

Math 40750, PDE Project

Textbook: “Partial Differential Equations: An Introduction” by Walter A Strauss.

The project is supposed to be the fun part of the course. Here are the deadlines and rules:

- Sign up a project, the minimum number is 3, the maximum 6. Due March 20; the sign up process will open Saturday, Feb 14 at 8 am. Emails before that time will not be acknowledged. So, if you have a strong desire for a particular project, please send an email before celebrating your Valentine holiday.
- Once student-number reaches 6 for a project, that project is closed.
- To reserve your spot, send an email to your instructor. For each project, the first 6 emails will reserve a spot. After that, you will have to choose a different project.
- You may not sign up for two or more projects.
- Changing your project after signing up will require the approval from your instructor.
- It is recommended that you type your presentation using power point.
- It is part of the goal of this exercise to develop your collaborative learning skills, working with different people. There are two parts for the scores: Part (i) is the completed project that everyone in the group will receive the same score (max 20); Part (ii) is the presentation (max 5).
- If you need help, you may see your instructor, preferably with your group.
- The completed project. Due April 17.

Projects sign up sheet.

1. 14.3. Calculus of variations. (a) present the materials in this section. (b) Find the Euler equation when $F[x, y, u, u_x, u_y] = (u_x)^2 + (u_y)^2$; explain this situation if $u(x, y)$ represents the displacement of a membrane. (open)
2. 8.1, 8.2. Numerical schemes. (open)
3. 13.3. Scattering. (open)
4. 12.5. Laplace Transform Techniques. (open)