

Course Title/Number	<b>MTH 415/615, Partial Differential Equations</b>
Semester/Year	<b>Spring 2016</b>
Days/Time	<b>TR 5:00 to 6:15</b>
Location	<b>WAEC 3119</b>
Instructor	<b>Dr. Scott Sarra</b>
Office	<b>WAEC 3227</b>
E-Mail	<b>sarra@marshall.edu</b>
Office/Hours	<b>2:30 to 5:00 on TR by appointment</b>
University Policies	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to <a href="http://www.marshall.edu/academic-affairs">www.marshall.edu/academic-affairs</a> and clicking on "Marshall University Policies." Or, you can access the policies directly by going to <a href="http://www.marshall.edu/academic-affairs/?page_id=802">http://www.marshall.edu/academic-affairs/?page_id=802</a>

### **Course Description: From Catalog**

Elementary partial differential equations. Heat Equation, Laplace's Equation, separation of variables, Fourier series, vibrating strings, eigenvalue problems, finite differences, Bessel functions, Legendre polynomials. **PR:** MTH331 and MTH335. *3 hours*

### **Course Student Learning Outcomes**

After completing the course the student will understand 1) how PDEs are used in modeling, 2) the fundamental techniques that are used to construct analytical solutions of PDEs, and 3) basic numerical techniques used to approximate PDE solutions.

### **Required Texts, Additional Reading, and Other Materials**

Partial Differential Equations for Scientists and Engineers by S. Farlow. ISBN: 860-1234581253

### **Grading Policy**

50% homework and 50% in class exams.

### **Attendance Policy**

In 400/600 level classes, attendance at every class is expected. I do not "read the text book" to the class during lectures. The material presented in lectures is meant to supplement the text book.

**Homework:**

Approximately 6 homework sets will be given in 2 to 3 week intervals. A follow up oral questioning may be given after HW solutions are submitted. This is to both clear up any misunderstandings on the HW solutions and to ensure that the solutions submitted are indeed the work of the particular student. HW due dates may be extended due to rare circumstances for the class as a whole, but not for individuals.

**Due dates/Makeup exams**

If you are unable to take an exam due to an excused absence, you must contact me prior to the exam time and furnish the proper written verification of the absence as defined by the [MU catalog](#) in order to take a make-up exam.