# SYLLABUS

# INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS
# MATHEMATICS 3363
# Fall 2014


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| Instructor: | Dr. Philip W. Walker |
| Office: | 621 PGH |
| Office Hours: | 12:30 – 1:00 p.m. |
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Prerequisite: Math 2433 and either Math 3321or Math 3331.

Text: *Applied Partial Differential Equations,* 5th ed. By Richard Haberman

Objectives: Upon completion of this course, it is expected that students will be able to solve elementary boundary and initial value problems for partial differential equations. It is also expected that they will have an understanding of trigonometric Fourier series and other orthogonal expansions.

Topics: Course content will include

1. Derivations of some of the partial differential equation problems of physics.
2. Sturm-Liouville and other two-point boundary value problems.
3. Trigonometric Fourier series. Expansions in terms of other orthogonal sequences of functions.
4. Partial differential equation problems on domains of finite spatial extent using the method of separation of variables.
5. Partial differential equation problems on domains of infinite spatial extent.
6. Nonhomogeneous partial differential equation problems.
7. Partial differential equation problems in coordinate systems other than rectangular.

Grading:

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| Graded homework and quizzes | 1/6 |
| Exam I | 1/6 |
| Exam II | 1/6 |
| Exam III | 1/6 |
| Final Exam | 1/3 |