

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:

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


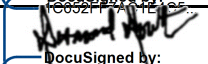
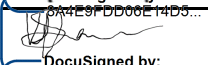

Change to recommended texts

Other: Change in number of contact hours from 64 to 60

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 <small>DocuSigned by:</small>	Date
Department Chair	Edward Alfonso	 <small>DocuSigned by: 7C83217A11E1...</small>	6/6/2024
Curriculum Committee Chair	Desmond Doulatram	 <small>DocuSigned by: 6A4E9FD00E14D3...</small>	6/5/2024
Dean	Vasemaca Savu	 <small>DocuSigned by: 7666D75B40754E...</small>	6/5/2024
VPASA	Dr. Elizabeth Switaj	 <small>89BED8BDDC23456...</small>	6/10/2024

CMI COURSE OUTLINE**CIP No.** 27.0103**Version No.** 003MATH 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 BaleikorocauSTeMJune/2024**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	
Clinical			
Practicum			
Lab			
Fieldwork			
Studio Time			
Total	60	4	

Purpose(s) of Course: Degree Requirement _____
Degree Elective _____ LA _____
General Education _____
Credit Certification _____
Developmental _____
CTE/TVET _____
ABE/Adult HS _____

Distribution Area: Humanities _____
Social Sciences _____
Mathematics (Credit) _____ x _____
Science _____

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. 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 prediction of a value the function approaches as the input approach a defined value.

Links to Program Learning Outcomes:

SLO	Linked PLO	I/P/M	Explanation of Link
1	LA Critical Thinking 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 function to determine the rate of change at a point.
3	LA Critical Thinking 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 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, 8th 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