MAT 324: Real Analysis

Fall 2019
Department of Mathematics
Stony Brook University

Course Description: In this course we will discuss Lebesgue measure, Lebesgue integration, aspects of Fourier series, function spaces, Hilbert spaces and Banach spaces. After developing the basic theory we will also give some applications to Probability. The main results will be the Monotone Convergence Theorem, the Dominated Convergence Theorem, the Radon-Nykodyn Theorem, and the Central Limit Theorem.

Textbook (required): Marek Capinski and Ekkehard Kopp, Measure, Integral and Probability, 2nd ed., Springer-Verlag, Springer Undergraduate Mathematics Series, ISBN 1-85233-781-8.

Prerequisite: In order to take this course, you must have passed MAT 320 with a grade of B or better.

Instructor: Dimitrios Ntalampekos, Math Tower 3-102. Office Hours: Tuesday at 1:30-2:30pm and Thursday at 3:30-4:30pm. Email: `dimitrios.ntalampekos@stonybrook.edu`

Course Assistant: Emily Schaal, Math Tower S-240A. Office Hours: Monday at 9:00-10:00am, Wednesday at 9:00-10:00am and also by appointment. Email: `emily.schaal@stonybrook.edu`

Class schedule: Tuesday and Thursday at 10:00-11:20am, Earth & Space 181.

Homework: Homework is a fundamental part of this course, and you will have to work hard on the assigned problems in order to succeed. Assignments will be posted on the course website at the beginning of each week, and will be **due on Thursday of the following week at the beginning of the lecture**. You can also turn in the homework during office hours. **Late homework will not be accepted.** Homework will account for 25% of the total grade. In order to receive full credit for any problem you must show all of your work, and must provide full justification for your answer.

Grading Policy: HW 25%, Midterm 30%, Final 45%.

Exams: There will be an in class Midterm as well as a Final, each respectively accounting for 30% and 45% of the total grade. By enrolling in this course, you are attesting to the fact that you will be available for the exams at the following times:
The **Midterm** exam will be on Thursday, October 24 in class.
The **Final** exam will be on Thursday, December 19, at 8:00-10:45am.

Help: The Math Learning Center (MLC) is located in Math Tower S-235, and offers free help to any student requesting it. It also provides a locale for students wishing to form study groups. The MLC is open 10am-7pm Monday through Thursday and 10am-2pm on Friday. A list of graduate students available for hire as private tutors is maintained by the Undergraduate Mathematics Office, Math Tower P-143.

Disability Support Services (DSS)

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room 128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential. Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the following website: `http://www.stonybrook.edu/ehs/fire/disabilities`

Academic Integrity

Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at `http://www.stonybrook.edu/commcms/academic_integrity/index.html`

Critical Incident Management

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.