

## **MAT 242**

### **Differential Equations**

4 credit hours/4 contact hours

**Catalog Description** *This course includes solution of linear and elementary nonlinear differential equations by standard methods with sufficient linear algebra to solve systems, applications, series, Laplace transforms, and numerical methods.*

**Prerequisite** MAT 141 ( C or higher)

**What will I learn?** At the end of this course, you should be able to:

1. Solve first-order differential equations and use them in applications.
2. Solve selected types of higher-order linear differential equations.
3. Solve systems of linear differential equations.
4. Find approximate solutions to differential equations.
5. Use Laplace transforms to solve differential equations.

### **Textbook and Required Materials**

A First Course in Differential Equations by Zill 9<sup>th</sup> edition (Brooks/Cole, 2009)

TI-83 (or TI-84 or TI-85 or TI-86) Graphics Calculator (Texas Instruments)

**Grading System and Policy** The College-wide grading scale is

91-100 = A, 81-90 = B, 71-80 = C, 65-70 = D, below 65 = F

There will be a comprehensive departmental final exam, which everyone must take (no exemptions), and which counts 25% of the final grade. The remaining 75% will be specified by your instructor's syllabus addendum. All or part of your evaluation in this course may be without your calculator.

**Attendance/ Withdrawal** Before attending classes, you must meet all prerequisites and officially register for all courses. Prompt and regular attendance is your responsibility. You are responsible for all material covered and all assignments made in class. Any time you are absent from a class, laboratory or other scheduled events, it is your responsibility to make satisfactory arrangements for any make-up work permitted by the instructor.

An absence is defined as nonattendance for any reason, including illness, emergency or official leave. If you arrive late to class, you may not be allowed into the classroom and may be considered absent for that period. If you leave before the instructor dismisses class, you may also be considered absent. All class sessions are important. Any time you miss a class you increase your risk of making a failing grade.

If you quit coming or participating in the course and do not officially withdraw by the withdrawal date for each semester, you will receive a grade of F. Your instructor cannot assign a grade of W. If you receive financial aid or veterans' aid, your aid may be revised as a result of any changes in your course schedule.

**Instructor availability** Your instructor is available to you outside of class for academic assistance. Full-time faculty members maintain and post regularly scheduled office hours. Part-time faculty members are accessible in a variety of ways, which may include conferences before and after class or by appointment, telephone conferences, and E-mail. The phone number for reaching your instructor is provided on your syllabus addendum.

**See your syllabus addendum** This is a departmental syllabus for all sections of the course. As such, it tries to address issues common to all sections. There will be issues (grading details, office hours, and the like) that are specific to your section, and these details will be covered in an addendum issued by your instructor.

### **Activated Electronic Communication Devices**

These devices, such as cell phones and pagers are NOT permitted in TTC classrooms. On-call emergency personnel are required to report to their instructors and cannot communicate by electronic means during a testing situation.

### **For Students Enrolled in Online or Other Distance-Learning Sections**

To confirm that you are actively involved in this course you need to contact the instructor at least once per week. Forms of contact can include (but are not limited to) posting/receiving emails, participating in online class discussions or chat rooms, and completing and submitting course assignments. Please see the instructor's addendum for any additional instructions.

**ADA Statement** The College will make reasonable accommodations for persons with documented disabilities. Students with disabilities should notify Services for Students with Disabilities (located in the Student Success Center) and their instructors of any special needs. Instructors should be notified on the first day of classes.

### **Textbook Portions Covered**

Unit 1	Introduction	Ch. 1 (sect 1-3)
	First-Order Equations	Ch. 2 (sect 2-5)
	Applications of First-Order Equations	Ch. 3 (sect 1-3)
Unit 2	Higher-Order Differential Equations	Ch. 4 (sect 1-7)
	Selected Applications	Ch. 5 (sect 5.1)
Unit 3	Laplace Transforms	Ch. 7 (sect 1-3, 6)
Unit 4	Series Solutions	Ch 4 (sect 8), Ch 6 (sect 1)
	Systems of Linear Differential Equations	Ch. 8 (sect 1-2)

**College Information** TTC uses e-mail as the standard communication system to send information to students and uses TTC Express to post final course grades. To access your accounts go to [www.tridenttech.edu](http://www.tridenttech.edu).

**Supplementary Help** Additional help with mathematics is available in The Learning Center (920 bldg, rm 211)

**Access to computers for academic courses** The College has computer labs available for student use on all three campuses. Students who experience problems with home computers should plan to accomplish their assignments at the college.

**Department Head** Elizabeth White at 574-6538

**Division Admin. Asst.** 574-6015 (emergencies only)

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