Course	**MTH 667, Numerical Partial Differential Equations**
Semester/Year	**Fall 2018**
Days/Time	**TR 12:30 to 1:45**
Location	**WAEC 3119**
Instructor	**Dr. Scott Sarra**
Office	**WAEC 3227**
E-Mail	**sarra@marshall.edu**
Office/Hours	**Tuesdays and Thursdays by appointment from 1:45 to 5:00**
University Policies	By enrolling in this course, you agree to follow University Policies. The policies can be found at www.marshall.edu/academic-affairs/policies/.

Course Description: From Catalog

Prerequisites: MTH 527 or permission.

Learning Outcomes
After completing the course the student will 1) understand the underlying numerical differentiation techniques that NPDE methods are based on, 2) be familiar with the basic NPDE methods: finite difference, pseudospectral, and radial basis function, 3) understand how numerical mathematics fits into science as a whole, 4) will be exposed to and complete a project in a current research area in numerical analysis, 5) will have gained experience in doing a literature search, 6) will have written a paper that was typeset using LaTeX, 7) will have had the experience of giving a presentation on a mathematical topic, 8) will have gained experience in using mathematical software, and 9) will have experience writing mathematical software.

Required Text and Other Materials

1. Spectral Methods in Matlab by L. N. Trefethen. ISBN: 978-0898714654
2. A laptop computer.

Grades

35% homework, 35% class participation, and 30% final project

Attendance

In 400/600 level classes, attendance at every class is expected.

Homework

Approximately 6 homework sets will be given in 2 to 3 week intervals.

Class participation

A flipped classroom approach will be taken in the course that puts more of the responsibility for learning on the shoulders of the students. Students will be given reading material in advance and then be asked to discuss it during class time. Students will be expected to collaboratively discuss problem solutions during class as well as to clearly explain solutions to problems that have been assigned.

Final Project

The final project will be a group project. The goal of the project is to write a research paper for submission to a peer reviewed journal in the area of Numerical PDEs.