Applied Analysis (Math 477) — Spring, 2011

Location and Time: 102 Bouillon, MWF, 1:00-1:50 pm

Instructor: Dr. Dan Curtis

Office: 107a Bouillon

Office Hours: MTWTF 11:00 -11:50, or by appointment.

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Final Exam: Thursday, June 9: 12:00-2:00 pm

Textbook: No text. I have prepared a considerable amount of material in the form of *Mathematica* notebooks and pdf files; these will form the basis of the course.

Course Content: This course, together with, Math 475 and 476, constitutes an introduction to applied mathematics. We will study mathematical methods for investigating a variety of natural phenomena. Math 477 focuses on problems involving partial differential equations in two and three spatial dimensions, specifically the heat equation, the wave equation, and the Laplace equation.

Learner Outcomes: After completing this course, the student will be able to:

- use partial differential equations to study of physical phenomena including: heat flow, diffusion processes, wave propagation, and equilibrium problems in two and three space dimensions;
- formulate initial and boundary conditions appropriate to parabolic, hyperbolic, and elliptic partial differential equations;
- apply the method of separation of variables to obtain solutions of initial and boundary-value problems;
- apply the theory of Sturm-Liouville problems in the process of solving problems involving partial differential equations;

Grading: Your course grade will be determined by the following:

1. Four homework assignments, worth a total of 100 points.
2. A take-home midterm problem set worth 100 points.
3. A final exam worth 100 points.

A perfect score on the first four of the above categories would result in a total of 300 points. Your course grade will be determined by the percentage p of these points you earn, according the following scale.

$90 \le p$	A	$65 \le p < 77.5$	C
$89 \le p < 90$	A-	$64 \le p < 65$	C-
$87.5 \le p < 89$	B+	$62.5 \le p < 64$	D+
$80 \le p < 87.5$	B	$50 \le p < 62.5$	D
$79 \le p < 80$	B-	$p < 50$	F
$77.5 \le p < 79$	C+		

Students with disabilities: If you require accommodation based on a documented disability, have emergency medical information to share, or need special arrangements in case of emergency evacuation, please discuss the situation with me as soon as possible

Class Schedule (28 class days)

Date	Class Activity	Date	Class Activity
03/28		05/09	
03/29	Classes begin	05/10	
03/30		05/11	Assignment 3 given
03/31		05/12	
04/01		05/13	Assignment 3 due
04/04		05/16	
04/05		05/17	
04/06	Assignment 1 given	05/18	
04/07		05/19	
04/08	Assignment 1 due	05/20	
04/11		05/23	
04/12		05/24	
04/13	Assignment 2 given	05/25	Assignment 4 given
04/14		05/26	
04/15	Assignment 2 due	05/27	Assignment 4 due
04/18		05/30	HOLIDAY: Memorial Day
04/19		05/31	
04/20	Midterm problems handed out	06/01	
04/21		06/02	
04/22		06/03	Last day of classes
04/25	Midterm problems due	06/06	Prof. Dev./ Student Study Day
04/26		06/07	
04/27		06/08	Final Exam (8:00-10:00 pm)
04/28		06/09	
04/29		06/10	
05/02			
05/03			
05/04			
05/05			
05/06			