

Piedmont Technical College Course Syllabus

COURSE INFORMATION

Course Prefix/Number: MAT 242

Title: Differential Equations

Responsible Division: Arts and Sciences

Last Day to Withdraw from this Course: For the last date to withdraw from this course, consult the current *Student Calendar*.

Course Description:

For course, credit hour, pre-requisite(s) and co-requisite(s) information, visit the Detailed Course Information page: www.ptc.edu/courses/MAT242.

Textbook and Other Materials:

For textbook information and additional required and/or supplemental materials, visit the [college bookstore](http://www.ptc.edu/bookstore) (www.ptc.edu/bookstore).

Proctored Examinations:

Proctored examinations for distance learning courses taken at non-PTC campuses may require a proctoring fee for each exam taken.

COURSE POLICIES

Course policies are available online through the *Academic Catalog* and *Student Handbook*. Visit the [Course Policies page](http://www.ptc.edu/syllabus/policies) (www.ptc.edu/syllabus/policies) for a detailed list of important policies and more information.

GRADE POLICY

Detailed grading policy information can be found on the [Grading Policy webpage](http://www.ptc.edu/grading-policy) (http://www.ptc.edu/grading-policy). Final grade appeal information is available in the [Academic Catalog](http://www.ptc.edu/catalog/) (http://www.ptc.edu/catalog/).

ACCOMMODATIONS

Accommodations for ADA:

Information is available on the [Student Disability Services webpage](http://www.ptc.edu/ada) (<http://www.ptc.edu/ada>).

TITLE IX HARASSMENT AND SEXUAL ASSAULT INFORMATION

In accordance with Title IX of the Education Amendments of 1972, Piedmont Technical College does not discriminate on the basis of sex in its education programs or activities. Title IX protects students, employees, and applicants from sex discrimination in admissions and employment to include discrimination based on gender identity or failure to conform to stereotypical notions of masculinity or femininity. More information regarding Title IX, including contact information for the Title IX coordinators, is available at [Title IX Harassment and Sexual Assault Information](https://www.ptc.edu/about/legal-disclosures/title-ix-harassment-and-sexual-assault-information) (<https://www.ptc.edu/about/legal-disclosures/title-ix-harassment-and-sexual-assault-information>).

RATIONALE

Why do I need this course?

MAT 242 is an introductory course in ordinary differential equations designed to give students pursuing careers in engineering and mathematical sciences a solid base for use in the highly technical modern workplace. The methods of differential equations will be developed in light of their applications to models of real world problems. Numerical methods and their computer implementation will be used to analyze advanced applications.

PROGRAM INFORMATION

For program information including required courses, program learning outcomes, gainful employment information and advisement information, refer to the Academic Program webpage. Go to [Academics](http://www.ptc.edu/academics) (<http://www.ptc.edu/academics>), select your program, and then select Credentials Offered.

COURSE STUDENT LEARNING OUTCOMES

Upon successful completion of this course and/or clinical, each student will be able to:

- Solve differential equations of first order using graphical, numerical, and analytical methods.
- Solve and apply linear differential equations of second order (and higher).
- Solve linear differential equations using the Laplace transform technique.
- Find power series solutions of differential equations.
- Develop the ability to apply differential equations to significant applied and/or theoretical problems.

GENERAL EDUCATION COMPETENCIES

Piedmont Technical College General Education Competencies for All Graduates:

This course may address one or more of the following General Education Competencies (assessment will be stated when applicable):

Communicate effectively.

Assessment:

- N/A

Apply mathematical skills appropriate to an occupation.

Assessment:

- Tests and graded homework questions.

Employ effective processes for resolving problems and making decisions.

Assessment:

- Tests and graded homework questions.

Demonstrate the basic computer skills necessary to function in a technological world.

Assessment:

- N/A

To validate proficiency in the general education competencies, students in some programs will be tested using Work Keys.