University of Connecticut
Math 2110Q-003, Multivariable Calculus, Fall 2017

Instructor Information

Instructor: Noah Hughes
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Email: noah.hughes@uconn.edu (Expect responses only between the hours of 9am and 6pm.)
Office: Monteith, Room 322
Office Hours: Mondays and Wednesdays from 4:00-4:50 pm, and by appointment.

Course Description and Requirements

From the department: Two- and three-dimensional vector algebra, calculus of functions of several variables, vector differential calculus, line and surface integrals.
We will cover the majority of chapters 12 through 16 of the textbook. The goal of this course is to generalize what we have learned in Calculus I and II to functions with more than one variable. This generalization will make use of the idea of vectors and bring us to understand derivatives in three dimensions, multiple integrals, and more.
Text: *Multivariable Calculus* 8th ed., by James Stewart.
Note that this book is simply chapters 11 through 17 of *Calculus: Early Transcendentals* by the same author. If you have that book, you should be all set.
Prerequisites: MATH 1132Q or a score of 4 or 5 on the Advanced Placement Calculus BC exam.
Recommended preparation: a grade of C- or better in MATH1132Q. Not open for credit to students who have passed MATH 2130Q or 2143Q.
Calculators: You are welcome to use calculators while working on homework or worksheets. They will *not* be allowed during exams or quizzes.

Assessments

Homework: (worth 10% of your grade)
Homework will consist of online assignments given through WebAssign. There will be homework assignments for each section of the text. Each assignment will be made available on WebAssign several days before the section is covered in class and will be due at 11:59PM on the Wednesday of the week following the class in which the section was covered.
Note: You will get five attempts for each question that is not multiple choice and fewer than five attempts for each multiple choice question; the exact number of attempts will depend on the number of choices. After each attempt, you will be told whether your answer is correct or not. If you are not able to get the correct answer after your initial attempts, we recommend that you seek help

from your instructor, the Q-Center, a tutor, or another student before attempting to answer the problem again.
To access WebAssign, follow the link given on HuskyCT. If you have any trouble, contact me.
Note: When accessing your online homework, use Firefox or Chrome as your browser; there are problems that can occur if you use Internet Explorer or Safari. Useful tips on using WebAssign can be found here.

Important: BUYING THE BOOK AND WEBASSIGN ACCESS CODE
You can buy the bundled version of Multivariable Calculus or Calculus: Early Transcendentals by James Stewart (8th Edition) either at the UConn Bookstore or online directly from the publisher. Both the text and the Webassign code are required for this course. The unbundled version of the book (that is, the book without a WebAssign access code) can be obtained in many places, but the cost of buying the unbundled text and the WebAssign code separately may be significantly greater. There are three ways to purchase the text and the WebAssign access code:

1. Get the text and WebAssign access code bundled together at a discount from the publisher. For Multivariable Calculus (which has only the multivariable chapters), visit this page. For Calculus: Early Transcendentals (the full text with all chapters), visit this page.
2. Get the text and WebAssign access code bundled together at the UConn Bookstore.
3. Get the text separately from anywhere, and buy the WebAssign access code when you access your homework through HuskyCT.

We do not recommend using the third option above, because it is more expensive to buy the access code and the textbook separately than bundled together. The option to buy the text and WebAssign access code bundled together lets you use that access code for the life of the edition of the textbook.

