

22M: 037 Engineering Mathematics V – Vector Calculus
Spring Semester 2009 – Preliminary Syllabus

Class: TTh 1:05 – 2:20, 105 MLH

Office Hours: Tth 2:30 – 3:20 (or by appointment)

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Goals and objectives of the course: This course will treat Calculus on multivariable and vector functions. The main topics will include partial derivatives, min-max problems, integral along curves and surfaces, Divergence theorem, Stokes theorem.

Pre-requisites

- 22M:034 – Engineering Mathematics IV – Differential Equations

Textbook: Calculus with Analytic Geometry (5th Ed), R. Ellis and D. Gulick

Other Course Materials: Occasional handouts to complement theory in the book.

Course Webpage: Assignments and other information about the course will be given at <http://www.math.uiowa.edu/~dmoreira>. Look in the teaching section. Students are responsible for checking regularly the course webpage to see assignments and announcements. It is student's responsibility, to understand and to comply with the assignments posted there. In the case of doubt and if any clarification with respect to the assignments is needed, students should contact the instructor in advance before the assignment is due.

Course Outline: We expect to cover most of the following chapters from the book

- a. Chapter 13 – Partial Derivatives
- b. Chapter 14 - Multiple Integrals
- c. Chapter 15 – Calculus of Vector Fields

This plan course may be modified during the semester. Such modifications will be announced in advance during class periods and in the course webpage. **It is the student responsibility to keep track of such changes.**

Class Procedures: It is strongly advised to read the material to be discussed before coming to class. Therefore, if there is a difficult point, you will know beforehand where it arises. This way, you can benefit from the lecture more effectively. The lecture is to be thought as a guide. Students are supposed to read and study the book and the notes taken from the lecture.

Grading Policy: For a solution to a problem in a test or in the homework/quiz to be considered perfect it is not only required the answer to be correct, but also that a correct outline of the reasoning or a correct calculation leading to it be given as well. In many cases a correct answer alone will not account for partial credit.

Exams: There will be two in-class midterm exams. There will also be a comprehensive final exam. The schedule is the following:

- Midterm #1 - 02/26/2009 (Thursday)
- Midterm #2 - 04/02/2009 (Thursday)
- Final Exam - 05/12/2009 (Tuesday), 07:30 A.M.

The Midterm exams will have duration of 1 hour and 15 minutes and they will take place during the regular class period. The final exam is scheduled by the university (as above) and will have 2 hours duration. The exam will be in the regular classroom where the lectures take place. Only under exceptional circumstances will a student be permitted to change time of the examinations. **No calculator will be allowed during the tests.**

Although this is unlikely, the dates of the Midterms can be changed depending on the development of the course. In that case, the announcements of these date changes will be done by the instructor in class and posted in the website with some reasonable time in advance.

Missed exams policy: Make-up exams will be given based on an official documented medical, or religious excuse. It could be given also based on a very compelling reason. In this case, a justification in writing needs to be presented to base the decision if the make-up will be granted. Waking up late, missing the bus, and excuses of this sort in general do not account for compelling reasons.

Quizzes: Quizzes will be given regularly and they will take place on every Thursday's lecture. They will cover the material of that particular week maybe the week before. They will be applied in the last 15 minutes of the lecture. Make-up quizzes will follow the same rules applied to make-up exams. The 2 (two) lowest quiz grades will be dropped.

Homework: The HW will be assigned weekly on Thursdays and they are due the following Thursday's lecture. Late HW in general will not be accepted unless by a compelling reason, or documented medical / religious excuse. The two lowest homework grades will be dropped. Presentation of your results is very important. Scratch paper will be not accepted.

In order to facilitate and make the grading process more effective, please turn in your HW in a clean and organized way. Students are responsible for keeping track of their HW Grades. HW will be returned in class.

Grading Procedures: The final grade will be based on two midterms tests, homework/quizzes and final exam as follows:

- a. Each Midterm exam will account for 20% of the course grade;
- b. Homework assignments will account for 20% of the course grade;
- c. Quizzes will account for 15% of the course grade;
- d. The final exam will account for 25% of the course grade;

The table below will be used for grades. It provides the minimum percentages for the grades

50	53	57	60	65	70	75	80	85	90	100
D	D+	C-	C	C+	B-	B	B+	A-	A	A+

Improvement of performance during the course will be taken into consideration at the end of the course. Following the CLAS instructions, the grade A+ will be given just in cases of excellent performance in the course

Eventually, if necessary, an average grading (curving) will be used for the grades.

