

ARAPAHOE COMMUNITY COLLEGE SYLLABUS

Course Number: MAT 203

Title: Calculus III

Credits: 4

Instructor:

Phone:

E-mail:

Office Location (if applicable):

Office Hours (if applicable):

Important Dates:

Last day to drop with refund (include date):

Last day to withdraw without refund (include date):

Catalog Description:

Completes the traditional subject matter of the Calculus. Topics include vectors, vector-valued functions, and multivariable calculus including partial derivatives, multiple integrals, line integrals and application.

This course is one of the **Statewide Guaranteed Transfer** courses. GT-MA1

Prerequisites: MAT 202 (Calculus II)

Text: *Calculus, Early Transcendental Functions*, 4th ed., Larson, Hostetler, Edwards, Houghton Mifflin Company © 2007.

Required Course Material: Text, graph paper, and TI-86 or TI-89 graphing calculator.

Optional Course Material: Student Solutions Manual and Student Study Guide. DVD's are available in the Math Support Room (M3610).

Grading Criteria:

Makeup Policy:

Attendance Policy:

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. **OR “Those found in violation of academic honesty will be subject to the following disciplinary actions: _(teacher discretion)_____.”**

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:

11. Vectors and the Geometry of Space

- 11.1 Vectors in the Plane
- 11.2 Space Coordinates and Vectors in Space
- 11.3 The Dot Product of Two Vectors
- 11.4 The Cross Product of Two Vectors in Space
- 11.5 Lines and Planes in Space
- 11.6 Surfaces in Space
- 11.7 Cylindrical and Spherical Coordinates

12. Vector-Valued Functions

- 12.1 Vector-Valued Functions
- 12.2 Differentiation and Integration of Vector-Valued Functions
- 12.3 Velocity and Acceleration
- 12.4 Tangent Vectors and Normal Vectors
- 12.5 Arc Length and Curvature

13. Functions of Several Variables

- 13.1 Introduction to Functions of Several Variables
- 13.2 Limits and Continuity
- 13.3 Partial Derivatives
- 13.4 Differentials
- 13.5 Chain Rules for Functions of Several Variables
- 13.6 Directional Derivatives and Gradients
- 13.7 Tangent Planes and Normal Lines
- 13.8 Extrema of Functions of Two Variables
- 13.9 Applications of Extrema of Functions of Two Variables
- 13.10 Lagrange Multipliers

14. Multiple Integration

- 14.1 Iterated Integrals and Area in the Plane
- 14.2 Double Integrals and Volume
- 14.3 Change of Variables: Polar Coordinates
- 14.4 Center of Mass and Moments of Inertia
- 14.5 Surface Area
- 14.6 Triple Integrals and Applications
- 14.7 Triple Integrals in Cylindrical and Spherical Coordinates
- 14.8 Change of Variables: Jacobians

15. Vector Analysis

- 15.1 Vector Fields
- 15.2 Line Integrals
- 15.3 Conservative Vector Fields and Independence of Path
- 15.4 Green's Theorem
- 15.5 Parametric Surfaces
- 15.6 Surface Integrals
- 15.7 Divergence Theorem
- 15.8 Stoke's Theorem