

# **MAT 414: Introduction to Ordinary Differential Equations**

**MAT 414**

**Introduction to Ordinary Differential Equations**

**(3 credits)**

**Class Size: 10-25**

*Faculty: Dan Zacharia, Professor, Syracuse University*

*Administrative Contact: Tavish Van Skoik, Assistant Director, Project Advance*

## **Course Catalog Description**

First order differential equations. Second order linear differential equations. Power series solutions. Bessel's equations, Laplace transforms. Systems of first order differential equations. Applications.

## **Course Overview**

MAT 414 is a first course in the study of differential equations. Topics covered include: the analytic and qualitative aspects of first-order differential equations (linear and nonlinear), second order linear equations, Laplace transforms, and systems of first-order linear equations.

## **Pre- / Co-requisites**

To register for this course, students must provide documents confirming completion of one of the following prerequisites:

1. Passing Syracuse University MAT 295 and 296 with a grade of C- or better;
  2. Earning a score of 4 or better on the AP BC calculus examination; or
  3. Earning a qualifying score on University examinations
- AND
1. Passing MAT 397 with a grade of C or better

## **Course Objectives**

Students are expected to be able to:

- Take partial derivatives;
- Set up and evaluate integrals;
- Do integration by parts; and
- Work with elementary linear algebra

## **Laboratory**

N/A

## **Required Materials**

N/A

## **Instructor Recommendations**

N/A