

Math 124A/215A – Partial Differential Equations

Lecture: TR 2:00-3:15 pm, Girvetz Hall 2128
Instructor: Viktor Grigoryan, (805) 893-2889, grigoryan@math.ucsb.edu
URL: <http://www.math.ucsb.edu/~grigoryan/124A> (homework, lecture notes, etc...)
Office Hours: TWR 1-2 pm (and by appointment) in SH 6702, W 6-7:30 pm in gauchospace

Syllabus

Textbook: *Partial Differential Equations: An Introduction* by Walter Strauss
(See the website for a list of alternative references)

Outline: This class is to provide an introduction to Partial Differential Equations (PDEs). We will study linear PDEs, with an emphasis on second order linear equations with constant coefficients (heat, wave, Laplace). During the quarter we will also learn to work with TeX (gauchospace has a TeX filter for displaying mathematical formulae, which we will use in the virtual office).

The learning objectives are:

- Ability to classify PDEs by their order and linearity
- Solving first order linear PDEs via the method of characteristics
- Understanding the derivations of canonical PDEs from physical principles
- Ability to solve the wave, heat and the Laplace equations and the associated initial (for the evolution equations) and boundary value problems
- Understand the mathematical physical properties of these solutions

Homework: There will be weekly homework assignments due every Friday by 4:00 pm in an envelope attached to my office door. These will be posted on the class website. You are encouraged to discuss and work on the homework problems with your classmates; however, your write-up must represent your understanding. No late homework will be accepted.

Grading: Grading will be based on:
Homework/class participation - 30%
Midterm exams (take-home) - 30%
Final exam - 40% (December 6, 4-7pm)

Tips for success: Attending lectures; reading and regularly consulting the textbook and provided notes; attempting and working out each and all assigned problems; taking advantage of office hours; asking questions in class; not falling behind; being ready to work hard (patience and persistence are essential). Discussing with classmates may provide insight and further motivation!

Students with Disability: If you believe that you need special accommodations due to a disability, please contact DSP <http://dsp.sa.ucsb.edu/> immediately. Such arrangements may take time, and contacting them early is crucial. I will work with you and DSP to ensure that the best possible accommodations are made available.

Academic Integrity: “It is expected that all UCSB students will support the ideal of academic integrity and that they will be responsible for the integrity of their work. Materials (written or otherwise) submitted to fulfill academic requirements must represent a student’s own efforts unless otherwise permitted by an instructor. It is also the responsibility of each student to know the campus rules regarding academic misconduct—ignorance is no excuse.”
<http://judicialaffairs.sa.ucsb.edu/AcademicIntegrity.aspx>