

## CMI COURSE CURRICULUM COURSE ACTION

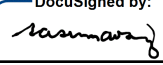
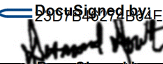
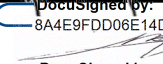
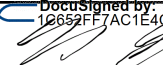
**Course Title:** Calculus I**Alpha Number:** MATH 201**CIP No.** 27.0103**Type of Action:**☐ New Course (attach narrative justification for course creation)☐ Substantive Revision (attach narrative justification for changes, including assessment and/or achievement data and feedback from the advisory committee if relevant)

Select all that apply:

☐ Change in number of credit hours☐ Change in prerequisite☐ Substantive change in course content☐ Change to SLOs ☒ Other: Hybrid☒ Non-substantive Revision

Select all that apply:

☐ Change in Alpha Number or Title (unless letter abbreviation has not previously been used)☐ Edit to course description that does not alter the substance of the course☐ Change to recommended texts☒ Other: Add the hybrid course mode☐ Reinstitution of Archived Course (attach narrative justification for reinstitution, including evidence of demand, evidence of capacity, feedback from the advisory committee if relevant, and commentary that speaks directly to the reasons the course was initially archived)☐ Reaffirmation of Course (only allowable if course completion rate exceeds ISS, the benchmark has been met for the majority of SLO assessments, and there is no evidence of inequitable levels of achievement across subpopulations; attach evidence)**Approvals:**

|                                   | Name                   | Signature                                                                             | Date      |
|-----------------------------------|------------------------|---------------------------------------------------------------------------------------|-----------|
| <b>Department Chair</b>           | Dr. Rosalinda Sumaoang |  | 7/1/2025  |
| <b>Curriculum Committee Chair</b> | Desmond Doulatram      |  | 7/10/2025 |
| <b>Dean</b>                       | Edward Alfonso         |  | 7/11/2025 |
| <b>VPASA</b>                      | Dr. Elizabeth Switaj   |  | 7/14/2025 |

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**CMi COURSE OUTLINE****CIP No.** 27.0103**Version No.** 004**MATH 201****Alpha Number****Previous Alpha Number:****Course Description:** Provides a standard introduction to differential and integral calculus. Emphasis is placed on limits and continuity, derivatives and its applications, integrals and the Fundamental Theorem of Calculus.Calculus I**Course Title****Course originally prepared by:** STEM DepartmentSTEMOctober/2013**Most recent revision by:** Waisiki BaleikorocauSTEMMarch/2025**Course mode(s):** ☒ Face to Face (including Zoom) ☒ Hybrid ☐ Distance Education**Credits calculated by:** ☒ Credit Hour ☐ Clock Hour**Contact Hours:** 60

| Type                     | No. of Hours | No. of Credits | Maximum No. of Hours Online |
|--------------------------|--------------|----------------|-----------------------------|
| Lecture/Seminar/Workshop | 60           | 4              | 16                          |
| Clinical                 |              |                |                             |
| Practicum                |              |                |                             |
| Lab                      |              |                |                             |
| Fieldwork                |              |                |                             |
| Studio Time              |              |                |                             |
| <b>Total</b>             | 60           | 4              | 16                          |

**Purpose(s) of Course:** Degree Requirement

Degree Elective

General Education

Credit Certification

Developmental

CTE/TVET

ABE/Adult HS

LA**Distribution Area:**

Humanities

Social Sciences

Mathematics (Credit)

Science

X**Prerequisite:**C or better in MATH 121 or Permission of Instructor

**Student Learning Outcomes:** Upon completion of this course, students will be able to:

1. Evaluate limits
2. Differentiate algebraic and trigonometric functions
3. Solve application problems utilizing techniques of derivatives
4. Apply the concept of Fundamental Theorem of Calculus and antiderivatives to evaluate integrals

**SLO Mapping:**

| Prerequisite Course SLO                                                                                                             | Linked SLO from this Course | Explanation                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Math 121 SLO 1: Prove trigonometric identities.                                                                                     | 4                           | Trigonometric identities play a crucial role in simplifying complex functions involving trigonometric expressions.       |
| Math 121 SLO 2: Solve trigonometric equations.<br>Math 121 SLO 3: Solve real world problems utilizing the concepts of trigonometry. | 2,3                         | Utilizing and manipulating trigonometric tools to solve integrals, derivatives, and other calculus problems.             |
| Math 121 SLO 4: Graph trigonometric functions and its transformations.                                                              | 1                           | Students will use graphs to make predictions of a value the function approaches as the input approaches a defined value. |

