

MAT 341: Applied Real Analysis

Updated Syllabus: Effective March 30, 2020

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. Email: dimitrios.ntalampekos@stonybrook.edu. Office Hours: Monday at 10:00-11:00am and Wednesday at 10:00-11:00am. The office hours will be held through the Zoom platform.

Course Assistant: Dahye Cho. Email: dahye.cho@stonybrook.edu. Office Hours: Tuesday at 2:30-3:30pm. The office hours will be held through the Zoom platform.

Class schedule: Synchronous lecture delivery on Monday, Wednesday and Friday at 9:00-9:53am through the Zoom platform. Lectures will be recorded in case of internet disruption. Students are expected to attend class regularly and to keep up with the material presented in the lecture and the assigned reading.

Updated Grading Policy:

HW 1 through HW 5: 10%

Rest of HW: 20%

Midterm I: 20%

Midterm II: 20%

Final: 30%

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 deadline indicated on Blackboard. You have to submit your solutions on Blackboard by the deadline. Please write clearly and take a clear photo/scan of your work. Note that credit cannot be given for manuscripts that are not legible and it is your responsibility to upload a readable copy of your work in time. **Late homework will not be accepted.** Homework 1 through Homework 5 will account for 10% of the grade and the rest of the 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.

Exams: There will be **two** Midterms as well as a Final, each respectively accounting for 20%, 20%, and 30% of the total grade. Note the change in the percentage of the Final. 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 Wednesday, April 22, during the time of the lecture.

The **Final** exam will be on Wednesday, May 20, at 8:00-10:45am.

The second Midterm and the Final exam will be administered through Blackboard. You will have to write clearly and take a clear photo/scan of your work. Note that credit cannot be given for manuscripts that are not legible and it is your responsibility to upload a readable copy of your work in time.

Student Accessibility Support Center Statement (SASC)

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, 128 ECC Building, (631) 632-6748, or at sasc@Stonybrook.edu. They will determine with you what accommodations 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 the Student Accessibility Support Center. For procedures and information go to the following website: <https://ehs.stonybrook.edu/programs/fire-safety/emergency-evacuation/evacuation-guide-people-physical-disabilities> and search Fire Safety and Evacuation and 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.