

ARAPAHOE COMMUNITY COLLEGE SYLLABUS

Course Number: MAT 125

Title: Survey of Calculus

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:

For business, life science, and/or social science majors. Includes derivatives, integrals, and their applications, with attention restricted to algebraic, exponential and logarithmic functions.

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

Prerequisites: MAT 121 College Algebra, or MAT 123 Finite Mathematics, or permission of instructor.

Text: *Finite Mathematics and Calculus with Applications*; Eighth Edition; by Lial, Greenwell, and Ritchey; Pearson/Addison Wesley.

Required Course Material: Text, graph paper, and a graphing calculator (TI-83 or TI-86).

Grading Criteria:

Makeup Policy:

Attendance Policy:

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.cccs.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

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:

Chapters and topics in current text:

10 Linear Equations and Functions

- 10.1 Properties of Functions
- 10.2 Quadratic Functions; Translation and Reflection
- 10.4 Exponential Functions
- 10.5 Logarithmic Functions
- 10.6 Applications: Growth and Decay; Mathematics of Finance

11 The Derivatives

- 11.1 Limits
- 11.2 Continuity
- 11.3 Rates of Change
- 11.4 Definition of the Derivative
- 11.5 Graphical Differentiation

12 Calculating the Derivative

- 12.1 Techniques for Finding Derivatives
- 12.2 Derivatives of Products and Quotients
- 12.3 The Chain Rule
- 12.4 Derivatives of Exponential Functions
- 12.5 Derivative of Logarithmic Functions

13. Graphs and the Derivative

- 13.1 Increasing and Decreasing Functions
- 13.2 Relative Extrema
- 13.3 Higher Derivatives, Concavity, and the Second Derivative Test
- 13.4 Curve Sketching

14. Applications of the Derivative

- 14.1 Absolute Extrema
- 14.2 Applications of Extrema
- 14.3 Further Business Applications: Economic Lot Size; Economic Order Quantity; Elasticity of Demand
- 14.4 Implicit Differentiation
- 14.5 Related Rates
- 14.6 Differentials: Linear Approximation

15 Integration

- 15.1 Antiderivatives
- 15.2 Substitution
- 15.3 Area and the Definite Integral
- 15.4 The Fundamental Theorem of Calculus
- 15.5 The Area Between Two Curves
- 15.6 Numerical Integration

16 Further Techniques and Applications of Integration

- 16.1 Integration by Parts
- 16.2 Volume and Average Value
- 16.3 Continuous Money Flow
- 16.4 Improper Integrals
- 16.5 Solutions of Elementary and Separable Differential Equations