

Math 411: Mathematical Analysis I

Instructor: Kristen Hendricks

E-mail: kristen.hendricks@rutgers.edu

Office Hours: M 1-2 on Zoom; Th 10-11 Lucy Stone Hall B102D

Non-Canvas Website: www.math.rutgers.edu/kh754/Math411.html. Most course content can be found both here and on Canvas.

Location and Time: Lecture MTh 8:30-9:50 AM in LSH A-140.

Content: This course is a rigorous introduction to analysis in metric spaces. We will discuss some basic notions of logic, real and complex numbers, metric topology, sequences and series, real valued functions, continuity, differentiation, and integration.

Textbook: W. Rudin, *Principles of Mathematical Analysis*, 3rd edition. We will cover roughly Chapters 1-6 of this textbook. Some supplemental materials for the first few weeks of class will also be posted on Canvas. Reading assignments will be distributed in advance of each weeks' lectures. You will get the most out of lecture if you read the text *before* coming to class.

Notes: Lecture notes will be made available online via the **link on the Canvas front page** no later than the afternoon before each lecture, and updated shortly after lecture with any typo corrections or other changes.

Homework: Homework will be assigned weekly and due on Mondays at 5 pm. Homework will be collected via Canvas Assignments on a mirror site for the course; the relevant Assignment will remain open for submission until 6 pm, to account for the possibility of technical difficulties, and will then close. There will be twelve homeworks in total. (There will not be a homework due the Monday after Thanksgiving.) No late homework will be accepted, but your lowest two homework scores will be dropped in computing your grade.

You are encouraged to work in groups on your homework – this is generally beneficial to your understanding and helps you learn how to communicate clearly about mathematics. However, you must write up all solutions yourself, and you must credit all of your collaborators. (Examples: “Maya and John and I solved this problem together”; “Omar suggested this approach to the problem to me.”) Similarly, you are welcome to use any online resources you like (a blog about analysis, a StackOverflow discussion of a similar problem, etc) but you must cite your sources.

Three homework problems will be graded carefully, and some points will be given for completeness of the rest of the assignment. Homework solutions will be posted online promptly. Some LaTeX templates have been posted to Canvas for those who would like to typeset their homework solutions.

Exams: There will be two eighty-minute midterm exams on **Thursday, October 10** and **Thursday, November 14**. There will also be a final exam **Monday, December 16 8-11 am**. Exams will be taken closed book and closed notes. If you miss an in-class examination for a good reason (such as serious illness or other comparable emergency), your final will count for a larger percentage of your grade accordingly. Make-up finals will only be given in extreme and documented circumstances. In exam

circumstances and otherwise, students are expected to be familiar with and abide by the [academic integrity policy](#).

Disability Accommodations: If you need accommodations for the course, please bring me a Letter of Accommodations as early in the term as possible. There are detailed instructions on how to do this in the “University Resources” section of this syllabus.

Grading: Grades will be computed as follows:

- Homework: 20%
- Midterms 1 & 2: 25% each
- Final: 30%

A reasonable curve will be applied to the composite numerical scores. The bar for an A will not be set higher than an overall 90% in the course.

University-Level Resources:

Student-Wellness Services:

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901/ <http://health.rutgers.edu/medical-counseling-services/counseling/>

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901/ www.vpva.rutgers.edu/

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling, and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation:

<https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

Scarlet Listeners

(732) 214-9069 / <https://rutgers.campuslabs.com/engage/organization/scarletlisteners>

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.