

MA 210-01-1: Calculus I Division of Natural Sciences & Mathematics Chaminade University Honolulu

Spring 2023 / 4 Credits Monday, Wednesday, Friday 9:30 – 10:20 am Tuesday 1:30 – 2:20pm Brogan Hall 101

Instructor:	Dr. Travis Mukina
Email:	travis.mukina@chaminade.edu
Cell Phone:	(814) 450-8134

Office Location: Office Hours/Zoom: Brogan 132 By Appointment

Learning Materials:

- MyMathLab Online Homework: Directions on how to purchase can be found on Canvas
- **Desmos App**: A free, easy-to-use, graphing calculator app.
- **GroupMe App**: A way to stay up-to-date with all class announcements, assignments, and questions between you, your professor, and your classmates.
- **Google Drive/3-Ring Binder**: This should be comprised of provided guided notes, lectures, MyMathLab homework, and assessments.

Course Catalog Description:

This is the first part of a three-semester sequence of differential and integral calculus. Major topics include limits and continuity, differentiation and integration of algebraic and trigonometric functions, and basic applications.

Course Overview:

This course is designed to produce better conceptual understanding of functions and mathematics in general that leads into understanding procedural understanding of formulas. A strong development of number relationships will also occur by the use of class discussions, sharing of ideas, and thought-provoking-take-home assessments.

Marianist Values

This class represents one component of your education at Chaminade University of Honolulu. An education in the Marianist Tradition is marked by five principles and you should take every opportunity possible to reflect upon the role of these characteristics in your education and development:

- 1. Education for formation in faith
- 2. Provide an integral, quality education
- 3. Educate in family spirit
- 4. Educate for service, justice and peace
- 5. Educate for adaptation and change

Native Hawaiian Values

Education is an integral value in both Marianist and Native Hawaiian culture. Both recognize the transformative effect of a well-rounded, value-centered education on society, particularly in seeking justice for the marginalized, the forgotten, and the oppressed, always with an eye toward God (Ke Akua). This is reflected in the 'Olelo No'eau (Hawaiian proverbs) and Marianist core beliefs:

- 1. Educate for Formation in Faith (Mana) E ola au i ke akua ('Ōlelo No'eau 364) May I live by God
- 2. Provide an Integral, Quality Education (Na'auao) Lawe i ka ma'alea a kū'ono ono ('Ōlelo No'eau 1957) Acquire skill and make it deep
- Educate in Family Spirit ('Ohana) 'Ike aku, 'ike mai, kōkua aku kōkua mai; pela iho la ka nohana 'ohana ('Ōlelo No'eau 1200) Recognize others, be recognized, help others, be helped; such is a family relationship



- 4. Educate for Service, Justice and Peace (Aloha) Ka lama kū o ka no'eau ('Ōlelo No'eau 1430) Education is the standing torch of wisdom
- 5. Educate for Adaptation and Change (Aina) 'A'ohe pau ka 'ike i ka hālau ho'okahi ('Ōlelo No'eau 203) All knowledge is not taught in the same school

-

Program Learning Outcomes (PLOs)

1	To demonstrate the understanding and skills in reading, interpreting, and communicating mathematical concepts which are integrated into other disciplines or appear in everyday life
2	To gain understandings of, and practical skills in logical thinking, deductive and inductive reasoning
3	To articulate the understanding of more advanced mathematical concepts and computational skills to support the study of other disciplines, including skills with numeric, analytic, and graphical methods
4	Where relevant, to develop mathematical maturity to undertake higher-level studies in mathematics and related fields

Course Learning Outcomes (CLOs):

1	Gain understanding of the concept of limits.
2	Gain understanding of the continuity of functions.
3	Gain understanding of the concept of the derivative and its relation to the behavior of a function.
4	Develop skills to compute derivatives, and demonstrate a comprehension of general rules for differentiation.
5	Develop skills to use derivatives in critical point analysis, graph sketching, and optimization problems.
6	Gain understanding of the concepts of indefinite and definite integration and the Fundamental Theorem of Calculus.
7	Develop skills to calculate integrals using the substitution method when appropriate.
8	Develop skills to solve applied problems using integrals.

Alignment of Learning Outcomes:

	CLO 1	CLO 2	CLO 3	CLO 4	CLO 5	CLO 6	CLO 7	CLO 8
Marianist Value(s)	Provide an integral and quality education Educate for adaptation and change							
WASC Core Competenc ies	Written Communication Oral Communication Quantitative Reasoning Critical Thinking							
Program Outcome(s)	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4

Assessment

The assignments described below are each designed to contribute in a different and significant way to your knowledge and experience relative to diagnosis and remediation of mathematics. Always be prepared to effectively participate to class discussions, analyze the thinking of others in class, and clearly explain your thinking in most assignments. A scoring rubric is provided with every assessment to ensure you know what is required to receive the score desired. Feedback and grades on all assignments are provided within 7 days of submission.

