MATH 1A Course Outline as of Fall 1999

CATALOG INFORMATION

Dept and Nbr: MATH 1A Title: CALCULUS 1
Full Title: Calculus, First Course
Last Reviewed: 9/14/2020

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	5.00	Lecture Scheduled	5.00	17.5	Lecture Scheduled	87.50
Minimum	5.00	Lab Scheduled	0	8	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	5.00		Contact Total	87.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 175.00 Total Student Learning Hours: 262.50

Title 5 Category: AA Degree Applicable
Grading: Grade Only
Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:
Formerly:

Catalog Description:
Topics include limits and continuity, differentiation, applications of the derivative, integration, applications of the integral, methods of integration.

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

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: Limits and continuity, differentiation, applications of the derivative, integration, applications of the integral, methods of integration. (Grade Only)
Prerequisites/Corequisites: MATH 27 (formerly MATH 57).
Recommended:
Limits on Enrollment:
Transfer Credit: CSU;UC. (CAN MATH18)(MATH 1A+MATH 1B=MATH SEQ B)(MATH 2A+MATH 1A+MATH 1B=MATH SEQ C)

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 Thinking	Fall 1981	
	MC	Math Competency		
CSU GE:	**Transfer Area**		Effective:	Inactive:
	B4	Math/Quantitative Reasoning	Fall 1981	
IGETC:	**Transfer Area**		Effective:	Inactive:
	2A	Mathematical Concepts & Quantitative Reasoning	Fall 1981	

CSU Transfer:	Transferable	Effective:	Fall 1981	Inactive:
UC Transfer:	Transferable	Effective:	Fall 1981	Inactive:

CID:
CID Descriptor: MATH 900S Single Variable Calculus Sequence
SRJC Equivalent Course(s): MATH1A AND MATH1B

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 logarithmic, and trigonometric functions.
3. Use techniques of differentiation, including product, quotient, and chain rules.
4. Apply derivatives to graphing, optimization, and science applcation.
5. Determine antiderivatives of polynomial, rational, algebraic, exponential, logarithmic, and trigonometric functions.
6. Evaluate definite integrals using the fundamental theorem of calculus.
7. Use numerical integration to approximate definite integrals.
8. Apply definite integration to compute area, volumes, arc length and solve problems in science and related fields.
9. Apply methods of integration, including integration by parts, partial fractions, and use of tables or a computer algebra system.

Topics and Scope:

LIMITS AND CONTINUITY
Definition of limit and basic limit theorems, Limits from graphs, Continuity.
THE DERIVATIVE

Definition and difference quotients, slope of tangent line, Velocity, acceleration and rates of change, Product, quotient, and chain rules, Basic differentiation formulas for algebraic, trigonometric, logarithmic, exponential, inverse trigonometric and hyperbolic functions, Antiderivatives.

APPLICATIONS OF THE DERIVATIVE

Implicit differentiqtion, Mean value theorem, Differentials, Related rates, Optimization, Separable differential equation, Other applications and modeling.

THE INTEGRAL

Rieman sums, Definite Integral, Fundamental Theorem of Calculus. Integration of polynomial, logarithmic, exponential, and trigonometric functions, Integration by substitution, Numerical integration.

APPLICATIONS OF THE INTEGRAL

Area, volumes, arc length, Other applications and modeling.

METHODS OF EVALUATION

Integration by parts, Partial fractions. Use of tables or computer algebra systems.

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.

WRITING ASSIGNMENTS	Other Category 0 - 10%

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. Choices in the past have included:
CALCULUS and ANALYTIC GEOMETRY 5TH Larson/Hostetler D.C. Heath 1997
CALCULUS, Ostebee, Zorn, Saunders, 1996.