

**DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA  
MATHEMATICS 3336**

**Bulletin Statement:**

First order differential equations, mathematical models, linear systems and matrices, vector space, linear differential equations of higher order, linear systems of differential equations and the introductions of eigenvalues and eigenvectors, Laplace transform.

**Prerequisites:** Math 2321 (Check with Bill Collins)

**Recommended Textbook:** *Differential Equations and Linear Algebra* by C. Henry Edwards and David E. Penney

## MATHEMATICS 3336 SYLLABUS

**Course Description:** This course covers the basic concepts in linear algebra needed to study scalar differential equations as well as systems of linear differential equations. Linear systems and matrices, vector spaces, and eigenvalues and eigenvectors are covered at appropriate times in the course. The course offers an introduction to mathematical modeling, stability and qualitative properties of differential equations, and numerical methods. In addition, Laplace transform methods will be treated with a goal of handling the piecewise continuous and periodic forcing (control) functions.

week 1	}	First order differential equations
week 2		
week 3		Mathematical modeling
week 4		Linear system and matrices
week 5	}	Vector spaces
week 6		
week 7	}	Linear equations of higher order
week 8		
week 9		Eigenvalues and eigenvectors
week 10	}	Linear systems of differential equations
week 11		
week 12	}	Laplace transform
week 13		