Math 316–001 (Advanced Calculus II)
Spring 2022

Instructor: David Walnut
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Office hours: TR 10:30am–12:00noon and by appointment. Office hours will be held in person but Zoom appointments can be made.
Text: Leonard F. Richardson, *Advanced Calculus: An Introduction to Linear Analysis*
Topics: The course will cover portions of Chapters 5, 8–11 of Richardson. Other topics will be covered if time permits.

General Comments:

This course is a continuation of Math 315, Advanced Calculus I. The overall goals of the course remain the same, viz. to introduce the student to the arguments and techniques that are used in modern analysis, and in particular will help the student develop a facility with the limiting processes that occur regularly throughout mathematics. In addition the course reinforces the theory of differentiation and integration learned previously and places it on a more mathematically rigorous foundation. In particular, this course focuses on differentiation and integration in higher dimensions. Finally the course provides a mathematically rigorous foundation for solving problems in more advanced applied mathematics including numerical analysis, differential equations, and functional analysis.

Expectations:

The prerequisite for this course is C or better in Math 315. The student is expected to be familiar with the material in Chapters 1–4 of Richardson. You are required to be familiar with the mathematical typesetting software LaTeX though any other flavor of TeX that you want to use is also fine. All written assignments are to be prepared in LaTeX, and submitted as a `.pdf` file. Finally please read (and re-read) the textbook's Introduction on p. xxi–xxv.

Class format:

This is an in-person course. Lectures are recorded in advance and will be posted in their entirety on Blackboard. You are responsible for viewing the appropriate lecture videos before each class. You will be informed via Blackboard which of the recorded lectures you should view each week. In-class time will be used to answer questions, and to work the written assignments. It is permitted to work these assignments in groups however written solutions are to be prepared individually and should reflect work done by that individual. See below and also on Blackboard for details on the preparation of these in-class assignments.

Learning Assistant:

The learning assistant for this course is Shrunal Pothagoni. He will be present in class to assist with the in-class assignments, and will also hold office hours. His contact information including his office hours will be posted on Blackboard.

Blackboard:

A BlackBoard page will be set up for this course. This page will contain announcements, handouts, solutions to exams, class notes, and other important information. You should check BlackBoard regularly to avail yourself of these helpful resources.

Grading:

Written Assignments: Regular written homework assignments will be made throughout the semester, and will be worked on in class. Write-ups of each homework assignment will be due weekly. Precise assignments and due dates will given on BlackBoard.

The student should be aware of the following regarding homework sets:

- No late assignments will be accepted for any reason.
- All assignments are to be typed using TeX or LaTeX and a `.pdf` file submitted through **Gradescope**, an online grading platform. The link to **Gradescope** and instructions on how to use it is provided in Blackboard. Homeworks prepared or submitted in any other way or in any other file format will not be accepted.
- Your name must appear in the text of the homework assignment write-up. A template for what I want the homework write-ups to look like will be posted on Blackboard.

If any of the above requirements is not met, your homework assignment will not be accepted. What follows is useful advice for the written assignments.

- Collaboration is permitted and encouraged on the written assignments, but the final write-up must be your own. You must demonstrate to me in your written proofs that you substantially understand the problem and what you are writing. If you are just copying someone else's solution, I will know.
- If a problem has resisted all your attempts to solve it, please do not try to bluff your way through in your homework write-up. It is much better to give a partial solution and describe where you got stuck.

Your lowest three scores on your written assignments will be dropped. The average of your remaining written homework assignment scores will count for 70% of your final grade.

Midterm and Final Exam: A midterm exam will be given on Thursday, March 10, 2022. The exam will take the full class period. A makeup for this exam will not be given except in cases of extreme hardship and then only when I have been contacted **in advance.** A final exam will be given on Thursday, May 12, 2022, 7:30am-10:15pm in the same room where we have class. The final exam will not be cumulative. Your score on each exam will count for 15% of your final grade.

The grading scale is as follows, and is based on your correctly rounded semester average. There will be no curve.

A+:	**99 +;**	**A:**	**92 - 98;**	**A-:**	**90 - 91;**
B+:	**88 - 89;**	**B:**	**82 - 87;**	**B-:**	**80 - 81;**
C+:	**78 - 79;**	**C:**	**72 - 77;**	**C-:**	**70 - 71;**
		D:	**60 - 69;**		
		F:	**0 - 59.**		