Applied Analysis (Math 477) — Spring, 2009

Location and Time: Bouillon 111, MWF, 1:00-1:50 pm
Instructor: Dr. Dan Curtis
Office: 107a Bouillon
Office Hours: MTWThF 11:00-11:50, and by appointment. You can drop by my office at any time and usually I'll be able to talk with you.
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Textbook: Partial Differential Equations for Scientists and Engineers, by Stanley Farlow.

Course Content: This is the third of a three quarter sequence on applied mathematics. We will study mathematical methods for investigating a variety of natural phenomena. The topics for this quarter will be hyperbolic and elliptic partial differential equations and an introduction to variational methods.

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

- use partial differential equations to study problems involving wave propagation in one and two dimensions.
- study steady-state phenomena via appropriate elliptic equations (Laplace)
- formulate initial and boundary conditions appropriate to 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;
- Solve elementary variational problems, such as the brachistochrone problem.

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

1. Four assignments (50 points each) to be handed in for a total of up to 200 points
2. A mid-term assignment worth 100 points each
3. A final exam worth 100 points.

A perfect score on each of the above categories would result in a total of 400 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+		