(3-0-1; —) **Ordinary Differential Equations** MATH-225*

(3-0-0; —) **Ordinary Differential Equations** MATH-226*

MATH-225 is identical to MATH-226 with the exception that a tutorial has been added. MATH-225* is taken by Civil and Mechanical Engineering students and MATH-226* is taken by Chemical, Geological, Mining Engineering and Engineering Chemistry students.

Textbook: *Courseware: Ordinary Differential Equations with Applications*, 3rd Edition
by Rice and Strange (Brooks/Cole)
Plus *Applications Notes*
by P. D. Taylor
MAPLE ODE Handbook
by B. J. Kirby

Prerequisite: APSC-171*, APSC-172*, APSC-174*.

Instructors: MATH-225*: A. Ableson
MATH-226*: L. Butler

Evaluation:

Weekly Tests and 2 Assignments	40%
Final Examination	60%

Outline:

1. separable equations
2. first order linear
3. constant coefficients
   repeated roots
4. complex roots
5. non-homogeneous equations
   undetermined coefficients
6. beats and resonance
   start of Laplace transforms
7. Laplace transform
   inverse Laplace
   first shifting theorem
   initial value problems
8. step functions
   second shifting theorem
9. initial value problems
10. systems: real eigenvalues
11. systems: complex eigenvalues
12. systems applications

The CAS tool Maple is used throughout the course.