri)** **Review Session Mon Feb 11 5:00-6:30 p.m.**
7	Feb 18 – Feb 22	14.6, 14.7, 14.7	Mon Feb 18: Presidents' day Holiday Tue Feb 19:Monday Instruction
8	Feb 25 – Mar 1	14.8, 15.1, 15.2	
9	Mar 4 – Mar 8	15.3, 15.4, 15.6	**Quiz # 2**: Mar 6-Mar 8 (Wed-Fri).
10	Mar 11 – Mar 15	15.7, 15.8	**No Class on Fri Mar 15**
11	Mar 18 – Mar 22	15.9, 16.1-16.2 Review	*2nd Midterm:* **Mar 22-Mar 25 (Fri – Mon)** **Review Session:** **Wed Mar 20 5:00-6:30 p.m.**
12	Mar 25 – Mar 29	16.2, 16.3, 16.3	
13	Apr 1 – Apr 5	16.4, 16.5, 16.6	**Quiz # 3:** Apr 3-Apr 5(Wed-Fri).
14	Apr 8 – Apr 12	16.7, 16.7, 16.8	
15	Apr 15 – Apr 19	16.9, Review Wed April 17: Last Day of Class	**Review Session** **Wed Apr 18 2:00-4:00 p.m.**
16	Apr 22 – Apr 26	Final Exam	**Final Exam in Testing Center:** **Apr19-Apr 24 (Fri-Wed)**

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 314, see that ye work with all ….**
The **learning outcomes** for this course are found at
http://www.math.byu.edu/wiki/index.php/Math_314:_Calculus_of_Several_Variables

Homework: Homework consists of three to seven written problems (**bold face**) per Section (70%) that will be handed in and some additional problems (30%) that will be reported as completed or not. Homework will be collected once a week according to the homework schedule before **5:00 pm. Place your written homework inside the envelope located in the basket in front of my office.** To help you with homework questions**, I have arrange to hold on Wednesday evening a special review sessions from 5:00 pm to 6:30 pm. I encourage all of you to come to this session and work together on the difficult homework problem with our TA help.**

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. **Also, the use of mobile phones, tablets, and computers will not be allowed during class. 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.

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 <u>front</u> 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 in class. Quizzes will be based on the material (theory and homework problems) covered until the **previous class period**. The final exam will be comprehensive. It will be in our regular classroom with 3 hours time limit. The Midterm exams and quizzes will be given in the testing center.

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. . **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.**

Quizzes one hour long (three in total) will be given in the testing center on certain days (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 20 %, Midterms 18 % each (2 in total), Quizzes 19 %, 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**. In any event, the Gaussian curve will not hurt your grade. I will guarantee the following letter grades:

	B+ = 89-87%,	C+ = 79-77%,	D+ = 69-67%,	
A = 100-93%,	B = 86-83%,	C = 76-73%,	D = 66-63%,	E = 59-0%
A- = 92-90%,	B- = 82-80%,	C- = 72-70%,	D- = 62-60%.	

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: In keeping with the principles of the BYU Honor Code, students are expected to be honest in all of their academic work. Academic honesty means, most fundamentally, that any work you present as your own must in fact be your own work and not that of another. Violations of this principle may result in a failing grade in the course and additional disciplinary action by the university. Students are also expected to adhere to the Dress and Grooming Standards. Adherence demonstrates respect for yourself and others and ensures an effective learning and working environment. It is the university's expectation, and my own expectation in class, that each student will abide by all Honor Code standards. Please call the Honor Code Office at 422-2847 if you have questions about those standards.

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 or contact one of the following: the Title IX Coordinator at 801-422-2130; the Honor Code Office at 801-422-2847; the Equal Employment Office at 801-422-5895; or Ethics Point at http://www.ethicspoint.com, or 1-888-238-1062 (24-hours).

Student Disability: Brigham Young University is committed to providing a working and learning atmosphere that reasonably accommodates qualified persons with disabilities. If you have any disability, which may impair your ability to complete this course successfully, please contact the University Accessibility Center (UAC), 2170 WSC or 422-2767. Reasonable academic accommodations are reviewed for all students who have qualified, documented disabilities. The UAC can also assess students for learning, attention, and emotional concerns. Services are coordinated with the student and instructor by the UAC. If you need assistance or if you feel you have been unlawfully discriminated against on the basis of disability, you may seek resolution through established grievance policy and procedures by contacting the Equal Employment Office at 422-5895, D-285 ASB.

Respectful Environment: "Sadly, from time to time, we do hear reports of those who are at best insensitive and at worst insulting in their comments to and about others... We hear derogatory and sometimes even defamatory comments about those with different political, athletic, or ethnic views or experiences. Such behavior is completely out of place at BYU, and I enlist the aid of all to monitor carefully and, if necessary, correct any such that might occur here, however inadvertent or unintentional. "I worry particularly about demeaning comments made about the career or major choices of women or men either directly or about

members of the BYU community generally. We must remember that personal agency is a fundamental principle and that none of us has the right or option to criticize the lawful choices of another." President Cecil O. Samuelson, Annual University Conference, August 24, 2010 "Occasionally, we ... hear reports that our female faculty feel disrespected, especially by students, for choosing to work at BYU, even though each one has been approved by the BYU Board of Trustees. Brothers and sisters, these things ought not to be. Not here. Not at a university that shares a constitution with the School of the Prophets." Vice President John S. Tanner, Annual University Conference, August 24, 2010.

