

Syllabus
Math 490B/710C: Special Topics in Mathematics — Numerical Solution
of Partial Differential Equations
Fall 2005, MW 2:30–3:45 pm, MP 008

Instructor: Dr. Minkoff

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Office Hours: Monday 4–5 pm and Wednesday 11:00 am–12:00 noon or by appointment.

Prerequisite: Math 251, Math 341, Math 404 and knowledge of programming in general and MATLAB in particular. Note that we will be using Matlab exclusively in this course. It is unlikely graduate students would have had these courses at UMBC. However, it is expected that all students taking this course will have been exposed to an introductory pde's course and will have a working knowledge of MATLAB.

Texts — Recommended:

(1) *Finite Difference Schemes and Partial Differential Equations*, by Strikwerda. Publisher: SIAM, 2004.

(2) *Numerical Methods for Differential Equations – Fundamental Concepts for Scientific and Engineering Applications*, by Celia and Gray. Publisher: Prentice Hall, 1992.

Note: There are numerous books which cover either finite difference or finite element methods. However, there is no one perfect book covering both methods at an introductory level. I will be using a variety of books for lecture preparation and expect that you should rely on your class notes as your primary “text” for the course.

Useful MATLAB Reference: *Mastering MATLAB 6*, by Hanselman and Littlefield. Publisher: Prentice Hall, Inc., 2001.

Math 490B Grades:

Homework	40%
Midterm Exam	30%
Final Exam	30%
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Total	100%

Math 710C Grades:

Homework	30%
Midterm Exam	25%
Project	15%
Final Exam	30%
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Total	100%

Homework: There will be one homework due every 1–2 weeks on Wednesdays (the length of time will depend on the difficulty of the assignment). Homework is to be turned in at the START of class on Wednesday or can be slipped under my office door *prior* to class on Wednesday if you must miss class for some reason. *Late homework will not be accepted.*

Please note that the homework constitutes a substantial portion of your overall grade. In order to learn the concepts and be able to apply them to solving problems on exams, etc., you are strongly encouraged to devote as much time as possible to working the homework problems. I encourage you to discuss the homework assignments with other students in the class. However, I expect the homework you submit for grading to be written up by you alone (this includes computer programs which must not be duplicates of programs other students turn in).

Project: In addition to the weekly homework assignments, students taking the class at the 700 level will be expected to do a project of their own choosing preferably related to their thesis work. Detailed instructions to follow.

Tests: No make-up exams will be given except *possibly* in the case of a serious emergency. In such a case I *must* be notified *in advance*. There will be no exceptions to taking the final exam at the date, time, and place specified by the University (Monday 12/19/05 from 1–3 pm in MP 008). The final exam will be comprehensive although material covered after the midterm will be emphasized.

Academic Conduct:

I take academic dishonesty *very seriously* and will not tolerate it in this class in any form. Academic misconduct includes willfully cheating on or giving aid during an exam or copying homework assignments (computer or paper and pencil). Blatant copying on an exam, homework assignment, or computer assignment will result in a grade of zero for that work.

The university now stipulates that the following be included in all class syllabi:

By enrolling in this course, each student assumes the responsibility of an active participant in UMBC's scholarly community in which everyone's academic work and behavior are held to the highest standards of honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. Academic misconduct could result in disciplinary action that may include, but is not limited to, suspension or dismissal.

To read the full Student Academic Conduct Policy, consult the *UMBC Student Handbook*, the *Faculty Handbook*, or the UMBC Policies section of the *UMBC Directory*.

Class Attendance: I expect students to attend class. Rarely do students do well in classes which they do not attend, and I will be less likely to give outside assistance to students who regularly miss class.

Email: I am happy to answer questions about the class via email. However, I will not respond to email which does not include the name of the sender. Also, students should be aware that discussions of class concepts and involved homework questions are best asked in

person during office hours. I reserve the right not to answer an email question if I feel the topic would best be discussed in person.

Important Dates:

Date	Notes
8/31/05	First day of class
9/14/05	Last day to register and last day to add/drop
10/19/05	Midterm Exam
11/9/05	Absolute Last day to drop class
12/13/05	Last day of classes
12/19/05	Final Exam