MATH 3220-001, Foundations of Analysis II, Fall 2017

Instructor: Travis Mandel
Time: MTWF, 08:35 AM–09:25 AM
Location: LCB 219
Office Hours: JWB 112, MTF 9:35-10:35. Other times by appointment. Subject to change.
Email: mandel@math.utah.edu
Canvas page: https://utah.instructure.com/courses/460127

Text: Joseph L. Taylor, *Foundations of Analysis*, American Mathematical Society, Providence 2012. ISBN-13: 978-0-8218-8984-8, ISBN-10: 0821889842.

Course Information: Math 3220, Foundations of Analysis II is a 4-credit semester course.

Prerequisites: "C" or better in MATH 3210.

Course Description: Advanced multivariable calculus. Topics include continuity, compactness, differentiation and affine approximation, chain rule, Taylor series, extremization, error estimation, inverse and implicit function theorems, Riemann integration, Fubini's Theorem, change of variables formula. The emphasis is on further developing the student's ability to understand more abstract concepts and to write an effective and rigorous mathematical argument.

Topics: The theory of several variable calculus and the essentials of the professional mathematician: logic, proof and the writing of a mathematical argument. The course covers most or all of the following chapters from the textbook:

Chapter 7: Convergence in Euclidean Spaces

Chapter 8: Functions on Euclidean Spaces

Chapter 9: Differentiation in Several Variables

Chapter 10: Integration in Several Variables

Grading: The grades (which may or may not be curved) will be calculated as follows:
Weekly Homework 30%
Midterm 20%
Midterm 20%
Final Exam 30%

Your lowest two homework grades can be dropped, or if it is better for your grade, you can keep those homeworks grades, have homework count as a higher percentage of your grade, and have a midterm or the final count as a lower percentage. For example, if there end up being 12 homeworks, then each non-dropped assignment will be 3% of your grade. If you keep 11 or 12 assignments instead of dropping 2, then your lowest midterm will count as 14% or 17%, or your final will count as 24% or 27%. The point is that someone who has made 100%'s on the first 10 assignments should still be able to benefit from doing well on the last 2 assignments.

Homeworks: Homeworks will typically be due in class on Tuesdays. I realize that things occasionally come up that may make people late to an 8:35 AM class, so I will allow each person to turn their homework in slightly late 2 times. On these two occasions, your homework must still be turned in by 11:30 AM on the day it is due (or as soon as possible afterwards with an email before 11:30 AM letting me know it's coming). You should bring it to me in my office, JWB 112, and hand it to me or slide it under my door if

I'm not there.

For each assignment, I will pick a handful of problems to be graded. I plan to post the solutions to all the problems on Canvas after the assignments are turned in. The problems will be announced in class, via email, and also on Canvas, typically on Monday the week before they are due.

Homeworks may be hand-written or typed (using LaTeX, for example). Full sentences aren't necessary (although actual math papers do use full sentences), but you should make the logical flow of your argument clear.

Final Exam: The final exam will be on Monday, December 11, 2017, from 8:00 – 10:00 am in our regular classroom. The exam is comprehensive, meaning that it covers material from the entire semester, not just the end of it, although the material from the end will be weighted more heavily.

Additional Information

ADA Statement: The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability & Access, 162 Olpin Union Building, 801-581-5020. CDA will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability & Access.

Student Responsibilities: All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. You have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, collusion, fraud, theft, etc. Students should read the Code carefully and know you are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee. http://regulations.utah.edu/academics/6-400.php