

Syllabus for Math 3150, Fall, 2003  
Partial Differential Equations for Engineers

- **Text:** The text for this course is *Partial Differential Equations and Boundary Value Problems* by Nakhlé Asmar.
- **Instructor:** Jesse Ratzkin
  - **Office:** JWB 217
  - **Office Hours:** Wednesdays 11:30 to 1:00 and Thursdays 1:30 to 3:00 and by appointment
  - **phone number:** 581-5231
  - **email:** ratzkin@math.utah.edu
  - **webpage:** <http://www.math.utah.edu/~ratzkin/m3150>

- **Tentative Schedule:** I should emphasize that this schedule is tentative. I have listed a time span in the first column, the subject in the second column, and the appropriate sections of the text in the third column.

Aug. 21	Introduction	1.1–1.2
Aug. 26 to Sept. 11	Fourier series	2.1–2.5
Sept. 16 to 18	The wave equation on a string	3.1–3.4
Sept. 25 to Oct. 6	The heat equation on a string	3.5
Oct. 9 to 16	The heat and wave equation in rectangles	3.7
Oct. 21 to 23	Laplace's equation in a rectangle	3.8–3.9
Oct. 28 to Nov. 4	Laplace's, heat and wave equations in polar and cylindrical coordinates	4.1–4.4
Nov. 11 to 18	The Fourier transform	7.1–7.2
Nov. 25 to Dec. 4	The Fourier transform and PDEs	7.3

If we have time, I will cover the following additional topics:

- in sequence with the schedule above: sections 2.6, 3.6, 3.8, 3.9, 4.5–4.8, 7.4–7.7 of the text
- at the end: Sturm-Liouville theory, the maximum principle

I am planning on having a total of three exams this semester, including the final (which is **Tuesday, December 9 at 6:00 PM**). The midterm exams will be on **Tuesday, September 30** and **Thursday, November 6**.

- **Grading:** To assign grades, I will form a weighted sum of all the grades you receive throughout the semester. The weighting will be
  - midterm exams    20% each
  - homework            25%
  - final exam            35% .

I anticipate that the median grade in this class will be a B.

- **Homework Policy:** I will assign homework approximately every week and a half or two weeks. I do not accept late homework assignments. I will grade three or four problems from each assignment which I will select after you turn the assignment in.
- **Exam Policies:** I do not allow reference materials (e.g. a page or index card of notes) during exams. I do allow non-graphing calculators, but they are not required.

- **ADA Statement:** The Americans with Disabilities Act requires that reasonable accommodations be provided for students with physical, cognitive, systemic, learning and psychiatric disabilities. Please contact me at the beginning of the semester to discuss any such accommodations you may require for this course.
- **General Comments:** Please ask questions during my lectures. I find it very difficult to judge how well students follow the material if they don't ask me questions; indeed, in this case I often make the grave error of assuming they understand everything I say perfectly. Thus it is much better for everyone (it makes you happier and it makes my job easier) if you stop me during lecture and ask me plenty of questions. In addition, I encourage you to come to my office hours or just drop by my office to ask me questions. Also, the Math Tutoring Center, in the basement of the main mathematics building (see <http://www.math.utah.edu/ugrad/tutoring.html> for more information) is available as a study aid.

Makeup exams *might* be given in cases of extreme duress. Please keep in mind that I am much more sympathetic to your plight if you tell me you must miss an exam before it happens. In particular, I ask that you warn me (via email is best) about any scheduling mishaps at least two class periods in advance.

Please keep in mind that mathematics is not a spectator sport! You can only learn math by doing it, so it is imperative that you do the homework.

Good luck.