

**MATH 241, SECTION C8**  
**Vector Calculus and Mathematica, Spring, 2008**

**Instructor:** Eric Landquist, landquis@uiuc.edu

**Lab:** 239 Altgeld Hall

**Class:** 142 Henry

**Time:** 10-10:50 MTWΘ

**Office:** 245 Illini Hall

**Phone:** 333-3973

**Office hours:** Tuesday 11-11:50 AM and Wednesday 9-9:50 AM in 239 Altgeld Hall. (Other times can be arranged by appointment.)

**Webpages:**

Class Webpage - <http://www.math.uiuc.edu/landquis/math241cms08.html>

ClassComm - <http://cm.math.uiuc.edu/classcommintro.php>

Calculus & Mathematica - <http://cm.math.uiuc.edu/>

**Class Assistant:** Tania Tomanova, ttomono2@uiuc.edu

**Textbook:** There is no book. You will need to purchase the CD “Calculus & Mathematica”. If you want to get Mathematica for a home computer, you can purchase the student version or lease a copy from CITES (\$25 for a year). See <http://cm.math.uiuc.edu/> for a link to CITES.

**Take Note:** Mathematica has been recently upgraded to 6.0. While version 5.2 is out there, there will be less hassle if you stick to one version.

**Recommended texts:** Welcome to Calculus & Mathematica, Vector Calculus & Mathematica by Davis, Porta, and Uhl.

Although the text is not required, students often find it useful to have a copy to study when they are away from the lab. The course is designed so that you can learn by exploring the text interactively using Mathematica rather than by reading a text or listening to lectures. Learning math by discovering it yourself is an essential aspect of this course.

**ClassComm webpages:** The “ClassComm” page, which requires a password, is:

<http://cm.math.uiuc.edu/classcomm>

You will use this website to turn in homework in the form of Mathematica notebooks. You will also find assignments and message boards for the class on this website. Initially, your login and password are your netid. Please change your ClassComm password the first time you log in.

**Goals:** The course syllabus includes the following lessons from the electronic text:

Feel of Mathematica, VC.01 Vectors, VC.02 Perpendicularity, VC.04 Trajectories, VC.05 2D Measurements, VC.06 Sources, VC.07 Transform 2D integrals, VC.08 Transform 3D integrals, VC.09 Spherical Coordinates, VC.10 3D Surface Measurements, and VC.11 3D Flow Along.

Each computer lesson consists of three parts: Basics, Tutorials, and Give It A Try. In these sections, new concepts are explained and then applied to problems. Finally, you are asked to solve several problems on your own.

**Group problem sets (Homeworks):** Problem sets from the Mathematica notebooks will be assigned approximately weekly. These are to be done in groups of at most three using the computer. You can do much of the work during class, but you will need to do some work outside of class too. Each group will submit only one notebook, using the ClassComm webpage listed above. Each group member will receive the same score on the assignment, with one exception noted below. Be sure that every member of the group understands all the solutions!

If a group member is absent, shows up to class late, or leaves class early without informing the instructor and his lab partner(s) ahead of time, three percentage points will be deducted from that homework assignment for each absence, and one for each late arrival or early dismissal.

Complete coherent English sentences, with correct spelling, punctuation, and grammar, should be used to explain your solutions to the Give It A Try questions. Points will be deducted for each such error. By explaining your work I hope that you will learn to use the vocabulary of Math 241 and provide yourselves with study aids written in your own words. Think about what you want to say and reread problems after you finish them.

Late homeworks will not be graded unless you have a reasonable excuse, which comes with some official documents. Be sure to put final drafts of homework in the correct folder in ClassComm. After the first assignment, any homework that is not put in the correct folder will not be graded.

Since the Mathematica homework is a group assignment, each member of the group is responsible for the entire homework and represents each member's understanding of the solution. If there is a problem with a group member not doing his share of the work, for example, please feel free to talk to me about the problem.

**Lab Openings:** There is a lab schedule outside each lab: 24 Illini Hall and 239 Altgeld Hall. If a class is in session, you may use computers that are not being used by students in the class.

**IMPORTANT:** All answers in the notebook format should be cell gray boxed. To do this, highlight the blue bracket around the solution, and click the "Pizzazz Button," which is found in the Feel of Mathematica 6.0 folder on the C&M website. For the first homework assignment, no points will be lost if this is not done. After the first assignment, you will lose points if answers are not highlighted. This makes homework easier to grade.

**Literacy Sheet Problems:** There will also be some written homework. They are short quiz-like sheets that I will use to keep track of basic understanding of calculus. There will never be any questions about Mathematica code on these either. Exam questions will gen-

erally look similar to Literacy Sheet problems. As with the homework, I expect complete, coherent, legible, English sentences with correct spelling, punctuation, and grammar. Completed assignments are due at the 10:00 am bell before class, and no late assignments will be graded. Solutions may be done on computer, but must be turned in as a hard copy. You may work on and discuss these problems in groups, but each response must reflect your own understanding of the problem in your own words; any evidence of copying will yield a grade of 0 for problems in question.

**Grading Policy:**

- 50% Mathematica Homeworks
- 10% Literacy Sheets
- 20% Exams (2 in-class exams)
- 20% Final Exam (Tuesday, May 6, 2008, 8-11 AM)

Important: There is a catch. Your final grade can only differ by a maximum of one full letter grade from your exam average. Therefore it is important that you study well for the exams. You will not be allowed to solely survive on your homework scores.

I will be grading on the standard scale (after rounding off):

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
F:0-59		

**Exams:** The final exam will be cumulative.

If you have a documented reason (This will require a note from your academic dean, the Emergency Dean, or a letter from a medical professional explaining your illness.) to miss an in-class exam, we will arrange a make-up. Also, any evidence of cheating or copying will result in a 0 on the exam and will be calculated into the exam average. Please report any cheating you notice.

**Other notes:** If you are unable to make it to class because of athletics, field trips for other classes, academic conferences, etc. please let your instructor and your lab partner(s) know ahead of time.

If you miss an assignment (not including exams) due to entering the class late or for another documented reason, that assignment will be waived, but knowledge of the material is required for future assignments and exams.

One recommended option for saving drafts of homework is Net Files:  
<http://netfiles.uiuc.edu>.

There are Calculus & Mathematica labs in 24 Illini Hall and 239 Altgeld Hall available to work on assignments outside of class. The general policy for using lab machines is that priority is given to students in a scheduled class time. In other words, computers that are not in use during a class are free for use, and they are available if no class is scheduled at a particular time. See the Calculus & Mathematica lab schedules for more information.

Because you are enrolled in a C & M course, you may sign up for Math 290 credit if you haven't done so before. The CRN is 37815. You will not be able to register using Illinois Enterprise. Instead, go to the Undergraduate Math office in room 313. You will need to request a form to add Math 290, have it signed by me, and then return it to AH 313. Your 290 grade is determined by your homework average in the course.

If you drop this course, please let the instructor and your lab partner(s) know so that I can reassign groups as soon as possible.

Your comments, criticisms, questions, and suggestions will be welcome throughout the semester.