MATH 8A Course Outline as of Fall 1999

CATALOG INFORMATION

Dept and Nbr: MATH 8A Title: BRIEF CALCULUS I

Full Title: Brief Calculus I Last Reviewed: 4/19/2010

Units		Course Hours per Week	: 1	Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	6	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00 Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable

Grade Only Grading:

00 - Two Repeats if Grade was D, F, NC, or NP Repeatability:

Also Listed As:

Formerly:

Catalog Description:

Limits continuity; differentiation; analytic geometry; maxima and minima; rates of change and differentials; integration; calculus for exponential and logarithmic functions; calculus of the trigonometric functions; applications. This sequence is intended for majors in the life sciences and social sciences. Students will not receive credit for both MATH 8Å and MATH 1A.

Prerequisites/Corequisites:

MATH 27 (formerly MATH 57).

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:

Description: Limits, differentiation, analytic geometry, integration, exponential and logarithmic functions, applications. For life and social science majors. Students will not receive credit for

both Math 8A and Math 1A (Grade Only)

Prerequisites/Corequisites: MATH 27 (formerly MATH 57).

Recommended:

Limits on Enrollment:

Transfer Credit: CSU;UC. (CAN MATH30)(MATH 8A+MATH 8B=MATH SEQ D)

Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree: Area Effective: Inactive:

B Communication and Analytical Spring 1992 Fall 2013

Thinking

MC Math Competency

CSU GE: Transfer Area Effective: Inactive:

B4 Math/Quantitative Reasoning Fall 1992 Fall 2013

IGETC: Transfer Area Effective: Inactive:

2A Mathematical Concepts & Fall 1993 Fall 2013

Quantitative Reasoning

CSU Transfer: Transferable Effective: Spring 1992 Inactive: Fall 2013

UC Transfer: Transferable Effective: Spring 1992 Inactive: Fall 2013

CID:

Certificate/Major Applicable:

Not Certificate/Major Applicable

COURSE CONTENT

Outcomes and Objectives:

To be successful, students should be able to:

- 1. Calculate limits and use limit notation.
- 2. Determine derivatives of polynomial, rational, algebraic, exponential, and logarrithmic functions.
- 3. Use techniques of differentiation, including product, quotient, and chain rules.
- 4. Determine antiderivatives of polynomial, rational algebraic, exponential, and logarithmic functions.
- 5. Apply derivatives to graphing, optimization, and science applications.
- 6. Evaluate definite integrals using the fundamental theorem of calculus.
- 7. Apply definite integration to compute area, volume, arc length, and solve problems in life sciences, economics, and related fields.

Topics and Scope:

1. Precalculus

The real number line and order; absolute value; exponents and radicals; polynomials; rational expressions; functions; graphs; limits; continuity; slope; distance.

2. The Derivative

Slope of a curve; rates of change; chain rule; higher order

derivatives; implicit differentiation; related rates. Differentiation of algebraic, logarithmic and exponential functions. Applications of the first and second derivative to curve sketching, optimization problems, related rates and differentials.

3. The Integral

Antiderivatives and indefinite integrals; definite integral as limit of sum. Integration of algebraic, logarithmic and exponential functions. Method of integration; substitution. Applications of the definite integral to area and volume.

4. Trigonometric Functions
Trigonometric functions and their graphs. Derivative and Integral formulas for the trigonometric functions.

Assignment:

- 1. The student will have daily outside reading, problem set assignments from required text(s), or instructor chosen supplementary materials.
- 2. Instructional methodology may include, but not limited to: lecture, demonstrations, oral recitation, discussion, supervised practice, independent study, outside project or other assignments.

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.

Writing 0 - 0%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems, Exams

Problem solving 25 - 50%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Performance exams

Skill Demonstrations 30 - 70%

Exams: All forms of formal testing, other than skill performance exams.

Multiple choice

Exams 5 - 25%

Other: Includes any assessment tools that do not logically fit into the above categories.

Other Category 0 - 10%

WRITING ASSIGNMENTS

Representative Textbooks and Materials:
Text (s) required of each student will be selected by the department, a committee of the department, or the responsible instructor from the books currently available. Among the choices could be: BRIEF CALCULUS WITH APPLICATIONS.