

MATH 403H Honors Classical Analysis I Fall 2024

Class meets: Tuesday, Thursday 1:35 - 2:50 p.m. in 013 Huck Life Sciences Bldg

Instructor: Boris Kalinin

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Office hours: Tuesday 10:25 - 11:50 or by appointment.

Goals and Objectives: We will develop foundations of analysis in the framework of metric spaces and explore its applications with emphasis on function spaces. Topics covered will include metrics and norms; open, closed, and compact sets in metric spaces; maps between metric spaces and their continuity properties; spaces of functions; applications.

Prerequisite: MATH 311M and MATH 312H (or 311W and 312, with permission).

Text: *Real Analysis* by N. L. Carothers. ISBN-13: 978-0521497565

We will cover most of the material in Chapters 2-8 and parts of Chapters 9-12.

Canvas: The course materials, including the syllabus, daily schedule, homework assignments, announcements, and exam study guides will be posted on *Canvas*.

Homework: Homework assignments will be given on a weekly basis and (unless specified otherwise) will be due on Thursdays by the beginning of the class. No late homework will be accepted, except in cases of illness or emergency. Solutions of homework problems must be *neatly and clearly written in complete sentences and logically structured*. You may use without justification statements proved in class, results of previous homework assignments, and statements from the sections of the book that we already covered. You may discuss a general approach to a solution with other students, but you must write solutions on your own. *You may not copy solutions from any source and you may not use any online sites (e.g., Course Hero or Chegg), technologies (e.g., ChatGPT), tools, or sources.* Additionally, I will assign practice problems that will not be collected. I strongly encourage you to do all the suggested problems as this will help with understanding the course material and with exam preparation.

Exams: There will be two midterm exams and a two-hour comprehensive final exam. The dates of the midterm exams will be announced approximately two weeks in advance, and the final exam will be scheduled by the university. All students must plan to take exams at the scheduled times. If you are unable to take a midterm you must notify me promptly: if there is a compelling reason for absence, your score will be replaced by the final exam score; otherwise, your score will be zero.

Grading Policy: The final score and letter grade will be calculated as follows:

Homework:	45%	A	at least 90%	B–	at least 77%
Exam 1:	15%	A–	at least 87%	C+	at least 74%
Exam 2:	15%	B+	at least 84%	C	at least 70%
Final Exam:	25%	B	at least 80%	D	at least 60%

Attendance: You are expected to attend every class. If you have to miss a class, please visit Canvas to find out what was covered and to check for announcements. You will need to study the book or class notes to learn the material covered that day.

Please notify me if you have to miss more than one class.

Class attendance and participation will be considered in determining borderline grades.

Academic Integrity is the pursuit of scholarly activity in an open, honest and responsible manner. It is a basic guiding principle for all academic activity at The Pennsylvania State University, and all members of the University community are expected to act in accordance with this principle. Consistent with this expectation, the University's Code of Conduct states that all students should act with personal integrity, respect other students' dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts. Academic integrity includes a commitment by all members of the University community not to engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others.

Disability accommodation: Penn State welcomes students with disabilities into the University's educational programs. Student Disability Resources (SDR) website provides contact information for every Penn State campus <http://equity.psu.edu/sdr/disability-coordinator>. For further information, please visit <http://equity.psu.edu/sdr/>. In order to receive consideration for reasonable accommodations, you must contact the appropriate disability services office, participate in an intake interview, and provide documentation (<http://equity.psu.edu/sdr/guidelines>). If the documentation supports your request for reasonable accommodations, your campus disability services office will provide you with an accommodation letter. Share this letter with your instructors and discuss the accommodations with them as early as possible. You must follow this process for every semester that you request accommodations.

Counseling and psychological services: Many students face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional wellbeing. The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome all students and embrace a philosophy respectful of clients' cultural and religious backgrounds, and sensitive to differences in race, ability, gender identity and sexual orientation.

Counseling and Psychological Services at University Park (CAPS)

<http://studentaffairs.psu.edu/counseling/> 814-863-0395

Penn State Crisis Line (24 hours/7 days/week): 877-229-6400

Crisis Text Line (24 hours/7 days/week): Text LIONS to 741741

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