Attendance:

1. **Regular attendance will be required. Poor attendance may (and it probably will) result in lowering your final grade. Also, please try not to leave the class during the class period, as this proves to be disruptive.**
2. **If you miss a class, you are still responsible for checking with your colleagues and/or the instructor the material discussed in class, the assignments discussed in class and the announcements done in class. If there is an assignment due in that class, contact the instructor and the T.A.**

Notes to Student: If any topics and/or complain arises, I strongly suggest to bring it to my knowledge and we discuss it fully together. If a solution cannot be reached to your satisfaction, you might want to discuss it with the chair of Department of Mathematics. The Department of Mathematics has offices in 14 MLH. To make an appointment to speak with the chair of the department, call 335-0714 or contact the Departmental Secretary in 14 MLH.

The College of Liberal Arts and Sciences

Policies and Procedures

Administrative Home

The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall or see the Academic Handbook.

www.clas.uiowa.edu/students/academic_handbook/index.shtml

Academic Fraud

Plagiarism and any other activities when students present work that is not their own are academic fraud. Academic fraud is reported to the departmental DEO and to the Associate Dean for Academic Programs and Services who enforces the appropriate consequences. www.clas.uiowa.edu/students/academic_handbook/ix.shtm

Making a Suggestion or a Complaint

Students with a suggestion or complaint should first visit the instructor, then the course supervisor and the departmental DEO. Complaints must be made within six months of the incident. www.clas.uiowa.edu/students/academic_handbook/ix.shtml#5

Accommodations for Disabilities

A student seeking academic accommodations should register with Student Disability Services and meet privately with the course instructor to make particular arrangements. For more information, visit this site:

www.uiowa.edu/~sds/

Understanding Sexual Harassment

Sexual harassment subverts the mission of the University and threatens the well being of students, faculty, and staff. Visit www.sexualharassment.uiowa.edu for definitions, assistance, and the full University policy.

Reacting Safely to Severe Weather

In severe weather, the class members should seek shelter in the innermost part of the building, if possible at the lowest level, staying clear of windows and freestanding expanses. The class will continue if possible when the event is over. (Operations Manual **16.14. i.)**

Important University of Iowa Deadlines for Off-Cycle Courses

(Note: Use only for off-cycle courses. To find the deadlines for a particular course, visit this **Registrar** site and type in the course number and title:

www.registrar.uiowa.edu/more/coursedeadlines.aspx)

Since this course begins or ends at a time different from other courses, please be aware of these deadlines:

Last day to add:

Last day to drop:

Resources

_ Writing Center 110 English-Philosophy Building, 335-0188,

<http://www.uiowa.edu/ewritingc>

_ Speaking Center 12 English-Philosophy Building, 335-0205,

<http://www.uiowa.edu/erhetoric/centers/speaking>

_ Mathematics Tutorial Laboratory 314 MacLean Hall, 335-0810,

<http://www.math.uiowa.edu/mathlab/index.htm>

_ Tutor Referral Service Campus Information Center, Iowa Memorial Union, 335-3055, http://www.imu.uiowa.edu/cic/tutor_referral_service

Student Classroom Behavior

The ability to learn is lessened when students engage in inappropriate classroom behavior, distracting others; such behaviors are a violation of the Code of Student Life. When disruptive activity occurs, a University instructor has the authority to determine classroom seating patterns and to request that a student exit immediately for the remainder of the period. One-day suspensions are reported to appropriate departmental, collegiate, and Student Services personnel (Office of the Vice President for Student Services and Dean of Students).

University Examination Policies

Missed exam policy. University policy requires that students be permitted to make up examinations missed because of illness, mandatory religious obligations, certain University activities, or unavoidable circumstances. Excused absence forms are available at the Registrar web site: <http://www.registrar.uiowa.edu/forms/absence.pdf>

Final Examinations

An undergraduate student who has two final examinations scheduled for the same period or more than three examinations scheduled for the same day may file a request for a change of schedule before the published deadline at the Registrar's Service Center, 17 Calvin Hall, 8-4:30 M-F, (384-4300).

*The CLAS policy statements have been summarized from the web pages of the College of Liberal Arts and Sciences.