
M427L (55200)

Advanced Calculus for Applications II, Fall 2011

Course syllabus (last revised: 10/26/2011)

Instructor: Ravi Srinivasan

Email: rav@math.utexas.edu

Office: RLM 11.164

Office hours: Tu 2:30-4:30

Lecture: TTh 12:30-2, UTC 3.122

Recitation sections: MW 12-1, UTC 3.122

Class website: <http://www.ma.utexas.edu/users/rav/M427L/>

TA: Eric Baer

Email: ebaer@math.utexas.edu

Office: RLM 10.104

Office hours: MW 8-10

Text: ``Vector Calculus (5th Ed.)'' by Marsden and Tromba (ISBN 0716749920)

Topics: See <http://www.ma.utexas.edu/academics/courses/syllabi/M427L.php>

Prerequisites and degree relevance:

A grade of C- or better in M408D or M408M, or the equivalent.

Course description and content:

This course is directed at students in the natural and social sciences and at engineering students. While the emphasis in this course will be on problem solving, some theoretical considerations will also be discussed. Topics include elements of vector analysis and calculus, matrices and linear transformations, gradient, divergence, and curl of a vector field, multiple integrals and chain rules, integration over high-dimensional regions such as paths and surfaces, and Green's and Stokes' theorems (multi-dimensional analogues of the fundamental theorem of calculus). If time permits, topics in complex analysis may be included.

Notice:

The University of Texas provides appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-6441 TTY. If you plan on using accommodations, you need to notify your instructors early in the semester.

Important dates:

Mon., Aug. 29, 2011 -- Last day of official add/drop period

Fri., Sep. 09, 2011 -- Last day to drop a course for possible refund (can only Q-drop after this date)

Wed., Sep. 21, 2010 -- Last day to drop a class without possible academic penalty

Tue., Nov. 01, 2011 -- Last day to withdraw/drop a class with Dean's approval, change status to or from a pass/fail basis

Grading:

Grades will be determined from weekly homework/quizzes, midterms, and the final exam (see below). Course grades will be computed on a +/- basis according to a scheme at least as generous as this (rounded to the closest integer):

A : 92-100

A-: 90-91

B+: 88-89

B : 82-87

B-: 80-81

C+: 78-79

C : 72-77

C-: 70-71

D+: 68-69

D : 62-67

D-: 60-61

F : < 60

1. Homework/quizzes: 20%

Homework assignments will be posted online every week on the class website, approximately one week before it is due. Assignments will be due almost every Wednesday in recitation (two HW will be due on Mondays), and late homework will **not** be accepted. The purpose of the HW is to learn the material. You are encouraged to discuss and work together on these problems, both in and out of recitation sections and office hours. Learn to correctly and consistently derive the answer (without a calculator) in order to better prepare for quizzes and exams. Do not restrict yourself to HW problems, but use them as a basis for trying questions from the book as well. You will get a small amount of credit each week for handing in your complete HW solutions.

To assess how well you learned the material, short quizzes consisting of variations on one or two HW problems will be given in recitation each Wednesday (and the two Mondays) that homework is due. The purpose of the quizzes is to prepare you for the exams by requiring you to solve problems efficiently under time pressure. Make-up quizzes ***will not*** be given. Your HW credit will be added to your quiz score to give your weekly HW/quiz grade.

The **three** lowest HW/quiz grades will be dropped to allow for missed recitations, illness, emergencies, etc.

2. Midterm exams: 45%

There will be two 75-minute midterms given in regular class times on the following dates (possibly subject to change):

3a. Midterm #1: 20%
Thursday, Oct. 06, 2011

3b. Midterm #2 (not comprehensive): 25%
Tuesday, Nov. 15, 2011

3. Final exam (comprehensive): 35%
Friday, December 09, 9am-12pm (officially assigned date/time), location TBA

Exam policy:

A valid photo ID must be available to be checked at all exams. Calculators, books, and notes are not permitted during quizzes, midterms, and the final exam.

