

University of Georgia

Department of Mathematics

MATH 2500

MULTIVARIABLE CALCULUS

Fall 2009

Instructor: David Swinarski

Quick links:[Homework](#) [Recommended problems](#) [Computer work](#)**Instructor's contact information**

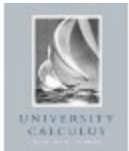
Office: 436 Boyd Graduate Studies

Office hours: to be determined the first week of class

Cell phone: (917) 733-3016

e-mail: davids@math.uga.edu**Files**[Sheet of formulas to memorize for tests and quizzes](#)**Time and place**MWF 9:05-9:55pm, **304 Boyd Graduate Center**

Class starts Monday, August 17 and goes to Tuesday, December 8 with the following exceptions: no class Monday, Sep. 7 (Labor Day); no class Friday, Oct. 30 (fall break); no class the week of Nov. 23-27 (Thanksgiving week); one additional class on Tuesday, Dec. 8.

Textbook

University Calculus, by Hass, Weir, and Thomas. ISBN 0-321-35014-6.

Some other excellent calculus textbooks include the textbooks by James Stewart, the textbook by Tom Apostol, and the textbook by Ted Shifrin. Stewart's book is written at roughly the same level as Hass, Weir, and Thomas, though you may find some different examples worked out. Apostol's book and Shifrin's book have more theory, and combine linear algebra with multivariable calculus. If you have taken linear algebra prior to 2500, or if you are thinking about being a math major and want to immerse yourself in more theory, I encourage you to take a look at their books.

Course content: Topics

This course covers multivariable calculus. Roughly, we will cover Chapters 10-14 of the textbook.

Here is a list of some topics we will cover:

Ch. 10: geometry in three dimensions; vectors, dot products, cross products, and their applications

Ch. 11: parametrized curves in three dimensional space, arclength, projectile motion

Ch. 12: surfaces in three dimensional space; partial derivatives; tangent planes to surfaces; optimization, optimization with boundary, optimization with constraints

Ch. 13: multiple integrals, applications to finding volume, mass, centroids

Ch. 14: line integrals; surface integrals; applications; vector fields; circulation and flux; applications; integral interchange theorems (Green's Theorem, Stokes' Theorem, Divergence Theorem)

Prerequisites

You must have a solid grasp of high school math and calculus as covered by MATH 2250 and MATH 2260. The pace of this course is extremely swift and does not permit much review during lectures.

Grading

Graded work will include homework, quizzes, three in-class exams, and a final exam. The final grade will be calculated using the following weights: homework and quizzes 14%; in-class exams 19% each; final exam 29%. Percentages of at least 90, 80, 70, 60 guarantee grades of at least A-, B-, C-, D respectively. I reserve the prerogative to curve upward, and to take individual circumstances into account when assigning final grades.

Graded homework

I will assign two homework problems at the end of every lecture. They will be due before the next lecture. Your graded work will be returned to you at the following lecture. No late work will be accepted. You can miss up to two assignments per exam with no penalty.

Homework assignments will be posted [here](#) and in eLearning Commons.

I believe that this amount of homework will NOT give you enough practice to prepare you for the exams. Thus, you should also work through the recommended problems on your own.

In math there is no substitute for individual concentration. You may work together on homework. But beware copying too much from your classmates; this can be detrimental to exam preparation.

Recommended problems

Recommended problems are posted [here](#).

Computer work

You will be required to use advanced computer software a few times in this course (roughly once per chapter) for graphing 3-dimensional objects and for some multiple integrals. I advocate a package called Sage, which is free and open source, and can be accessed over the internet (you don't even need to install it on your own computer). Alternatively, you may use Mathematica or Maple. More details will be announced when we get to the relevant problems.

Quizzes

I may give quizzes at any time during the semester. I may announce a quiz in advance, or it may be a surprise. Anyone not in attendance with an unexcused absence will simply miss out on these points.

In-class exams

Tentative dates for the in-class exams will be announced early in the term. Roughly, they will fall at monthly intervals. Solutions to exams will be posted here afterward.

Here are the tests from the last time I taught the course. I'm covering the material in a different order this time, so you should understand that these are old tests, not practice tests. You may see material on them that is not going to be on your test. There may be material on your test that does not appear on these.

[Old Test 1](#)

[Old Test 2](#)

[Old Test 3](#)

[Old Final](#)

Final exam

The final exam will be cumulative, but may slightly emphasize material covered between the third in-class exam and the last day of class. The final exam is scheduled by the university; right now it is scheduled for Monday, December 14, 8-11AM. This could change.

Missed work

In general, late work, missed quizzes, and missed exams will count as zero points. If you miss (or are going to miss) a deadline or an exam for a valid reason, like a medical or family emergency, please contact me as soon as possible (even beforehand) so that we can discuss extending a deadline, excusing you from the exam, or making up the exam.

Students with disabilities and health issues

If you have a disability or health issue which you believe merits accommodation, please see me as soon as possible to discuss it. Come to office hours or make an appointment.

Attendance

It is your responsibility to know what happens in class. The best way to fulfill this obligation is to come to every class meeting unless you are too ill to attend. It is important that you are present and attentive at every class meeting.

The official attendance policy of the university states: Students are expected to attend classes regularly. A student who incurs an excessive number of absences may be withdrawn from a class at the discretion of the professor http://www.bulletin.uga.edu/Bulletin_Files/acad/general_Link.html. We interpret "excessive" to mean four or more unexcused absences.

Honesty

As a University of Georgia student, you have agreed to abide by the University's academic honesty policy, "A Culture of Honesty," and the Student Honor Code. All academic work must meet the standards described in "A Culture of Honesty" found at: www.uga.edu/honesty. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.

Calculators and computers

Use of calculators and/or computers is permitted (sometimes necessary) when doing homework problems. However, they will not be allowed on exams, so I urge you to work without them as much as possible in preparation for the exams.

Help and tutoring

A great deal of help is available.

My office hours should be your first stop. You can also make an appointment to meet with me almost anytime.

The mathematics study hall provides free math tutoring and is open Monday--Thursday from 3:30-5:30pm. For this course, you should go to in 322 Boyd Graduate Studies Bldg.

Information on tutoring at UGA can be found at http://www.math.uga.edu/undergraduate/student_services.html and also by following the links found at <http://www.uga.edu/dae> . It appears that both free tutoring services and paid private tutoring services are available.

Mandatory Disclaimer

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.