Worksheets: (worth 10% of your grade)
Frequently, worksheets will be given to work on during class-time. All worksheets given in a week will be due at the beginning of class on Wednesday of the following week.
These will be graded for completion.
In Class Quizzes: (worth 15% of your final grade)
A quiz will be given at the end of class every Monday. Each will consist of a few problems from the previous week's material and should take between 10 and 20 minutes to complete.
These will be graded in two stages. Your quizzes will be returned to you on the next Wednesday with each question graded correct or incorrect. You will have until the following Monday to turn in corrections for partial credit. Your corrections will also be graded as completely correct or not.
Exams: There will be three exams in total:

- Exam 1 (Monday, October 2, worth 20% of your final grade)
- Exam 2 (Monday, November 6, worth 20% of your final grade)
- Final exam (Date and location to be announced, cumulative, worth 20% of your final grade)

Project: (worth 5% of your grade) Each of you will be responsible for writing a short paper on some topic that extends what we discuss in class (for example, Lagrange multipliers, curvature, or the application of Calculus III to physics). This may be done alone or with a partner.
This paper will be assigned a letter grade. It can be submitted for review or grading anytime during the regular semester. Papers will not be accepted during exam week. Evidence of plagiarism will result in automatic failure.
A list of approved topics will be announced. You may suggest your own topic if you wish. I will decide what is suitable or not.

Make-Up Work

Unexcused absence during exams or quizzes will be tolerated only in highly unusual documented circumstances (e.g., hospitalization). You may arrange with me well in advance if accommodations are needed.
If you do miss a class, consult the on-line schedule to see what you missed and to obtain any necessary worksheets for submission.

Tentative Schedule

A tentative outline for the course can be found on the following page.

Academic Integrity

Integrity is a vital to a successful and rewarding academic experience. You are expected to observe the University's Academic Integrity Policy while participating in this course. Academic misconduct of any sort is subject to the consequences outlined therein. More information can be found at the Office of Community Standards.

Special Accommodations

Student athletes and students with disabilities should inform me of their commitments as an athlete, or any special needs that they have, etc. within the first three weeks of the semester. A letter from the Athletics Department or the Center for Students with Disabilities will be required for accommodations to be given. For more information on academic accommodations (including religious observances) visit the University of Connecticut Policy & Procedures website.

Disclaimer

I reserve the right to make changes to this document in partiality or entirety at any point during the semester.

Week	Monday	Wednesday
1	8/28: Course logistics 12.1 Three dimensional coordinate systems	8/30: 12.2 Vectors 12.3 The dot product 12.4 The cross product
2	9/4: No class.	9/6: 12.5 Equations of lines and planes 12.6 Cylinders and quadric surfaces
3	9/11: 14.1 Functions of several variables 14.3 Partial derivatives	9/13: 14.4 Tangent Planes and linear approximation 14.5 The chain rule
4	9/18: 14.6 Directional derivatives and the gradient vector 14.7 Maximum and minimum values	9/20: 15.1 Double integrals over rectangles 15.2 . . . over general regions
5	9/25: 15.2 15.3 . . . in polar coordinates	9/27: Catch-up
6	10/2: Review **Exam 1: 12.1 - 12.6, 14.1,2,3-7, 15.1 - 15.3** (1 hour)	10/4: Review of exam 1 15.6 Triple integrals
7	10/9: Optional study hall	10/11: 15.7 Triple integrals in cylindrical coordinates
8	10/16: 15.8 Triple integrals in spherical coordinates	10/18: Triple integral review 13.1 Vector functions and space curves
9	10/23: 13.2 Derivatives and integrals of vector functions 13.3 arc length and curvature	10/25: 16.2 Line integrals (scalar functions)
10	10/30: 16.1 Vector fields 16.2 Line integrals (vector fields)	11/2: 16.3: The fundamental theorem for line integrals 16.4 Green's theorem
11	11/6: Review **Exam 2: 15.6 - 15.8, 13.1 13.3, 16.1 - 16.4** (1 hour)	11/8: Review of exam 2 16.5 Curl and divergence

Week	Monday	Wednesday
12	11/13: 16.6 Parametric surfaces and their areas	11/15: 16.7 Surface integrals (scalar functions)
13	11/20: No class	11/24: No class
14	11/27: 16.7 Surface integrals (vector fields)	11/29: 16.9 The divergence theorem
15	12/4: 16.8 Stokes' theorem	12/6: Review
16	**Final exam (cumulative)**	Date and location: TBA