1. MyMathLab (MML) Online Homework – 50% of Final Grade

Modules 1, 2, 3, 4, 6, 7, 8, 9 [5 points per section]

Homework is assigned through the Pearson MyMathLab website. All homework assignments for each chapter are due at the end of each module. Extensions will not be granted and missed homework assignments cannot be reopened for completion. Collaboration with classmates is highly encouraged on all MyMathLab assignments.

2. Assessments – 50% of Final Grade (25% Each)

Module 5 - Chapters 1, 2, 3 Assessment [35 points] Module 10 - Chapters 3, 4, 5 Assessment [35 points]

Assessments focus on content demonstrated in the lectures, guided notes, activities/discussions that occur in class, strategies used in your MyMathLab homework, and open-ended style questions. A full week is provided to complete each assessment and Desmos is always permitted. Collaboration with classmates is strictly prohibited on assessments. Assessments focus on written and oral communication of mathematical ideas.

Grading Scale				
90 – 100 %	А			
80 – 89 %	В			
70 – 79 %	С			
60 – 69 %	D			
0 – 59 %	F			

- A Outstanding scholarship and an unusual degree of intellectual initiative
- **B** Superior work done in a consistent and intellectual manner
- **C** Average grade indicating a competent grasp of subject matter
- **D** Inferior work of the lowest passing grade, not satisfactory for fulfillment of prerequisite course work
- F Failed to grasp the minimum subject matter; no credit given

Course Policies

Late Work Policy

This course has firm deadlines for completing all assignments. If assignments are likely going to be completed late, contact must be made with the instructor at least 24 hours before the deadline to discuss submission options.

Grades of "Incomplete"

This policy on incomplete grades aligns with the same University policies.

Writing Policy

For any writing assignments, please use APA format. Please refer to https://apastyle.apa.org for any specific style and grammar guidelines guestions.

Instructor and Student Communication

Questions for this course can be emailed to the instructor at travis.mukina@chaminade.edu. Online and/or inperson meetings can be arranged. Response time will take place up to 24 hours.

[CLO 1, 2, 3, 4, 5, 6, 7, 8]

[CLO 1, 2, 3, 4, 5, 6, 7, 8]

Additional Services

Disability Access

If you need individual accommodations to meet course outcomes because of a documented disability, please speak with me to discuss your needs as soon as possible so that we can ensure your full participation in class and fair assessment of your work. Students with special needs who meet criteria for the Americans with Disabilities Act (ADA) provisions must provide written documentation of the need for accommodations from Kōkua 'Ike: Center for Student Learning by the end of week three of the class, in order for instructors to plan accordingly. If a student would like to determine if they meet the criteria for accommodations, they should contact the Kōkua 'Ike Coordinator at (808) 739-8305 for further information (ada@chaminade.edu).

Technical Assistance for Canvas Users

- Search for help on specific topics or get tips in Canvas Students
- Live chat with Canvas Support for students
- Canvas Support Hotline for students: +1-833-209-6111
- Watch this video to get you started
- Online tutorials: click on "Students" role to access tutorials
- Contact the Chaminade IT Helpdesk for technical issues: <u>helpdesk@chaminade.edu</u> or call (808) 735-4855

Tutoring and Writing Services

Chaminade is proud to offer free, one-on-one tutoring and writing assistance to all students. Tutoring and writing help is available on campus at Kōkua 'lke: Center for Student Learning in a variety of subjects (including, but are not limited to: biology, chemistry, math, nursing, English, etc.) from trained Peer and Professional Tutors. Please check Kōkua 'lke's <u>website</u> for the latest times, list of drop-in hours, and information on scheduling an appointment. Free online tutoring is also available via TutorMe. TutorMe can be accessed 24/7 from your Canvas account. Simply click Account – Notifications – TutorMe. For more information, please contact Kōkua 'lke at <u>tutoring@chaminade.edu</u> or 808-739-8305.

Chaminade University Policies

Student Conduct Policy

Campus life is a unique situation requiring the full cooperation of each individual. For many, Chaminade is not only a school, but a home and a place of work as well. That makes it a community environment in which the actions of one students may directly affect other students. Therefore, each person must exercise a high degree of responsibility. Any community must have standards of conduct and rules by which it operates. At Chaminade, these standards are outlined so as to reflect both the Catholic, Marianist values of the institution and to honor and respect students as responsible adults. All alleged violations of the community standards are handled through an established student conduct process, outlined in the Student Handbook, and operated within the guidelines set to honor both students' rights and campus values.

Students should conduct themselves in a manner that reflects the ideals of the University. This includes knowing and respecting the intent of rules, regulations, and/or policies presented in the Student Handbook, and realizing that students are subject to the University's jurisdiction from the time of their admission until their enrollment has been formally terminated. Please refer to the Student Handbook for more details. A copy of the Student Handbook is available on the Chaminade website under Student Life.