**Links to Program Learning Outcomes:**

| SLO | Linked PLO                                                  | I/P/M | Explanation of Link                                                                                                                                                                                                                                             |
|-----|-------------------------------------------------------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | LA Critical Thinking<br>LA Quantitative/Scientific Literacy | P     | The concept of limits provides an essential tool to examine the behavior of a function in the neighborhood of a specific point.                                                                                                                                 |
| 2   | LA Quantitative/Scientific Literacy                         | P     | Compute the derivatives utilizing properties of derivatives, rules and algebraic manipulation on specific functions to determine the rate of change at a point.                                                                                                 |
| 3   | LA Critical Thinking<br>LA Quantitative/Scientific Literacy | P     | Students will use the differentiation tool to determine the instantaneous rate of change, approximation value, and optimization problems.                                                                                                                       |
| 4   | LA Critical Thinking<br>LA Quantitative/Scientific Literacy | P     | The Fundamental Theorem of Calculus develops an understanding that connects differential calculus (tangent line problem) to integral calculus (area problem). The theorem has many important applications in physics, engineering, economics, and other fields. |

**Course Content:** Students in this course will be able to understand:

1. Review of functions
2. Limits and Continuity
3. Derivatives
4. Application of differentiation
5. Integrals

**Higher Order Thinking Skills: Students in this course will experience:**

- ☒ Analyzing the basic elements of an idea, experience, or theory
- ☒ Making judgments about the value or soundness of information, arguments, or methods
- ☒ Applying theories or concepts to practical problems or in new situations

**Recommended Methods of Instruction**

- ☒ Demonstration
- ☒ Lecture
- ☒ Small group discussion
- ☒ Class discussion
- ☒ Audio-Visual Aids
- ☐ Laboratory
- ☒ Supervised Practice
- ☐ Field Trips
- ☒ Other: Online learning support system

**Recommended Assessment Tool Type(s):**

- ☐ Case Study
- ☐ Critique of Performance
- ☒ Exam/Quiz In-Course
- ☐ Exam/Quiz Standardized (attach narrative describing development and validation process)
- ☐ Focus Group
- ☒ Group Project
- ☒ Individual Project
- ☐ Observation
- ☐ Portfolio Review
- ☐ Presentation
- ☐ Simulation
- ☐ Skill Performance
- ☐ Supervisor Evaluation
- ☐ Survey
- ☒ Written Assignment

**Required Forms of Regular and Substantive Interaction for Hybrid or Distance Education Courses (Selected at Least Two):**

- ☒ Direct instruction through:
- ☒ Live video lectures
- ☐ Live audio-only lectures
- ☒ Live text chats
- ☐ Assessing or providing feedback on a student's coursework
- ☒ Providing information or responding to questions about the content of a course or competency through:
- ☒ Live video discussions

- ☐ Live audio-only discussions  
☒ Live text chats  
☒ Asynchronous message boards or text chats  
☐ Facilitating a group discussion regarding the content of a course or competency through:  
☐ Live video discussions  
☐ Live audio-only discussions  
☐ Live text chats  
☐ Asynchronous message boards or text chats  
☐ Other, specify:

Note: for distance education courses, if only two are selected, both must occur within the course on a weekly basis. If more than two are selected, the instructor may choose which two are used during each week.

**Equipment and Materials:**

1. Recommended texts: Stewart James, Calculus Early Transcendentals, 8<sup>th</sup> Edition, Cengage Learning, 2015. ISBN-13: 978-1305270336
2. Equipment/Facilities: Calculators (scientific & graphing), computer lab.
3. Materials and Supplies:

**Connection to College Mission:**

The College of the Marshall Islands will provide our community with access to quality, higher and further educational services, prioritize student success through engagement in relevant Academic, Career and Technical Education, and be a center for the study of Marshallese Culture. It will also provide intellectual resources and facilitate research specific to the needs of the nation. *EC approved 4th Nov, 2020. BOR approved 1st December, 2020*

In this course students will be exposed to the study of change and motion. It provides a framework for modeling systems in which there is change and make predictions using such models.

**Connection to Department Mission:**

The mission of the Science, Technology, and Mathematics (STeM) Department is to provide science, technology and mathematics courses to support academic programs and prepare students seeking careers in marine science or an advanced education in a STeM discipline.  
*Approved by CC on March 5, 2018. Approved by IEC on March 14, 2018.*

MATH 201 course supports the Department mission by providing students the necessary competencies that complements their academic program and preparedness for future careers or advanced education in a STEM discipline