

Earth&amp;Space 131

Monday, Wednesday 2:40-4:00pm

*This syllabus contains the policies and expectations that the instructor has established for this course. Please read the entire syllabus carefully before continuing in this course. These policies and expectations are intended to create a productive learning atmosphere for all students. Unless you are prepared to abide by these policies and expectations, you risk losing the opportunity to participate further in the course.*

**Instructor:** Ljudmila Kamenova ([kamenova@math.stonybrook.edu](mailto:kamenova@math.stonybrook.edu))

Office: Math Tower 3-115

Office Hours: See course website (link below).

**Course assistant:** Yulun Xu ([Yulun.Xu@stonybrook.edu](mailto:Yulun.Xu@stonybrook.edu))

Office: Math Tower S-240A

**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.

**Prerequisites:** In order to take this course, you must have passed the following courses with a grade of C or higher: MAT203 or 205 or 307 or AMS261; MAT303 or 305 or AMS 361. It is also recommended that you have taken MAT 200 or MAT 250.

### Important Dates

#### Exam Dates

- Midterm 1: September 27, in class
- Midterm 2: November 3, in class
- Final Exam: Wednesday December 8, 2021, 5:30-8:00pm

### Required Resources

- **Course Webpage:** [http://www.math.stonybrook.edu/~kamenova/homepage\\_files/MAT341f21.html](http://www.math.stonybrook.edu/~kamenova/homepage_files/MAT341f21.html)
- **Textbook:** David Powers, Boundary Value Problems and Partial Differential Equations, 6th ed., Elsevier (Academic Press), 2010. (Reading and homework assignments will be assigned out of this textbook. Make sure you can access a copy of the textbook. The fifth edition is fine.)

**Course resources** All course resources will be posted on the website. It is your responsibility to check the website regularly. If I post something there I will assume that you will check it within 24 hours.

### Graded Components

- **Homeworks** – 30% of course average. You must write your solutions neatly and then turn the assignment in lecture. There will be a homework assignment due most weeks. Homework assignments are announced on the course website.

You are welcome to work together with your fellow classmates on the homework, provided that each person in a group is actively contributing. In particular, you must completely understand your solution and write it in your own words. You cannot show anyone your completed (written up) work. If you use an outside resource, such as an internet site, you should cite this in your solution. You should also declare all your collaborators.

- **Midterm Exams** – 20% (each) of course average

There will be two 80 minute midterm exams in class.

- **Final Exam** – 30% of course average

There will be one 150 minute final exam on the date scheduled by the university.

Your *final grade* will be determined by a weighted average of the graded components above.

### **Late Homework Policy**

A student's homework assignment shall be considered late if it is not turned in to the instructor by the end of lecture on the due date. Late homework assignments will not be accepted.

### **Missed Exam Policy**

No make-up exams will be given. If a student misses a midterm exam with documented evidence, then the student's final exam grade will be substituted for the missed midterm. A student must sit the final exam at the scheduled time in order to receive a passing grade in the class.

### **Disability Support Services**

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact Disability Support Services (631) 632-6748 or

[studentaffairs.stonybrook.edu/dss/](http://studentaffairs.stonybrook.edu/dss/)

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 Disability Support Services. For procedures and information go to the following website:

[www.sunysb.edu/facilities/ehs/fire/disabilities](http://www.sunysb.edu/facilities/ehs/fire/disabilities)

### **Academic Integrity**

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instance of academic dishonesty to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at

[www.stonybrook.edu/uaa/academicjudiciary/](http://www.stonybrook.edu/uaa/academicjudiciary/)

### **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, and/or inhibits students' ability to learn. Until/unless the latest COVID guidance is explicitly amended by SBU, during Fall 2021 "disruptive behavior" will include refusal to wear a mask during classes.

### **Syllabus Revision**

The standards and requirements set forth in this syllabus may be modified at any time by the course instructor. Notice of such changes will be by announcement in class and changes to this syllabus will be posted on the course website.