

**PARTIAL DIFFERENTIAL EQUATIONS
MATHEMATICS 3361**

Bulletin Statement:

The Heat equation in one, two, and three dimensions, Method of Separation of variables, Laplace's equation, Fourier series, vibrating strings, Sturm-Liouville eigenvalue problems, partial differential equations with three or more independent variables.

Prerequisites: Math 2321 and Math 3336

Recommended Textbook: *Elementary Applied Partial Differential Equations with Fourier Series and Boundary Value* (3rd Edition) by Richard Haberman

MATHEMATICS 3361 SYLLABUS

Course Description: The course treats heat equation, Laplace's equation, and the wave equation. In addition to deriving these equations from basic principles, their solutions will be derived. This is done via the method of separation of variables and transform methods.

week 1	}	Heat equation
week 2		
week 3		Method of separation of variables
week 4		Fourier series
week 5	}	Vibrating strings
week 6		
week 7	}	Sturm-Liouville eigenvalue problems
week 8		
week 9		
week 10	}	Partial differential equations with three or more variables
week 11		
week 12	}	Fourier transform methods
week 13		