Academic Dishonesty: As a student at Brigham Young University you are bound by the Honor Code to conduct your life ethically and honorably. For purposes of the Testing Center, we consider the following to be academically dishonest:
• Copying from another person's work during an examination.
• Allowing someone to copy from you during an examination.
• Using unauthorized materials during an examination.
• Taking an examination for another or permitting another to take an exam for you.
• Obtaining or providing to another an un-administered test or answers to an un-administered test.
• Removing or attempting to remove a test, its answers, or any portion thereof from the Testing Center Consistent with the expectations of the University Honor Code, individuals caught engaging in any of the above-described behaviors will be referred to the Honor Code Office and to their instructor for appropriate disciplinary action.

HOMEWORK ASSIGNMENTS
Math 314: Calculus of Several Variables – Winter 2019 Instructor: Vianey Villamizar

Due Date	Sec-tions	Problems	Due Date	Sec-tions	Problems
Jan 11	12.1	3,7,**10**, 13,**19**,**24**,40,**44**,**45**	Mar 1	14.7 (14.8) 15.1	1,4,**9**,**18**,**19**,,21,33,**37**,48,**50**,58 (1,7,**19**,**22**,**23**,**25**,29,36,**44**,46) 1,3,**4**,**6**,**8**,10,**19**,**23**,**32**,38,41,**43**
	12.2	**1**,**2**,3,4,8,**10**,13,**18**,19,**24**, 31,**35**,**37**			
Jan 18	12.3	1,5,7,10,11,**24**,**28**,43,49,**51**,**61**,**62**	Mar 8	15.2 15.3 (15.4)	6,**14**,**20**,25,36,**37**,**47**,48,**53**,**55** **1**,**4**,**8**,13,16,**22**,**27**,31,**35** (**2**,7,10,**13**,**17**,23,29,**32**)
	12.4	3,**6**,8,13,15,**16**,**26**,**34**,39,50,**51**,**53**			
Jan 25	12.5	1dgjk,**4**,5,**10**,12,**16**,**18**,23,**30**,33,37,**38**, **48**,73,**76**,81	Mar 18	15.6 15.7	5,**14**,17,**20**,22,28,**29**,**33**,36,(40,47,51) 2,**10**,**16**,20,**22**,**25a**,**(25b)**,**26a.**
	12.6	1, 5,8,**10**,**13**,**21-28**,**29**, 38,44,50,**52**			
Feb 1	13.1 13.2 13.3 13.4	2,3,**4**,14,21,**24**,27,**31**,**44**,45,48,**49** **2**,5,20,**22**,23,27,**28**,34,**32**,**37**,**46**, 48 2,**4**,**6**, **12**,13,**14**,15,(18,**22**,25,**27**,**32**) 2,8,14,**16**,23,**28**	Mar 22	15.8 (15.9)	2,**4b**,**8**,13,**15**,**18**,**19**,**20**,23,**26**,36,**41** (**5**, 10,**13**,**15**,17,**19**,21,25,**26**)
Feb 8	14.1 14.2 14.3	**2**,**10**,**13**,**17**,20,24,26,32,**33**,**49**,**52**,**61-66** 7,8,**11**,**12**,14,26,**34**,36, **38**,40,44 **4**,8,10,12,31,32,**45**,**47**,**65**,**76ade**, **79**,97	Mar 29	16.1 16.2	3,5,**9**,11-14,15,**16**,**23**,**25**,**29-32**, 34, 35,**36** 1,**10**,**12**,17,**20**,29,40,**41**,**48**
Feb 19	14.4	**6**,13,21,**22**,25,**34**,40,42,**45**,**46**	Apr 5	16.3 16.4 16.5	**4**,9,**11**,18,**19**,**21**,25-26,**28a**,30,**35** **1**,**7**,**9**,**13**,**18**,19,**21a**,27,**28** 9-11,12gdfhk,**17**,**22**,25,**29**,30c,**31c**, 32, **33**, **35**,**38**
Feb 22	14.5 14.6	11,15,**21**,**22**,27,39,**41**,**45**,**49**,52,**53** 1,5,10,27,**28**,**30**,33,37b, **39**,**41**,45,**49**, **56**, 63	Apr 12 ND ND	16.6 16.7 16.8 16.9	4,5,**13-18**,**21**,23,**34**,**41**,42,**46**,**50**,**53** **4**,6,**13**,**16**,**21**,23,30,**43**,**46** **1**,6,**9**,**12a**,13,**16**,19,**20c** **3**, 5, **10**, 13,**17**, 19,**23**,**28**,**29**,32

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.