

Course Syllabus

Syllabus for MATH 3220-001 Spring 2022

Foundations of Analysis I

Course Description

This is a very preliminary version of the syllabus. The most recent version will always be on Canvas,

Instructor: Henryk Hecht, JWB 329

email: hecht@math.utah.edu

Days/time: MTWF 9:40 am-10:30 am in GC 470.

Office Hours: On Zoom. Dates and times to be decide

Textbook: Joseph L. Taylor, Foundations of Analysis, American Mathematical Society, Providence 2012. ISBN 978-0-8218-8984-8

Additional Resources: there will be supplementary notes posted. You may use Internet resources at your own risk. However, using theorems and results, etc. which are not discussed in class is not acceptable in homework, tests and the final exam.

General Goals: The main goal of this course is: to provide students with a rigorous approach to the theory behind calculus of several variables. and to introduce basic concepts of topology. This is the second course of the MATH 3210–3220 sequence of *Foundations of Analysis*, a sequence designed to develop the mathematical sophistication of students, while giving them a much deeper understanding of calculus and its foundations than can be provided in the standard courses (MATH 1210, 1220, and 2210). The emphasis is on improving student's ability to understand and explain concepts in a logical and complete manner and refine their skill at proofs and mathematical arguments.

Course Content:

The course covers the following chapter-topics in the textbook:

Supplementary notes will be provided.

Chapter 7: Convergence in Euclidean Spaces

Chapter 8: Functions on Euclidean Spaces

Chapter 9: Differentiation in Several Variables

Chapter 10: Integration in Several Variables

Assignments and Grading:

Grading is based on **homework, two tests, the final exam, and weekly quizzes.** Homework is assigned on a (roughly) weekly basis. Many of the homework exercises involve proving theorems or providing examples that illustrate the course material. Quizzes will be given in class on Wednesdays. They are designed to test your knowledge of definitions and statements of theorems.

Final grade is assigned using the following evaluation method:

Weekly homework assignments, count 30% toward the final grade.

Quizzes, count 10% toward the final grade

Tests, count 40% toward the final grade.

Final Exam, counts 20% toward the final grade

The lowest three homework scores and the lowest three quizzes scores are dropped.

Additional events which can improve your final grade

Extra Credit Quizzes (they will start after the first test) can add up to 10% to your grade. Details will be given later in the course.

Suppose you took both tests and the final exam percent is higher than the lower test percent. Then your lower test percent will be replaced by the final percent.

Typically letter grades are assigned as: **A:** 94%+, **A-:** 89%-93%, **B+:** 84%-88%, **B:** 80%-83%, **B-:** 74% - 79%, **C+:** 68%-73%, **C:** 61%-67%, **C-:** 55%-60%, **D:** 50%-54%, **E:** < 50%

Test Dates:

02/23/2022	Wednesday	Test 1
04/20/2022	Wednesday	Test 2
05/03/2022	Monday	Final Exam

Both tests will be held In Person in our room during the regular meeting time.

The final exam will be held In Person in our room from 8:00am to 10:00am.

The course starts on Monday 01/10/2022 and ends on Tuesday 04/26/2022.

More about Homework. You may consult with your colleagues on homework. However, your final work and write-up has to be your own.

More about Tests. Tests are open textbook (our textbook). They are also open notes. However, the notes must be based entirely on the textbook and material presented in class. You cannot use results from other sources. In particular, you cannot use results from internet. You cannot communicate with anybody during the test. All electronic devices, earphones, etc. must be turned off.

Students are encouraged to review the Student Code for the University of Utah:

<https://regulations.utah.edu/academics/6-400.php>

Course Delivery Technical Details

All the information about the course will be provided on Canvas. Students should log in into their Canvas account at least once a day.

I will post notes relevant to the lectures. I will teach in class using iPad and possibly the white boards installed in the room. Aside from introducing concepts and proofs we will work on multiple problems. Questions are strongly encouraged.

Homework will be posted on Canvas as a dated assignment and must be returned on Canvas by the due date.

If you have a tablet or a similar computerized writing surface, the simplest method is usually to download the exam or homework pdf, write directly on that, and then reupload it to Canvas. Otherwise, if you have a printer you can print out the exam, write on that, and then scan and upload the writeup. If you do not have a printer you can simply write your solutions on a blank piece of paper, clearly indicating which problem you are solving. If you do not have a scanner there are many apps that convert your smartphone into a scanner. Please make sure you have an app that can convert the files into pdf format.

We will meet in GC 470. The class will be delivered using iPad and possibly the installed white boards.