Make-up exams ****will not**** be given so please remember the appropriate exam dates. In extraordinary circumstances ONLY, the final exam score will compensate for a missing midterm exam. This includes illness, observance of a religious holiday, or a university-related absence ***with two weeks advance notice.*** Proper documentation (such as a doctor's note) is required in all cases.

Some tips:

- Attend problem sessions: Since new concepts are introduced during lectures, there is not enough time to work as many examples as we would like. Problem sessions offer many more opportunities to learn from examples, clarify ideas, and practice using new concepts. Problem sessions are valuable resources for learning and review. Note in particular that the problem session immediately before an exam reviews the exam topics, while the problem session immediately after an exam reveals the correct exam answers.
- Ask questions: In lecture, during problem sections, and by e-mail.
- Do the homework: No one can learn mathematics without working examples themselves. The most important driver of success in virtually every math course is doing practice exercises carefully and completely.
- Read the text: To get the most benefit from the lectures and problem sessions, you should read relevant sections of the text as they are covered in class.
- Come to office hours: Office hours offer valuable opportunities to reinforce concepts, clarify confusing issues, work more examples, and get individualized feedback.
- Study together: You are encouraged to study together with your peers enrolled in the class. Get to know your classmates, and make arrangements to share notes in case you miss class due to illness.
- Learn to work problems either with or without a calculator: You may use a calculator on homework problems but not during quizzes or exams.
- Be honest: Any academic dishonesty will be severely penalized.

Tentative course calendar (subject to change):

--Week 01--

Topics: Review, 1.1-1.2

Th 08/25 First lecture

--Week 02--

Topics: 1.3-1.5

Tu 08/30

We 08/31 HW1 due / Quiz 1

Th 09/01

--Week 03--

Topics: 2.1-2.3

Mo 09/05 Labor Day holiday -- no recitation section

Tu 09/06

We 09/07 HW2 due / Quiz 2

Th 09/08

--Week 04--

Topics: 2.5-2.6, 3.1

Tu 09/13

We 09/14 HW3 due / Quiz 3

Th 09/15

--Week 05--

Topics: 3.2-3.4, 2.4

Tu 09/20

We 09/21 HW4 due / Quiz 4

Th 09/22

--Week 06--

Topics: 4.1-4.2, 4.3

Tu 09/27

We 09/28 HW5 due / Quiz 5

Th 09/29

--Week 07--

Topics: 4.4

Mo 10/03 HW6 due / Quiz 6

Tu 10/04

We 10/05

Th 10/06 ****MIDTERM #1****

--Week 08--

Topics: 4.4 (cont'd), 5.1-5.5

Tu 10/11

We 10/12 HW7 due / Quiz 7

Th 10/13

--Week 09--

Topics: 6.1-6.3, 3.5 (if time permits)

Tu 10/18

We 10/19 HW8 due / Quiz 8

Th 10/20

--Week 10--

Topics: 7.1-7.2

Tu 10/25

We 10/26 HW9 due / Quiz 9

Th 10/27

--Week 11--

Topics: 7.3-7.5

Tu 11/01

We 11/02 HW10 due / Quiz 10

Th 11/03

--Week 12--

Topics: 7.6, 8.1

Tu 11/08

We 11/09 HW11 due / Quiz 11

Th 11/10

--Week 13--

Topics: 8.2

Tu 11/15 ****MIDTERM #2****

We 11/16

Th 11/17

--Week 14--

Topics: 8.3

Mo 11/21 HW12 due / Quiz 12

Tu 11/22

We 11/23

Th 11/24 Thanksgiving break -- no lecture

--Week 15--

Topics: 8.4-8.5, review of topics

Tu 11/29

We 11/30 HW13 due / Quiz 13

Th 12/01 Last lecture

--Finals week--

Fr 12/09 ****FINAL EXAM**** 9am-12pm, location TBA
