

ARAPAHOE COMMUNITY COLLEGE SYLLABUS

Course Number: MAT 265

Title: Differential Equations

Credits: 3

Instructor:

Phone:

E-mail:

Office Location (if applicable):

Office Hours (if applicable):

Catalogue Description:

The primary emphases in this course are on techniques of problem solving and applications. Topics include first, second and higher order differential equations, series methods, approximations, systems of differential equations, and Laplace transforms.

Prerequisites: MAT 203 or instructor permission.

Text: *Fundamentals of Differential Equations and Boundary Value Problems*, 5th ed. , Nagle, Saff & Snider, Addison-Wesley, 2008.

Required Course Material: Text and graphing calculator

Optional Course Material: Student Solutions manual

Grading Criteria:

Makeup Policy:

Attendance Policy:

Important Dates:

Last day to drop with refund (include date):

Last day to withdraw without refund (include date):

Student Success Center for all ACC students: Peer and professional tutoring in Room M2720 now includes student tutors, math support, and the Writing Center in one location to provide academic assistance for all your classes.

ACC math instructors provide help with concepts, homework, online resources and graphing calculator workshops. Students may watch course related videos and DVDs in the library. For information, contact the Student Success Center at 303-797-5669 or email Mathhelp@arapahoe.edu

Arapahoe Community College provides accommodations to qualified students with disabilities. To request accommodation, contact Disability Services in M2710 or call (303) 797-5937 v/tty.

Academic Honesty Statement

Arapahoe Community College is committed to academic honesty and scholarly integrity. The College can best function and accomplish its mission in an atmosphere of the highest ethical standards. All members of the College community are expected and encouraged to contribute to such an environment by observing all accepted principles of academic honesty. Academic dishonesty includes but is not limited to: plagiarism, cheating, fabrication, grade tampering, misuse of computers and other electronic technology, and facilitating academic dishonesty. Those found in violation may also be subject to potential disciplinary sanctions under the Arapahoe Community College Code of Conduct.

Online Course Evaluations: As this course nears completion, you will have the opportunity to complete a confidential evaluation of the class online. Login instructions will be sent to your 'student.ccs.edu' e-mail address. Your feedback is important, and ensures that ACC continues to offer quality instruction that meets your needs. Please take time to complete the survey – I appreciate your feedback.

E-mail Communication: Effective 1/20/09 electronic correspondence from ACC employees will go to your student email account *only*. When you activate your account you can forward emails to an e-mail account that you already have. To activate your student e-mail account, go to <http://www.arapahoe.edu> and click on the "Activate Student E-mail" link. Questions? Please call 303-797-5621.

The safety and security of all our students, faculty, staff and visitors is of the utmost importance to the Campus Police Department. We rely on each of you to be an additional set of ears and eyes to help maintain campus safety. Please be diligent in your efforts to report suspicious or unusual behavior or circumstances to the Campus Police Department. Trust your instincts when something doesn't look, seem or feel right and tell someone. The Campus Police can be reached at 303-797-5800 or in M2600 on the second floor behind Information Central. Additional safety information can be found on the website at <http://www.arapahoe.edu/studentsvcs/campuspolice/index.html>

Contact Information for Learning Support Services

Library	M2500 303-797-5090
Technical Support	797-5700 x3199
Writing Center	M2855 303-797-5830
Advising/Counseling	M2010 303-797-5651
Instructional Testing Center	M2280 303-797-5993
Bookstore	M1200 303-797-5676
Computer Lab	M1650 303-797-5907
Tutorial Services	M2710 303.797.5669

Career Center	M2025 303-797-5805
eLearning	303-797-5700 x6700

Course Content:

Chapters and topics in current text

(Note: Applications should be covered as time permits)

Ch. 1 Introduction

1.2 Solutions and Initial Value Problems

1.3 Direction Fields

1.5 The Approximation Method of Euler

Ch. 2 First Order Differential Equations

2.2 Separable Equations

2.3 Linear Equations

2.4 Exact Equations

Ch. 3 Mathematical Models & Numerical Methods Involving First Order Equations

3.2 Compartmental Analysis

Ch. 4 Linear Second Order Equations

4.2 Linear Differential Operators

4.3 Fundamental Solutions of Homogeneous Equations

4.5 Homogeneous Linear Equations with Constant Coefficients

4.6 Auxiliary Equations with Complex Roots

4.7 Superposition and Nonhomogeneous Equations

4.8 Method of Undetermined Coefficients

4.9 Variation of Parameters

Ch. 5 Introduction to Systems and Phase Plane Analysis

5.3 Elimination Method for Systems

Ch. 7 Laplace Transforms

7.2 Definition of the Laplace Transform

7.3 Properties of the Laplace Transform

7.4 Inverse Laplace Transform

7.5 Solving Initial Value Problems

7.6 Transforms of Discontinuous and Periodic Functions

7.7 Convolution

7.9 Solving Linear Systems with Laplace Transforms

Ch. 8 Series Solutions of Differential Equations

8.2 Power Series and Analytic Functions

8.3 Power Series Solutions to Linear Differential Equations

Ch. 9 Matrix Methods for Linear Systems

9.4 Linear Systems in Normal Form

9.5 Homogeneous Linear Systems with Constant Coefficients

9.6 Complex Eigenvalues