

SPRING 2020 MATH 8120 Real Analysis II

Instructor

Dr. Xiaojing Ye (E-mail: xye@gsu.edu).

Course Website

<https://math.gsu.edu/xye/course/ra2.html>

WebEx Room

<https://gsumeetings.webex.com/meet/xye> (for office hours and exams).

Office Hours

MW 10:00–11:00 AM on WebEx.

Notes and Reference Books

Lecture notes cover all required materials. The following books may serve as references:

- Real Analysis, by Halsey Royden and Patrick Fitzpatrick. Publisher: Pearson.
- Linear and Nonlinear Functional Analysis with Applications, by Phillippe G. Ciarlet. Publisher: SIAM.

Prerequisites

- Math 6662 Analysis II: Solid understanding of materials in Analysis I and II is necessary to follow the lectures. Those materials are covered by Chapters 1–7 of *Principles of Mathematical Analysis* (3rd edition) by Walter Rudin.
- Math 8110 Real Analysis I: Familiarity with Lebesgue integral and measure theory is helpful in the study of Real Analysis II.

Course Topics

Banach spaces and Hilbert spaces; Generalized functions and Sobolev spaces; Compact operators and Fredholm theory.

Homework

There are a total of 6 homework assignments (5 points each, 30 points total) during the semester, approximately one assignment every 2 weeks.

- Homework PDF are posted on course website at <https://math.gsu.edu/xye/course/ra1.html>.
- Preparation and submission instruction at <https://math.gsu.edu/xye/course/hwpolicy.html>.
- Homework are due by the announced time on iCollege at <https://icollege.gsu.edu>.
- *Late homework and homework not following the instruction will not be accepted or graded.*

Exams

There are two midterm exams and one final exam.

- Students must join iCollege WebEx room with camera showing face and hands during the exams.
- Exams will be distributed as PDF within the submission folder on iCollege shortly before the start time.
- Answers can be written on printed test or blank papers.
- After exam, scan the answers into a single PDF file and submit through iCollege under “Assignment” folder. The process is similar to homework submission above.
- Exams are closed book/notes.
- *Request for make-up exams must be approved by the instructor at least 10 days before the actual exam.* Unless in an extreme verifiable emergency, all make-ups must be worked out ahead of the time.
- Exam dates and time:
 - Midterm Exam 1 (20 points): 9:30–10:45 AM, Wednesday, February 17, 2021.
 - Midterm Exam 2 (20 points): 9:30–10:45 AM, Wednesday, March 24, 2021.

– Final Exam (30 points): 8:00–10:30 AM, Wednesday, April 28, 2021.

Grading Policy

Homework (30 pts) + Midterms (40 pts) + Final exam (30 pts) = Total (100 pts).

| | | | | | | | | | | |
|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Score | 0–59 | 60–69 | 70–76 | 77–79 | 80–82 | 83–86 | 87–89 | 90–92 | 93–96 | 97–100 |
| Grade | F | D | C | C+ | B– | B | B+ | A– | A | A+ |

Academic Honesty

All work submitted by a student for a grade must have been done without help from other persons. *Cheating and plagiarism are strictly forbidden. Cheating and plagiarism are strictly forbidden.* A first occurrence will result in a grade of 0 on the assignment *for all concerned parties* as well as an Academic Dishonesty form being filed with the Dean of Students. A second occurrence will result in a grade of F for the course for the concerned parties and a second Academic Dishonesty form being filed. See the University’s policy on academic honesty at <http://codeofconduct.gsu.edu/>.

Student Code of Conduct Statement

The selling, sharing, publishing, presenting, or distributing of instructor-prepared course lecture notes, videos, audio recordings, or any other instructor-produced materials from any course for any commercial purpose is strictly prohibited unless explicit written permission is granted in advance by the course instructor. This includes posting any materials on websites such as Chegg, Course Hero, OneClass, Stuvia, StuDocu and other similar sites. Unauthorized sale or commercial distribution of such material is a violation of the instructor’s intellectual property and the privacy rights of students attending the class, and is prohibited.

Withdrawal

Withdrawal on or before Midpoint day will result in a grade of “PW”. Hardship withdrawal after the Midpoint day will result in a grade of “WF”.

Remarks

This course syllabus provides a general plan for the course; deviations may be necessary.