For further information, please refer to the Chaminade Catalog.

Title IX Compliance

Chaminade University of Honolulu recognizes the inherent dignity of all individuals and promotes respect for all people. Sexual misconduct, physical and/or psychological abuse will NOT be tolerated at CUH. If you have been the victim of sexual misconduct, physical and/or psychological abuse, we encourage you to report this matter promptly. As a faculty member, I am interested in promoting a safe and healthy environment, and should I learn of any sexual misconduct, physical and/or psychological abuse, I must report the matter to the Title IX Coordinator. If you or someone you know has been harassed or assaulted, you can find the appropriate resources by visiting Campus Ministry, the Dean of Students Office, the Counseling Center, or the Office for Compliance and Personnel Services.

Attendance Policy

Flex students are expected to asynchronously attend and submit course work in classes they are registered in. Student should notify their instructors when illness or other extenuating circumstances prevents them from attending class and make arrangements to complete missed assignments. Notification may be done by emailing the instructor's Chaminade email address, calling the instructor's campus extension, or by leaving a message with the instructor's division office. It is the instructor's prerogative to modify deadlines of course requirements accordingly. Any student who stops attending a course without officially withdrawing may receive a failing grade.

Students with disabilities who have obtained accommodations from the Chaminade University of Honolulu Tutor Coordinator may be considered for an exception when the accommodation does not materially alter the attainment of the learning outcomes.

Federal regulations require continued attendance for continuing payment of financial aid. When illness or personal reasons necessitate continued absence, the student should communicate first with the instructor to review the options. Anyone who stops attending a course without official withdrawal may receive a failing grade or be withdrawn by the instructor at the instructor's discretion.

Credit Hour Policy

The unit of semester credit is defined as university-level credit that is awarded for the completion of coursework. One credit hour reflects the amount of work represented in the intended learning outcomes and verified by evidence of student achievement for those learning outcomes. Each credit hour earned at Chaminade University should result in 45 hours of engagement.

The minimum 45 hours of engagement per credit hour can be satisfied in fully online, internship, or other specialized courses through several means, including (a) regular online instruction or interaction with the faculty member and fellow students and (b) academic engagement through extensive reading, research, online discussion, online quizzes or exams; instruction, collaborative group work, internships, laboratory work, practica, studio work, and preparation of papers, presentations, or other forms of assessment. This policy is in accordance with federal regulations and regional accrediting agencies.

Course Schedule

Module # Dates	Module Content	Assignments Due by End of Module
Module 1 Jan 9 th – 15 th	Chapter 1: Functions Section 1.1: Review of Functions Section 1.2: Representing Functions Section 1.3: Trigonometric Functions	 Introductory Post GroupMe Registration MyMathLab (MML) Registration Sections 1.1, 1.2, 1.3
Module 2 Jan 16 th – 29 th	Chapter 2: Limits Section 2.1: The Idea of Limits Section 2.2: Definitions of Limits Section 2.3: Techniques for Computing Limits	• MML 2.1, 2.2, 2.3
Module 3 Jan 30 th – Feb 12 th	Chapter 2: Limits Section 2.4: Infinite Limits Section 2.5: Limits at Infinity Section 2.6: Continuity	o MML 2.4, 2.5, 2.6
Module 4 Feb 13 th – 26 th	Chapter 3: Derivatives Section 3.1: Introducing the Derivative Section 3.2: The Derivative as a Function Section 3.3: Rules of Differentiation Section 3.4: The Product and Quotient Rules Section 3.5: Derivatives of Trigonometric Functions	○ MML 3.1, 3.2, 3.3, 3.4, 3.5
Module 5 Feb 27 th – Mar 5 th	Chapters 1, 2, 3 Assessment	
Module 6 Mar 6 th – 19 th	Chapter 3: Derivatives Section 3.6: Derivatives as Rates of Change Section 3.7: The Chain Rule Section 3.8: Implicit Differentiation Section 3.9: Related Rates	• MML 3.6, 3.7, 3.8, 3.9
Module 7 Mar 27 th – Apr 9 th	Chapter 4: Applications of the Derivative Section 4.1: Maxima and Minima Section 4.3: What Derivatives Tell Us Section 4.4: Graphing Functions Section 4.5: Optimization Problems	o MML 4.1, 4.3, 4.4, 4.5
Module 8 Apr 10 th – 16 th	Chapter 5: Integration [Section 4.9: Antiderivatives] Section 5.1: Approximating Areas under Curves	o MML 4.9, 5.1
Module 9 Apr 17 th – 23 rd	Chapter 5: Integration Section 5.2: Definite Integrals Section 5.3: Fundamental Theorem of Calculus Section 5.5: Substitution Rule	o MML 5.2, 5.3, 5.5
Module 10 Apr 24 th – 30 th	Chapters 3, 4, 5 Assessment	