Math 312
Partial Differential Equations

Instructor:
Instructor Email:

Course Location and Time:
Course Length: 3 credit hours
Prerequisite: Calculus III
Required Textbook:

Office Location:
Office Hours:

Course Content: The course will cover the classification of partial differential equations, the heat, wave and Laplace’s equation, methods of solution of partial differential equations, separation of variables, Fourier series, Fourier transforms, Laplace transforms, characteristics, coordinate transformations, numerical solutions, and engineering and science applications.

Course Requirements:

1. Attendance: Students are expected to attend all class sessions and are responsible for material missed during any absence.

2. Homework: Completing the homework is essential to understanding the course material. If you cannot attend a class, arrange to turn in your assignments on time. Late homework earns no credit unless caused by extenuating circumstances as determined by the instructor.

3. Quizzes: Quizzes will be given to prepare students for exams.

4. Exams: There will be two exams and a comprehensive final exam.

Course Evaluation: Grades will be determined according to the weighting scheme:

Two Exams (20% each): 40 %
Quizzes: 15 %
Homework: 20 %
Final Exam: 25 %
Course Grading Scale: The following grading scale will be used to determine your final letter grade:

A+ = 99 –100%
A = 93 –98%
A- = 90 – 92%
B+ = 88 – 89%
B = 83 – 87%
B- = 80 – 82%
C+ = 78 – 79%
C = 70 – 77%
C- = 68 – 69%
D+ = 66 – 67%
D = 63 – 65%
D- = 60 – 62%
F = 0 – 59%

Topics to be covered

1. Classification of partial differential equations (PDEs)
   a. Order
   b. Linear and nonlinear
   c. Second order
      i. Parabolic
      ii. Elliptic
      iii. Hyperbolic
2. Solution methods
   a. Method of characteristics
   b. Separation of variables
   c. Fourier Series and non-homogeneous PDEs
   d. Transforms
      i. Laplace
      ii. Fourier
3. Sturm-Liouville Theory
4. Green’s Functions
5. Finite differences and numerical solutions

Students with Disabilities

Northern New Mexico College recognizes its responsibility for creating an institutional climate in which students with disabilities can succeed. In accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990; if you have a documented disability, you may request accommodations to obtain equal access and to promote your learning in this class. Please contact the Coordinator of Accessibility and Resource Center to inquire about appropriate accommodations. Contact Verna A. Trujillo either via email; v.trujillo@nnmc.edu or by phone; (505) 747-2152. After your eligibility is determined, you will be given a letter, which when presented to instructors, will help us know best how to assist you.