MAT 341: Applied Real Analysis

Spring 2020
Department of Mathematics
Stony Brook University

Course Description: This course is an introduction to Fourier series and to their use in solving partial differential equations (PDEs). We will discuss in detail the three fundamental types of PDEs: the heat equation, the wave equation and Laplace's equation. These equations are important in many applications from various fields (mathematics, physics, engineering, economics, etc.) and illustrate important properties of PDEs in general.

Textbook (required): David Powers, Boundary Value Problems and Partial Differential Equations, 6th ed., Elsevier (Academic Press), 2010.

Prerequisite: In order to take this course, you must have passed the following courses with a grade of C or higher: MAT 203 or 205 or 307 or AMS 261; MAT 303 or 305 or AMS 361. Advisory Prerequisite: MAT 200 or MAT 250.

Instructor: Dimitrios Ntalampekos, Math Tower 3-102. Office Hours: Monday at 10:00-11:00am and Wendesday at 10:00-11:00am. Email: `dimitrios.ntalampekos@stonybrook.edu`

Course Assistant: Dahye Cho, Math Tower 2-107. Office Hours: Tuesday at 2:30-3:30pm. Email: `dahye.cho@stonybrook.edu`

Class schedule: Monday, Wednesday and Friday at 9:00-9:53am, Javits Lecture Center 103. Students are expected to attend class regularly and to keep up with the material presented in the lecture and the assigned reading.

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 Wednesday 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 20% 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 20%, Midterm I 20%, Midterm II 20%, Final 40%.

Exams: There will be two in class Midterms as well as a Final, each respectively accounting for 20%, 20% and 40% 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:
Midterm I will be on Monday, March 2 in class.
Midterm II will be on Monday, April 13 in class.
The **Final** exam will be on Wednesday, May 20, 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.