M427L–FALL 2021 ADVANCED CALCULUS FOR APPLICATIONS II SYLLABUS #55380

Instructor: Dr. Jacky Chong
Office: PMA 12.140
Office Hours: TTh 3:00p.m.–4:00p.m. CST (a mixture of Zoom and In-person, tentative)
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Teaching Assistant: Abhijjith Venkkateshraj

Lecture: MWF 3:00p.m.–4:00p.m. CST in RLP 0.126

Course Webpage. Lecture schedule as well as other important information regarding the class will be posted on the course webpage:
`https://web.ma.utexas.edu/users/jwchong/math427L_fall21.html`
The course webpage are more for people outside of the course than for my students. Students should be able to find all the information on Canvas or Piazza.

Required Textbooks: *Vector Calculus, 6th ed.* by J.E. Marsden and A. Tromba.
ISBN-10: 1429215089

Prerequisites: Student must have earned at least a C- in Mathematics 408D, 408L, 408S or any equivalent course.

Course Description: Topics include matrices, elements of vector analysis and calculus of functions of several variables, including gradient, divergence, and curl of a vector field, multiple integrals, and chain rules, length and area, line and surface integrals, Greens theorem in the plane and space. If time permits, topics in complex analysis may be included. This course has three lectures and two problem sessions each week. It is anticipated that most students will be engineering majors. Five sessions a week for one semester.

Exams: There will be three 50-minute in-class exams and one 3-hour final exam. The exams will be held on the following dates:

Exam 1: Wed., September 22nd	Final Exam: Wed., December 15th
Exam 2: Wed., October 20th	7:00pm–10:00pm
Exam 3: Wed., November 17th	

For the in-class exams, students are allowed to use a **one-sided** $8'' \times 11''$ **handwritten** note. For the final exam, students are allowed a **two-sided** $8'' \times 11''$ **handwritten** note.

Date: August 23, 2021.

Homework: Homework problems will be assigned regularly from the course textbook along with problems from the instructor. There will be a total of 10 assignments throughout the semester. Each problem set is assigned 8 points, 6 points for completeness and 2 points for accuracy of one or two randomly selected problems. We drop the lowest score. It is acceptable for groups of students to discuss the problems with each other; however, each student must write up his or her own solutions. See the tentative schedule for the due dates. Every assignment is due at 11:59 PM (CST) on the indicated date. **Late assignments will not be accepted**. *Submission*: All homework should be submitted through Gradescope.

MATLAB Assignment: There will be three MATLAB assignments throughout the semester. These will be posted on Canvas/Gradescope as they become available. The due dates are on the course schedule below. Each assignment will also include some instructional introductions. Like homework, it is acceptable for groups of students to discuss the problems with each other; however, each student must write up his or her own code/work.
Submission: All MATLAB assignments should be submitted through Gradescope.

Quizzes. There will be four quizzes administered during discussion. Each quiz will be 20–25 minutes in length. The quizzes will be administered on the following dates:

Quiz 1: Thursday, Sept. 9th	Quiz 3: Thursday, Nov. 4th
Quiz 2: Thursday, Oct. 7th	Quiz 4: Thursday, Dec. 2nd

The quizzes are closed book and closed notes.

Course Readings: Reading the sections of the textbook corresponding to the assigned homework exercises is considered an integral part of the homework assignment. You are responsible for materials in the assigned reading whether or not it is discussed in the lecture.

Make-up Policy: Make-ups for in-class exams will only be given in the case of a documented absence due to illness, religious observance, participation in a University activity at the request of University authorities, or other compelling circumstances.

Grading: Course grades will be based on homework, in-class exams, quizzes, and the final exam. Your course grade will be determined by the best of the following two weighted averages:

- 18% Homework, 12% MATLAB, 16% Quizzes, 30% Exams (10% per Exam), 24% Final,
- 18% Homework, 12% MATLAB, 16% Quizzes, 20% Exams (Drop the lowest exam score, 10% per Exam), 34% Final.

After your weighted average is calculated, letter grades will be assigned based on the standard grading scale (tentative):

A	A-	B+	B	B-	C+	C	C-
$> 92\%$	92–90%	89–87%	86–83%	82–80%	79–77%	76–73%	72–70%

It is possible that the cutoffs may be lower at the discretion of the instructor. However, students who receive less than 50% of the maximum possible score will automatically receive an F for the course.

