Math 316–001 (Advanced Calculus II)
Spring 2018

Instructor: David Walnut
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email: `dwalnut@gmu.edu`
Office hours: TR 10:30am–12:00pm and by appointment.
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.

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 are familiar with is also fine. All written assignments are to be prepared in LaTeX More details on this are below. Finally please read (and re-read) the textbook's Introduction on p. xxi–xxv.

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:

Homework Notebooks:

- A list of suggested problems from each section of the book that we will cover will be posted to Blackboard. You are required to complete all of these problems in a timely fashion close to the time we cover the corresponding section in class, and carefully write up your solutions in TeX or LaTeX. Collaboration is permitted on these problems but the final write-up must be your own.

- In addition, I will regularly give problems that are to be worked in class, either collaboratively in groups of no more than three, or individually if you prefer. The groups will be of your own choosing. Solutions to these problems are to be carefully written up in TeX or LaTeX. For these problems, it is permitted for one group member to

write up the solutions and share them with the rest of the group. It is advised that the writing-up be shared by different members of the group.

- At several points in the semester I will ask to see your written solutions to both the book problems and the problems assigned in class. Your submission will be according to the following rules:

  - Copy and paste all of the solutions to the book problems into a single .tex file which you will then compile to produce a .pdf file which you will then submit on Blackboard. The name of this .pdf file will follow the following format: `LastName-Book.pdf`, so for example `Jones-Book.pdf`.

  - Copy and paste all of the solutions to the problems assigned in class into a single .tex file which you will then compile to produce a .pdf file which you will then submit on Blackboard. The name of this .pdf file will follow the following format: `LastName-Class.pdf`, so for example `Jones-Class.pdf`.

  - Hence two files will be submitted each time I ask for your homework notebooks.

- The notebooks will be graded for completeness and will not be graded in detail. Your grade on your homework notebook will count for 20% of your final grade.

Written Assignments: Regular written homework assignments will be made throughout the semester, about once per week. 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 submitted to me electronically through BlackBoard as a .pdf file. Homeworks prepared in any other way or submitted in any other file format will not be accepted.

- The name of the .pdf file that you submit will follow the following format: `LastName-HWnumber.pdf`. So for example: `Jones-HW04.pdf`.

- Collaboration is permitted on the writing 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.

- It is wise to start any homework assignment early. If you try to solve a problem and get stuck, please come to my office hours or contact me by email to ask for a hint. I am very liberal with hints.

- If a problem has resisted all your attempts to solve it, please do not try to bluff your way through in your homework writeup. It is much better to give a partial solution and describe where you got stuck.

The average of your written homework assignment scores will count for 50% of your final grade.

Midterm and Final Exam: A midterm exam will be given on Thursday, March 8. 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 10, 7:30am-10:15am 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.**		