


COCONINO COMMUNITY COLLEGE

COURSE OUTLINE

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Revised by: Maxie Inigo
General Education Criteria Reviewed By: Maxie Inigo
General Education Outcomes reviewed
Status: Permanent

Date: December 4, 1991
Date: November 7, 1994
Date: October 26, 1998
Date: October 26, 1998
Date: March 23, 2001

A. Identification:

1. Subject Area: Math
2. Course Number: MAT 230  MAT 2230
3. Course Title: CALCULUS AND ANALYTIC GEOMETRY II
4. Credit Hrs: 5
5. Catalog Description:
Applications and methods of integration, Taylor polynomials and series, differential equations, multivariable functions and vectors. General Education: Mathematics. Prerequisite: *MAT 220. Five lecture.

B. Course Goals:

To build student confidence in the use of fundamental principles and concepts of calculus. Material will be presented graphically, numerically and analytically to develop the students problem solving skills.

C. Course Outcomes:

Students will:

1. Integrate complex functions by parts and using tables
2. Calculate Integral approximations and errors
3. Integrate improper integrals
4. Use integration techniques to solve applied problems involving geometry, density, physics and economics
5. Find Taylor polynomials and use them to approximate functions
6. Find, analyze and apply Taylor geometric series
7. Identify differential equations and their solutions graphically, numerically and analytically
8. Solve differential equations and application problems using separation of variables
9. Investigate multivariable functions graphically, numerically, and analytically and apply to three-dimensional space
10. Investigate vectors and vector properties graphically, numerically, and analytically and their application in two and three dimensions

GECC Course
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Student Outcomes list

D. Course Assessment:

Will include:

1. Comprehensive final exam

E. Course Content:

Will include:

1. Integration techniques
 - a. Integration by parts
 - b. tables
 - c. approximations
 - d. Improper integrals
2. Applications of the definite integral
 - a. Geometric Applications

1. Areas between curves
 2. Disk and shell methods of finding volumes
 - b. Physics Applications
 1. Work
 2. Center of Mass
 - c. Economic Applications
3. Infinite Series
 - a. series and convergence
 - b. Taylor polynomials
 - c. Taylor series
 - d. Geometric series
4. Differential Equations
 - a. Solutions
 - b. Slope fields
 - c. Separation of variables
 - d. Growth and Decay
5. Multivariable functions
 - a. functions of two variables
 - b. Three - Dimensional space
 - c. Applications
 - d. Functions of more than two variables
6. Vectors
 - a. Space coordinates
 - b. Dot product
 - c. Cross product

*Course has additional pre or co requisite(s)