Partial Differential Equations II (Math 222) - Spring 2015
Lecture: TR 9:00 - 10:15 AM, COB 262
Discussion Section: F 10:30-11:20 AM, COB 209

Professor: Shilpa Khatri
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Office: COB 347

Course Description: Math 222 is the second course in graduate partial differential equations (PDEs). We will discuss several advanced topics in the theory of PDEs.

Course Topics:
1. Elliptic PDEs
2. Transform Methods
3. Green's Functions
4. Integral Equations

Learning Outcomes:
1. Understand the theory of elliptic equations.
2. Use transform methods to solve PDEs.
3. Compute and use Green’s function to solve differential equations.
4. Transform PDEs into integral equations and solve integral equations.

Prerequisites: Partial Differential Equations I (Math 221) or an equivalent course.

Texts: We will be using several sources throughout the semester:
1. An Introduction to Partial Differential Equations, Y. Pinchover and J. Rubinstein
2. Partial Differential Equations, An Introduction, W. A. Strauss
3. Complex Variables, M. J. Ablowitz and A. S. Fokas
7. Integral Equations, F. G. Tricomi

Texts: These texts may help with prerequisite material:
1. Advanced Engineering Mathematics, M. D. Greenburg
2. Elementary Differential Equations and Boundary Value Problems, W. E. Boyce and R. C. DiPrima
3. Advanced Calculus, R. C. Buck
4. Basic Complex Analysis, J. E. Marsden and M. J. Hoffman
6. Complex Variables, Ahlfors

Course Website: http://faculty.ucmerced.edu/skhatri3/math222/math222
(There will always be a link from http://faculty.ucmerced.edu/skhatri3)

Office Hours: Wednesday from 2:30 PM - 3:30 PM and Thursday from 1:00 PM - 2:00 PM
*If these times do not work for you, do not hesitate to email me and make appointments.
Grading:
Attendance in Lecture (taken at 9:00 AM): 6%
Homework Assignments and Participation: 10%
Each Exam: 18%
Final Project: 30%

Homework Assignments and Discussion Section: Homework will be assigned every two weeks. Discussion section will be used every other week to work on problems and the other week to present solutions. Your homework and participation grade will be based on your interactions at discussion section and your presentations of problems.

Quizzes: There will be three exams during the semester.
	Exam 1: February 17
	Exam 2: March 19
	Exam 3: April 30
*Note that this is just a plan and the dates may change as the course evolves. I will attempt to notify you of any changes as early as possible.

Final Project: During the course of this class, you will be expected to design, execute, and present a research project. These projects should be done in groups of 2-3 students. The research conducted should be based on the topics presented in class. I encourage working in advance and using myself as a resource for each step of the project.
Step 1: Members of the group must be chosen by March 10
Step 2: Project plan is due on March 31
Step 3: Project research should be completed by April 21
Step 4: Written reports are due by May 7 in class
Step 5: Presentations will be given at the final exam time on May 12 at 3:00 pm in COB 262
Note that this is just a plan and the dates may change as the course evolves. I will attempt to notify you of any changes as early as possible.

Special Accomodations: If you qualify for accommodations because of a disability, please submit a letter from Disability Services to the instructor in a timely manner so that your needs may be addressed. Student Affairs determines accommodations based on documented disabilities.

We will make every effort to accommodate all students who, because of religious obligations, have conflicts with scheduled exams, assignments, or required attendance. Please speak with me during the first week of classes regarding any potential academic adjustments or accommodations that may arise due to religious beliefs during this term.

Academic Integrity Academic integrity is the foundation of an academic community and without it none of the educational research goals of the university can be achieved. All members of the university community are responsible for its academic integrity. Existing policies forbid cheating on examinations plagiarism and other forms of academic dishonesty. The UC Merced Academic Honesty Policy and Adjudication Procedures are available on the website http://studentlife.ucmerced.edu by following the link to Student Judicial Affairs.