Academic Integrity: Each student in the course is expected to abide by the University of Texas Honor Code:

> *As a student of The University of Texas at Austin, I shall abide by the core values of the University and uphold academic integrity.*

You are expected to read carefully and adhere to the following instruction provided by the Office of the Dean of Students: `http://deanofstudents.utexas.edu/conduct/academicintegrity.php`. All cases of academic dishonesty will be referred to the Office of the Dean of Students.

Students with Disabilities: Students with disabilities may request appropriate accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities (SSD), 512-471-6259, `https://diversity.utexas.edu/disability/` . Notify your instructor early in the semester if accommodation is required.

Counseling and Mental Health Services: Available at the Counseling and Mental Health Center, Student Services Building (SSB), 5th floor, M-F 8:00 a.m. to 5:00 p.m., (Phone) 512-471-3515, website `www.cmhc.utexas.edu`. Your mental health should be your top priority, so please take good care of yourself. (I don't know whether this is still applicable for the remainder of the semester.)

Information on COVID-19. Due to the current pandemic, we will face a lot of challenges and deal with many uncertainties for the remainder of the semester. To maintain a clear sense of the situation and the university's actions, it is encouraged that the student stay informed by frequently visiting the university's official COVID-19 webpage `https://coronavirus.utexas.edu/`. Moreover, students can visit `https://onestop.utexas.edu/faq-covid19/?utm_source=evpp_website&utm_medium=banner&utm_campaign=covid_resources` to see some frequently asked questions.

TENTATIVE SCHEDULE.

    Below is a tentative schedule of the course with the material that I hope to cover and when. This will undoubtedly change as we progress through the semester, so check the course website/canvas regularly for updates. The sections correspond to the course textbook.

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Week 1 Aug. 23	*24*	First Day *25* §1.1	*26*	*27* §1.2
Week 2 30 §1.3	*31*	Sept. *1* §1.3	*2*	*3* §1.4 **HW 1**
Week 3 6 *Labor Day*	*7*	*8* §1.5	*9* **Q 1**	*10* §2.1 **HW 2**
Week 4 13 §2.3	*14*	*15* §2.4	*16*	*17* §2.5 **HW 3**
Week 5 20 §2.6	*21*	*22* **Exam 1**	*23*	*24* §3.1–3.2 **ML 1**
Week 6 27 §3.3	*28*	*29* §3.4	*30*	Oct. *1* §3.4 **HW 4**
Week 7 4 §4.1	*5*	*6* §4.2	*7* **Q 2**	*8* §4.2 **HW 5**
Week 8 11 §4.3	*12*	*13* §4.4	*14*	*15* §5.1–5.3 **HW 6**
Week 9 18 §5.4	*19*	*20* **Exam 2**	*21*	*22* §5.5 **ML 2**
Week 10 25 §6.2	*26*	*27* §6.2	*28*	*29* §6.3 **HW 7**

Monday	Tuesday	Wednesday	Thursday	Friday
Week 11 *1* §7.1	Nov. *2*	*3* §7.2	*4* **Q 3**	*5* §7.3 **HW 8**
Week 12 *8* §7.4	*9*	*10* §7.5	*11*	*12* §7.6 **HW 9**
Week 13 *15* §8.1	*16*	*17* **Exam 3**	*18*	*19* §8.2
Week 14 *22* §8.2	*23*	*24* *Thanksgiving*	*25*	*26* *Thanksgiving*
Week 15 *29* §8.3	*30*	*1* §8.3–8.4	*2* **Q 4**	*3* §8.4 **HW 10**
Week 16 *6* Review **ML 3**	*7*	*8*	*9*	*10*
Week 17 *13*	*14*	*15* **Final Exam**	*16*	*17*

Label:

(1) **HW** means homework is due by 11:59 PM (CST).
(2) **ML** means MATLAB assignment is due by 11:59 PM (CST).
(3) **Exam** means in-class exam is due at the end of lecture.
(4) **Q** means quiz is due during discussion.