



MATH C2210: CALCULUS 1

Proposer:**Name:**

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Effective Term:

Fall 2027

Does this course use a CA Common Course Number

Yes

Credit Status:

Credit - Degree Applicable

Subject:

MATH - Mathematics

Course Number:

C2210

CA Common Course Number

MATH C2210

Discipline:

And/Or	(Discipline)
		Mathematics	

Catalog Title

Calculus I: Early Transcendentals

Common Course Description

A first course in differential and integral calculus of a single variable. Topics include limits and continuity of functions, techniques and applications of differentiation, an introduction to integration, and the Fundamental Theorem of Calculus. This course is primarily intended for Science, Technology, Engineering, and Mathematics (STEM) majors.

COS Course Description

This course is the first course of a three semester calculus sequence. Supplemental learning assistance is available for students to strengthen skills and to reinforce student mastery of concepts. Students enrolled in MATH C2210 may access the supplemental learning assistance by enrolling in MATH 400, an open entry/open exit non-credit course. (MATH C2210 was formerly MATH 065).

Prerequisites

Pre-calculus, or college algebra and trigonometry, or equivalent, or placement as determined by the college's multiple measures assessment process.

Method of Instruction:

Distance Education
Lecture and/or Discussion

Course Units/Hours:**Course Units Minimum:**

4

Lecture Hours Minimum (week)

4

Total Contact Hours Minimum (semester)

70

Total Outside Hours Minimum (semester)

140

Total Student Learning Minimum Hours (semester)

210

Repeatability:

No

Open Entry/Exit:

No

Field Trips:

Not Required

Grade Mode:

Standard Letter

TOP Code:

170100 - Mathematics, General

SAM Code:

E - Non-Occupational

Course Content

Common Method of Evaluation:

Students should demonstrate their mastery of the learning objectives and their ability to devise, organize, and present complete solutions to problems.

Examples of potential methods of evaluation include, but are not limited to, exams, quizzes, homework, classwork, technology-based activities, laboratory work, projects, and research demonstrations.

Methods of evaluation are at the discretion of local faculty.

COS Methods of Evaluation:

Problem solving assignments or activities

Problem solving quizzes or exams

Short answer quizzes or exams

Common Course Topics:

	Course Topics
1	Limits: intuitive and precise definitions; computation using numerical, graphical, and algebraic approaches
2	Continuity and differentiability of functions
3	Derivative as a limit
4	Interpretation of derivatives as slopes of tangent lines and rates of change
5	Differentiation formulas: constants, power rule, product rule, quotient rule, and chain rule
6	Derivatives of transcendental functions including trigonometric, exponential, and logarithmic
7	Implicit differentiation, differentiation of inverse functions, including inverse trigonometric functions
8	Applications of differentiation, including related rates and optimization
9	Higher-order derivatives
10	Indeterminate forms and L'Hôpital's Rule
11	Maximum and minimum values, Extreme Value Theorem
12	Graphing functions using first and second derivatives, concavity, and asymptotes
13	Mean Value Theorem
14	Antiderivatives and indefinite integrals

15	Definite integrals as limits of Riemann sums
16	Interpretation of the integral as area under a curve and net change
17	Basic integration rules and properties of integrals
18	Fundamental Theorem of Calculus
19	Integration by substitution

COS Course Topics:

COS Course Topics	
1	COS additional topics: - Derivatives of hyperbolic functions - Linear approximations and differentials
2	Optional topics: - Newton's Method

Common Course Objectives:

Course Objectives	
1	Compute the limit of a function and evaluate indeterminate forms using L'Hôpital's Rule.
2	Determine the continuity of a function.
3	Find the derivative of a function as a limit.
4	Find the equation of a tangent line to the graph of a function.
5	Compute derivatives using differentiation formulas.
6	Use differentiation to solve applications such as related rate problems and optimization problems.
7	Use implicit differentiation and find derivatives of transcendental functions.
8	Graph functions using methods of calculus.
9	Evaluate a definite integral as a limit.
10	Evaluate integrals using the Fundamental Theorem of Calculus.
11	Apply integration to find areas.

Course Outcomes:

Course Outcomes	
1	Students will be able to evaluate limits of single-variable functions graphically and computationally.
2	Students will be able to differentiate functions of one variable utilizing an appropriate technique.
3	Students will be able to apply differentiation techniques to solve applied problems such as related rates, graphing, and optimization problems.
4	Students will be able to evaluate definite and indefinite integrals through substitution techniques.

Assignments:

Assignment Type:	Details
Reading	Students may be assigned reading assignments from the text prior to a class meeting. For example, "Please read section 1.5 of the text in preparation for Monday's lecture on Continuity."
Writing	Example: Students may be asked to write a paragraph describing how to find local extrema using the first derivative.
Homework	Students may be assigned homework out of the textbook. For example, do the following problems in section 1.5: 1 - 45 Every Other Odd.

Representative Texts, Manuals, and/or OER that is equivalent, Other Support Materials:

Common Textbooks or other support materials

Resource Type	Details
Web/Other	A college level textbook designed for science, technology, engineering and math majors, and supporting the learning objectives of this course. Representative texts:
Zero Textbook Cost	Strang, G., Herman, E., et al. (2016 & Web 2025). Calculus Volume 1. OER: OpenStax. https://openstax.org/details/books/calculus-volume-1/
Books	Stewart, J., et al. (2021). Calculus: Single Variable Calculus Early Transcendentals. 9th ed.: Cengage.
Books	Briggs, W., et al. (2019). Calculus: Early Transcendentals. 3rd ed.: Pearson.
Books	Hass, J., et al. (2023). Thomas' Calculus: Early Transcendentals. 15th ed.: Pearson.

Texts used by individual institutions and even individual sections will vary. The list of representative texts must include at least one text with a publication date within five (5) years of the course outline approval date.

COS Textbooks or other support materials

Resource Type:	Details
Books	Calculus: Early Transcendentals, Howard Anton, Wiley, 12th ed, 2021, 978-1-119-77798-4

Transferable to CSU

Yes - Approved

Transferable to UC

Yes - Approved

Cal-GETC General Education

Cal-GETC GE Area 2: Math Concepts & Quantitative Reasoning

Transferable to UC

IGETC 2: Math Concepts & Quantitative Reasoning

COS General Education

COS GE Area 2: Mathematical Concepts & Quantitative Reasoning

Other Degree Attributes

Degree Applicable

Not a Basic Skills Course

Distance Learning Addendum

Math C2210 DLA.pdf

Additional Attachment

Math 065 DLA.pdf

ccn-course-template-math-c2210-calculus-i-early-transcendentals-a11y.pdf

Banner Title:

Calculus 1

Course Control Number:

CCC000536849

C-ID:

MATH210

Equity Review



Select elements of the COR that were reviewed for equity. Must select at least one:

Other
Textbooks / Other Support Materials
Topics