

Math 3357
Partial Differential Equations

Spring 2023
Dr. Ryan C. Daileda

Course URL: ramanujan.math.trinity.edu/rdaileda/pde

Office Hours and Contact Information: Consult the course web page.

e-Textbook: *Partial Differential Equations with Fourier Series and Boundary Value Problems* (3rd ed.) by Nakhlé H. Asmar

Course Content: An introduction to the theory of partial differential equations (PDEs) with applications. Theoretical techniques will include the method of characteristics, separation of variables, Fourier series, Sturm-Liouville theory, and the Fourier transform. Applications to classical second order PDEs of mathematical physics will include solution of the wave equation, the heat equation and Laplace's equation.

Learning Outcomes: This course fulfills the Quantitative Reasoning requirement of Trinity's Pathways Curriculum. Students who successfully complete this course will demonstrate the ability to: formulate and solve problems in a mathematical framework, communicate their results, and describe the significance and limitations of the quantitative approach.

Assignments: Assignments will be posted to the course web page following each lecture and will consist of reading and problem solving. It is highly recommended that you complete the assigned reading before attempting to solve any assigned exercises.

Assignments assigned in a given week will typically be due at the beginning of class on Tuesday of the following week. Extensions of due dates can be granted on a case by case basis, however I reserve the right to penalize late work as I see fit.

Collaboration on assignments is permitted and encouraged, and you are free to consult any individual or source that you find helpful. However, plagiarism is unacceptable. Attempting to pass off the work of others (regardless of the source) as your own will be considered a violation of the honor code.

Exams: There will be three exams during the semester as well as a cumulative final exam. The dates for the exams are as follows:

Exam 1	February 9, 7–9pm
Exam 2	March 23, 7–9pm
Exam 3	April 25, 7–9pm
Final Exam	May 9, 3:30–6:30pm

If you have a legitimate conflict with these exam times, please contact me as soon as possible. Please do not wait until shortly before the exam. Be aware that the final exam will not be given early.

Use of Previous Exams: Students are permitted to obtain copies of exams given in previous semesters. However, these exams should not be used to judge the content or difficulty of the exams that will be given in this course.

Grades: Each student's letter grade will be determined by the weighted average of their assignment and exam scores, as follows.

Assignments	21%
Midterm Exams (3)	18% (each)
Final Exam	25%

Attendance: Attendance is highly encouraged but is not mandatory. Roll will not be taken, but excessive absences should be explained to me.

Due to the ongoing pandemic, I understand that many students will fall ill this semester. If you find yourself falling behind in your coursework due to a serious illness, please let me know as soon as possible so that we can decide on alternate due dates for assignments and/or exams, if necessary. In particular, any student who is required to quarantine or isolate because of COVID-19 should contact me immediately so that we can determine the optimal means of attending class virtually.

Technology: Assigned exercises may occasionally require the use of a calculator, and you will be expected to become familiar with the computer algebra system Maple. The use of calculators will be permitted during exams.

Electronic Recording of Classroom Instruction: Please be aware that all classroom instruction, including student participation in classroom activities, is subject to recording and dissemination on the University's secure course management system (T-Learn). The recordings will be made available only to students enrolled in the course to facilitate online learning and review. Students are expressly prohibited from capturing or copying classroom recordings by any means; violations will be subject to disciplinary action. Instructors who wish to use a recording outside of class must obtain the written consent of any students who are personally identifiable in the recording.

Additional Information

Academic Integrity: All students are covered by the Trinity University Honor Code which prohibits dishonesty in academic work. Under the Honor Code, a faculty member will (or a student may) report an alleged violation to the Academic Honor Council. It is the task of the Council to investigate, adjudicate, and assign a punishment within certain guidelines if a violation has been verified. Students are required to pledge all written work that is submitted for a grade: “On my honor, I have neither given nor received any unauthorized assistance on this work” and their signature. The pledge may be abbreviated “pledged” with a signature.

The specifics of the Honor Code, its underlying philosophy, and the norms for sanctioning can all be found on the Academic Honor Council website, accessed through the Trinity Homepage:

<https://www.trinity.edu/academics/support/honor-council>

Special Needs: If you have a documented disability and will need accommodations in this class, please speak with me privately early in the semester so I may be prepared to meet your needs. If you have not already registered with Student Accessibility Services, contact the office at 999-7411 or SAS@trinity.edu. You must be registered with SAS before I can provide accommodations.

Academic Support Resources: Trinity faculty hold students to the highest academic standards, but we also know that the very best students seek out help when necessary. To learn more about the resources that are in place to support your academic success, visit Trinity’s Academic Support Homepage:

<https://www.trinity.edu/directory/departments-offices/academic-support>

Title IX/Sexual Misconduct Reporting: As a Responsible Employee who is committed to creating an environment where every member of our community can thrive, I want to let you know that I am a Mandatory Reporter. What that means is that I am required to report any instances of sexual misconduct, including sexual harassment, non-consensual sexual intercourse, non-consensual sexual contact, sexual exploitation, intimate partner violence, stalking, and related retaliation that I am aware of to the Title IX Coordinator. So, if you share information with me about any incidents that implicate the Sexual Misconduct or Anti-Harassment Policies, I am required to report all information to the Title IX Coordinator to make sure you have information about support resources and complaint resolution options. My report does not initiate the complaint process, and you are in control over how you choose to engage with our Title IX Coordinator. If you or someone you know has experienced sexual misconduct, including sexual harassment, I encourage you to share this information directly with the Title IX Coordinator or one of the individuals who has been designated as a confidential resource on campus. Information about reporting is available here:

<https://www.trinity.edu/directory/departments-offices/equal-opportunity-services>