

Course Outline

COURSE: MATH C2210 **DIVISION:** 20 **ALSO LISTED AS:** MATH 1A

TERM EFFECTIVE: Fall 2027 **CURRICULUM APPROVAL DATE:** 05/12/2026

SHORT TITLE: CALC I: EARLY TRANSCENDENTALS

LONG TITLE: Calculus I: Early Transcendentals

<u>Units</u>	<u>Number of Weeks</u>	<u>Type</u>	<u>Contact Hours/Week</u>	<u>Total Contact Hours/Units</u>
4	18	Lecture:	4	72 / 4 Units of Lecture
		Lab:	0	0
		Other:	0	0
		Total:	4	72

Out of Class Hrs: 144.00

Total Learning Hrs: 216.00

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.

Part 2: Also known as MATH 1A. C-ID (MATH 210). **PREREQUISITE:** MATH 8B or MATH 11 or MATH 25, or equivalent, or placement as determined by the college’s multiple measures assessment process.

PREREQUISITES:

MATH 8B or MATH 11 or MATH 25, or equivalent, or placement as determined by the college’s multiple measures assessment process.

CREDIT STATUS: D - Credit - Degree Applicable

GRADING MODES

L - Standard Letter Grade

REPEATABILITY: N - Course may not be repeated

SCHEDULE TYPES:

- 02 - Lecture and/or discussion
- 05 - Hybrid
- 71 - Dist. Ed Internet Simultaneous
- 72 - Dist. Ed Internet Delayed

STUDENT LEARNING OUTCOMES/COURSE OBJECTIVES

By the end of this course, a student should:

1. Compute the limit of a function and evaluate indeterminate forms using L'Hopital'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 CONTENT:

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'Hopital'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

Part 2:

Curriculum Approval Date: 05/12/2026

METHODS OF INSTRUCTION:

Instruction will follow a standard lecture/discussion format. Extensive homework will be assigned in order to assure mastery of the concepts covered in class. Students will also be required to utilize technology to enhance their understanding of the material.

OUT OF CLASS ASSIGNMENTS:

Required Outside Hours 144

Assignment Description

Reading assigned text book sections, reviewing textbook examples and class notes (20 hours)

Completing assigned homework problems; group projects (100 hours)

Studying for a test, reviewing problem-solving techniques (20 hours)

Online discussions (4 hours)

METHODS OF EVALUATION:

Other methods of evaluation

Evaluation Percent 100

Evaluation Description

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.

REPRESENTATIVE TEXTBOOKS:

Calculus: Single Variable Calculus Early Transcendentals. 9th ed., Stewart, J., et al., Cengage, 2021 or a comparable textbook/material.

ISBN: ISBN-13: 978-1337613927

13 Grade Verified by: Microsoft Word

Hass, J., et al. (2023). Thomas' Calculus: Early Transcendentals. 15th ed.: Pearson.

Briggs, W., et al. (2019). Calculus: Early Transcendentals. 3rd ed.: Pearson. ? Hass, J., et al. (2023). Thomas' Calculus: Early Transcendentals. 15th ed.: Pearson.

Strang, G., Herman, E., et al. (2016 & Web 2025). Calculus Volume 1. OER: OpenStax.
<https://openstax.org/details/books/calculus-volume-1/>

ARTICULATION and CERTIFICATE INFORMATION

GAV GE:

GAV B4

GAV Area 2

CSU GE:

CSU B4

IGETC:

IGETC 2A

CALGETC:

CALGETC Area 2

CSU TRANSFER:

Transferable CSU

UC TRANSFER:

Transferable UC

SUPPLEMENTAL DATA:

Basic Skills: N

Classification: Y

Noncredit Category: Y

Cooperative Education:

Program Status: 1 Program Applicable

Special Class Status: N

CAN: MATH18

CAN Sequence: MATH SEQ BC

CSU Crosswalk Course Department: MATH

CSU Crosswalk Course Number: 210

Prior to College Level: Y

Non Credit Enhanced Funding: N

Funding Agency Code: Y

In-Service: N

Occupational Course: E

Course Control Number: CCC000242538

Sports/Physical Education Course: N

Taxonomy of Program: 170100

CIP: 270101