Math 316–001 (Advanced Calculus II)
Spring 2013

Instructor: David Walnut
Office: Planetary Hall (formerly ST1), room 261
Phone: 703 993 1478 (voice); 703 993 1491 (fax)
email: dwalnut@gmu.edu
Course web page: Access from the page http://math.gmu.edu/coursehomepages.htm.
Office hours: MW 3:30–5:00pm 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, which corresponds roughly to Chapters 2–6 of Strichartz, *The Way of Analysis*. You are required to be familiar with some kind of word-processing software that can handle mathematical symbols. More details on this are below. Finally please read (and re-read) the textbook's Introduction on p. xxi–xxv.

The course webpage will contain announcements, handouts, solutions to exams, class notes, and other important information. You should visit the webpage regularly to avail yourself of these helpful resources.

Grading:

Homework: Regular homework assignments will be made throughout the semester. You are required to do all problems suggested but only a subset of them will be handed in. Precise assignments and due dates will be listed on the course webpage.

The student should be aware of the following requirements for all homework sets:

- No late assignments will be accepted under any circumstances.
- All assignments are to be typed up using some kind of word-processing software. MS Word is adequate to handle any symbols that you must type, but you can use any software you like. Some flavor of TeX, such as LaTeX, is ideal for this purpose.

- It is required that you submit your assignment to me electronically by emailing me a *pdf* file of your work (no other file format is acceptable). As long as the time stamp on the email is before the beginning of class on the due date of the assignment, the assignment will be accepted. The filename of the pdf file must have the following form: `<last name> <first name> HW<n>.pdf`. (For example: `Smith John HW1.pdf`, or `Jones Mary HW6.pdf`)

If any one of these rules is violated, the assignment will not be accepted. *You have been warned.* The average of your written homework assignment scores will count for 70% of your final grade.

Graded homework exercises will be scored on a scale from 0 to 4 points:

- **A score of 4:** Your solution is complete, clear, well-presented and correct or essentially correct. This score is interpreted as full credit.
- **A score of 3:** Your solution is essentially correct but is lacking characteristics of a 4. Possibly you have made substantial progress toward a solution and there is a well-written explanation of the partial solution. Possibly you have assembled all the pieces but failed to present a well-written explanation of your solution with the correct logical connections.
- **A score of 2:** Your work shows some progress towards the solution. Possibly you have assembled some of the right concepts but have not put them together in a direction leading to the solution.
- **A score of 1:** A score of 1: Very little progress towards the correct solution is shown.
- **A score of 0:** A score of 0: Effectively no progress towards the solution is shown.

The instructor reserves the right to give a bonus point for exceptional work. The instructor also reserves the right to lower a score for lack of clarity in your solution, illegible writing, incomplete sentences, etc.

Midterm and Final Exams: A midterm exam will be given on Wednesday, March 6. 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 Wednesday, May 8, 10:30am-1:15pm 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.**		