

# MATH 4001-5001-001: Analysis II

## Syllabus Fall 2019

### Instructor

Prof. Czubak  
email: czubak@math.colorado.edu  
office: Math 319

### Class times & location

MWF 3pm-3:50pm ECCR 118

### Class Website

<http://math.colorado.edu/~macz9339/math4001/index.html>

### Textbook

*Walter Rudin, Principles of Mathematical Analysis, 3rd Edition.*

### Prerequisites

Analysis I, Linear Algebra

### Course Description & Learning Objectives

The objective is to acquire specific mathematical knowledge and to practice problem solving and critical thinking.

- **Mathematical Content:** Analysis II is a continuation of Analysis I. Both courses are fundamental courses for students who wish to pursue advanced work in mathematical sciences. Analysis II covers series of numbers, sequences and series of functions, and additional topics chosen by the instructor: functions of several variables, and the Lebesgue theory. The emphasis is placed on precision and being able to *understand* and prove important properties related to these topics.
- **Critical Thinking & Problem Solving Skills:** The students will practice problem solving, evaluating arguments and conclusions, recognizing when they do not understand something, connecting and synthesizing ideas and transforming them into a new form. The goal is to go beyond technical competence towards creativity and mastery.

### Office Hours

I collect students' schedules, so I can choose office hours that are accessible to almost all, if not all students. If my office hours conflict with your schedule, please make an appointment. I can be also reached by email, and I am happy to answer questions before and after class.

## Attendance

Attendance is not required in general, but see Problem Sessions below. However, if a student misses class, it is the student's responsibility to obtain class notes from another student. The course follows the book relatively closely, but at times, may cover more material or in a different manner than the textbook. (Also, for Lebesgue measure we will not be using Rudin.) The students are responsible for all the material from lectures, assigned readings, hw, and the material assigned as exercises in lectures (but not collected as hw). When attending the class, the students are expected to follow the guidelines for proper Classroom Behavior (see below).

## Homework

*Your success in this course (and most math courses) largely depends on the commitment you make to the HW assignments.* Homework will be posted on the class website.

Note the following:

- The hw is due AT THE BEGINNING of class. Any assignment that is not handed in at the beginning of class is considered late.
- You are strongly encouraged to talk to your classmates about the homework. However, you should write down the solutions on your own (DO NOT COPY FROM EACH OTHER—see below for Honor Code).
- If you work with other students, at the top of the assignment write down the names of the students you worked with.
- The two lowest hw scores will be dropped. One purpose of dropping two hw scores is to accommodate any unforeseen circumstances that can prevent you from completing/handing in an assignment. Therefore, there will be no late homework accepted.
- If you do not follow the following guidelines, your assignment will not be graded:
  - For each problem, statement of the problem (directions) should be copied over, and then followed by a solution.
  - Your solutions must be legible. Using Latex is encouraged, but not required.
  - If you are not using Latex, each new problem should be written on a separate piece of paper.

Helpful remark: You will be handing in only a part of the assigned problems, so if you are not using Latex, do not staple the pages.

## Problem Sessions

A student will be randomly picked to present a HW problem, but for some problems we will allow volunteers. Everyone will have to present at least once during the semester with a possibility of presenting up to 5 times. The presentation will be graded on a scale from 0 to 5. One lowest grade will be dropped.

During a problem presentation another student will be chosen to comment on the solution. There will be no grade for the commenting: just Pass/Fail. Each student will be chosen to comment between 1-5 times. One lowest grade will be dropped.

When chosen to present or comment, but absent from class, a student will receive a grade of 0.

**Exams:** There will be one in-class midterm exam.

Tentative Date: Friday, October 18th

The exam will consist of two parts: in-class, and a take-home. The details regarding the take-home exam will be given closer to the exam date.

There will be no make-up exams. If a student misses the midterm, the zero score will be replaced with the final exam's score (provided the final is not canceled by the university).

If you have any questions about the midterm grades, you will have one week from the day the exam is returned to make an inquiry. After one week, no grading inquiries about lost points will be considered. However, you can always ask questions about the correct solution.

**Final:** The final is mandatory and will be comprehensive. Implicit in registering for this class is your agreement that you will be present to take the final exam.

The final is scheduled to occur on Wednesday, Dec.18, 7:30pm–10pm. The location will be determined by the university, and announced on the class website.

If you have three or more final exams scheduled on the same day, you are entitled to arrange an alternate exam time for the last exam or exams scheduled on that day. If you have two final exams scheduled to meet at the same time, you are entitled to arrange an alternative examination time for the course that meets later in the week during the term or, if the two courses meet on the same day during the term, the course that meets later in the day. Students must make arrangements with the instructor of the affected course(s) by the standard deadline to drop a course in that term and are expected to provide supporting written information of these situations to qualify for exceptions.

More information can be found here.

## Determining Course Grade

HW 30%, Problem Session 5%, Commenting 5%, Midterm 30%, Final 30%

**Accommodation for Disabilities:** If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the Disability Services website (here). Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition or injury, see Temporary Medical Conditions under the Students tab on the Disability Services website.

**Classroom Behavior:** Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information, see the policies on classroom behavior and the Student Code of Conduct.

Students are expected to be on time for class and stay for the entire class period. A proper classroom behavior is expected including but not limited to: having a phone on silent, no talking, no speaking out of turn, no texting, browsing on your phone, etc. Finally, no laptops, iPads, etc., are allowed without the prior permission of the instructor. A failure to behave properly will result in the student being removed from the classroom and/or the course.

**Honor Code:** I have zero tolerance for academic misconduct. All incidents of academic misconduct will be reported to the Honor Code Council (honor@colorado.edu).

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. Students who are found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the Honor Code Office website.

**Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation:** The University of Colorado Boulder (CU Boulder) is committed to fostering a positive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (including sexual assault, exploitation, harassment, dating or domestic violence, and stalking), discrimination, and harassment by members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or [cureport@colorado.edu](mailto:cureport@colorado.edu). Information about the OIEC, university policies, anonymous reporting, and the campus resources can be found on the OIEC website. Please know that faculty and instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.

**Religious Holidays:** Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, quizzes, assignments or required attendance.

In this class, whenever possible, students should notify faculty at least two weeks in advance of the conflict to request special accommodation. We are dropping two quizzes, so there will be no make up for quizzes.

See the campus policy regarding religious observances for full details.