Course Syllabus

365 MATH 384 - 01
Partial Differential Equations
Dr. Goutziers
Spring 2004

Room:	Fitzelle Hall 215	
Time:	MWF	9:00 - 9:50 am
Office:	Fitzelle Hall 230	
Phones:	Office:	(607) 436-3658
	Department Office:	(607) 436-3708
E-Mail:	GoutziCJ@oneonta.edu	
Web Site:	employees.oneonta.edu/GoutziCJ	
Office Hours:	**M 10:00 am W 11:00 am** **R 12:00 pm F 12:00 pm**	
Textbook:	Fourier Series and Boundary Value problems • *Authors:* James Ward Brown, Ruel V. Churchill • *Edition:* Sixth • *Publisher:* McGraw-Hill • *Copyright:* 2001 • *ISBN:* 0-07-232570-4	
Symbolic Software:	Maple, Release 9	

College Catalog Description:
MATH 384 Partial Differential Equations: The core of the course is formed by the derivation of parabolic, elliptic and hyperbolic partial differential equation models from physical principles, followed by the mathematical theory of Fourier series and the examination of an extensive array of common boundary conditions. Additional topics include: general orthogonal function expansions; Sturm-Liouville eigenvalue problems; Rayleigh quotients; and an introduction to finite difference methods. *Prerequisite:* MATH 277 *(LA)*

Course Goals and Objectives:
MATH 384 provides an overview of the theory of partial differential equations. The goal of the course is to provide the student with an introduction to this piece of mathematical physics, including the fundamentals of solution techniques of a variety of boundary value problems.

To achieve this goal, students will, upon completion of homework assignments, and exams:
1) understand the derivation of partial differential equation models from physical principles;
2) use Fourier analysis to generate solutions to boundary value problems;
3) apply the properties of orthogonal systems to solve Sturm-Liouville problems;
4) use computer software to aid in the computation and visualize the results.

Course content:
Derivation and solution of the heat equation; steady-state heat distribution in two-dimensional regions, the Laplace equation; vibrating strings/membranes, the wave equation; formal properties of Fourier series; Sturm-Liouville eigenvalue problems; introduction to Bessel functions.

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Methods of Evaluation and Grading Policies:
There will be three tests and three quizzes during the course of the semester. All tests and quizzes will take place in the Math-CS-Stat computer laboratory, Fitzelle Hall 200. Tests and quizzes will be announced on my web site at least four days in advance. A comprehensive final exam is scheduled for Monday, May 17, 8:00 - 10:30 am, in the Math-CS-Stat computer laboratory, Fitzelle Hall 200. Homework will be assigned daily and is due at the beginning of the next class meeting. Quizzes may be completed by groups of at most three students; homework, tests and final exams are an individual responsibility. All submitted homework should include a coversheet indicating the course, the date, the assignment number and the student's name. Homework assignments, including quiz and test announcements, and coversheets are published on my web site and updated daily. Homework grades depend on the percentage of assignments submitted.

00 - 50%	**no homework credit**
51 - 80%	**half homework credit**
81 - 100%	**full homework credit**

Submitted homework does not have to be perfect, but should show "reasonable attempt". Merely copying the problems does of course not constitute reasonable attempt.

Course grades are computed according to the following:

Tests:	**40%**	**90 - 100 A**	**77 - 80 B-**	**64 - 67 D+**
Quizzes:	**20%**	**87 - 90 A-**	**74 - 77 C+**	**60 - 64 D**
Final Exam:	**20%**	**84 - 87 B+**	**70 - 74 C**	**57 - 60 D-**
Homework:	**20%**	**80 - 84 B**	**67 - 60 C-**	**0 - 57 E**

Attendance Policy:
It is the student's obligation to take the quizzes, tests and the final exam at the scheduled times.

Make-up Test/Quiz Policy:
Make-ups will not be given. If a student misses a test/quiz, her/his grade for that test/quiz will be considered equal to her/his grade on the final exam.