

MATH 4363

Partial Differential Equations

Fall 2016

Instructor: Dr. Scott Gordon, 3235 TLC (COSM Dean's Office).

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Time and Location: MW 3:30–4:45, 304 Boyd.

Office Hours: MWF 2:00–3:30 or by appointment

Textbook: *Partial Differential Equations, 2nd ed* by Walter Strauss. We will cover the starred sections of Chapters 1–6.

Course Description: Methods of solving partial differential equations (PDE's). First-order equations, the wave and heat equations, Laplace's equation, separation of variables, fourier series, initial and boundary value problems.

Homework Exercises: Problems assigned after each lesson will be divided into two categories: exercises and turn-in problems. Exercises will not be turned in but are designed to help you understand the important concepts and prepare for the tests. You may also receive extra credit by volunteering to work exercises on the board during class.

Extra Credit: Each exercise will have a point value and the points you earn working problems will be added to both your total points and your total possible points, up to a maximum of 80 points. You can reserve a homework problem (no more than one per student per class period) by sending me an e-mail.

Turn-in problems: There will be approximately 150 points worth of turn-in problems assigned during the semester. You must work independently on these problems. You may seek assistance only from me. If a problem is turned in late, 20% of its original point value will be deducted from your grade for each day past the due date.

Tests: There will be five 1-hour tests worth 60 points each. Test dates: 8/31, 9/26, 10/17, 11/7, 12/7. Note: The fifth test will be given at 2:00 pm, the scheduled time for the final exam.

Rescheduling Tests: If you have a valid reason for missing a test, you may be allowed to reschedule, but you must make arrangements with me *in advance*.

Grading: Your numerical grade will be your total points (on tests, turn-in problems, and the final) as a percentage of the total number of possible points. Your letter grade will be determined according the following grading scale: A: 88–100, B: 76–87, C: 64–75, D: 52–63, F: 0–51.

Withdrawal: September 30 is the last day to withdraw from the course with a grade of W.

Important policies: Please carefully review the following information at the link below. It contains important material pertaining to your rights and responsibilities in this class.

http://www.westga.edu/assetsDept/vpaa/Common_Language_for_Course_Syllabi.pdf.

Learning Outcomes: The student will be able to:

1. Solve first order initial value problems using the method of characteristics.
2. Apply D'Alembert's solution to solve initial value problems for the wave equation.
3. Use the energy method and maximum principle to analyze solutions of the diffusion (heat) equation.
4. Solve initial value problems for the diffusion equation on the real line.
5. Represent functions using Fourier series.
6. Use separation of variables and Fourier series to solve boundary problems for linear partial differential equations.