UNIVERSITY OF GUAM
UNIBETSEDÅT GUAHAN

COLLEGE OF NATURAL & APPLIED SCIENCES
Division of Mathematics & Computer Sciences

BASIC INFORMATION:

(1) Semester/year: FALL 2022

(2) Course: MA*203 – Calculus I

(3) Class Meeting: M T W Th : 2:00 - 3:15   Rm: Warehouse B Rm. #1

(4) Instructor: Dr. Raymond M. Paulino

(5) Office: Warehouse B Rm. 9

(6) Phone: 735-2833 or 735-2825

(7) Email: paulinor4388@triton.uog.edu

Moodle: Enrollment Key MA20303FA22
Office Hours: M and W 10:00-11:00, MTWTh 1:00-2:00 All other times by appointment upon request. Office Hours are done as a Big Blue Button on Moodle.

CATALOG COURSE DESCRIPTION:
This is the first semester of a standard calculus course. Topics include limits, continuity; the definition of derivatives; derivatives of algebraic and transcendental functions; product, quotient, and chain rules; applications; and Riemann Sums. Prerequisite: Grade of C or better in MA*161b or MA*165 or placement or equivalent.

Required Textbook:
Single Variable Calculus: Early Transcendentals, 7th edition by James Stewart.
ISBN-13: 978-0-538-49867-8; ISBN-10: 0-538-49867-6

Skills and Background Required or Expected:
Students should know algebra, some geometry, and some trigonometry. Students should have been exposed to mathematical modeling. Courses in college algebra and trigonometry or precalculus suffice, which usually means MA161a and MA161b or MA165.

Rationale for Course:
This course introduces students to the fundamental ideas of calculus: limits, derivatives and the definite integral. Though not highly stressed, the mathematical foundations of these ideas are provided, so that students receive an introduction to mathematical precision and rigor. Calculus is then used to investigate ideas from physics, such as velocity, acceleration, centers of mass, from geometry, such as areas and volumes, from finance, such as capital formation, and other disciplines. Students thus receive an introduction to mathematical modeling and applied mathematics, that is, how mathematics is used to study the physical world.

CONCEPTUAL STRUCTURE OF THE COURSE:
The conceptual structure of the course is summarized below from the source: http://encyclopedia2.thefreedictionary. com/Differential+and+Integral+Calculus: "Calculus is the field of mathematics that analyzes aspects of change in processes or systems that can be modeled by functions. Through its two primary tools—the derivative and the integral—it allows precise calculation of rates of change and of the total amount of change in such a system. The derivative and the integral grew out of the idea of a limit, the logical extension of the concept of a function over smaller and smaller intervals. The relationship between differential calculus and integral calculus, known as the fundamental theorem of calculus, was discovered in the late 17th century independently by Isaac Newton and Gottfried Wilhelm Leibniz. Calculus was one of the major scientific breakthroughs of the modern era." MA203 is basically "differential calculus", while MA204 is basically "integral calculus".

MA 203 basically covers:

- A review of functions, graphs and mathematical models
- Limits, Continuity and derivatives of functions
- Differentiation Rules
- Applications of Differentiation
- An Introduction to Integrals

Lectures will be done face to face. My **written notes** will be provided as a pdf and we will go over them during the conference. **Supplemental notes** are also provided on moodle. You are expected to ask questions during the lectures and to read and study on your own at home.

SKILLS AND BACKGROUND REQUIRED OR EXPECTED:
Students should know algebra, some geometry, and some trigonometry. Students should have been exposed to mathematical modeling (word problems). Courses in college algebra and trigonometry or precalculus suffice, which usually means MA*161a and MA*161b, or MA*165.

COURSE WORK: You will have to **read the textbook for each class in advance and review the section**. You need to do all homework assignments.

MAKEUP AND DUE DATES:
I will not accept any late work unless you have a valid reason. Assignments must be submitted only through MOODLE, and you must upload before the Cutoff time.
Please email me with a valid reason explaining why you are unable to make the Cutoff time, and if I accept your reason, then you will be given an extension to submit the work on Moodle.

For Extenuating circumstances that you need to miss a quiz or exam, then I will allow you to do makeup if I decide that you have a valid excuse. If your excuse is valid then I will let you know how to do a makeup. **You must notify me at least one week before you do the makeup. ←VERY IMPORTANT, do not wait till the last day of class.**

COURSE WORK INTEGRITY:
Do your own work. During this course I assume that you will have the integrity to work hard and really learn the material well yourself. Do not copy someone else's work. Do not let anyone copy your own work too. At any time during this course, I can question your integrity and I have the option to give you a zero for certain assignments.

You are encouraged to choose one or more study partners to learn together. While working together is encouraged, please note that all work, quiz or test you hand in must reflect **your own** individual efforts. Keep in mind that the scores, including your overall semester score that you earn, will be in direct correlation with the individual effort you invest in studying your subject.

Homework is an essential component of the course. To be successful, a student must complete all assigned homework even if it is not collected or graded. You are advised to keep your assignments in a notebook for classroom reference, questions, or review for tests. **A list of HW problems from the book is given in the MA203 Suggested HW Problems pdf file, see top of our Moodle course page. I will ask you turn in some of these OR to present some in class for HW and Participation points**

It is important to read ahead a few pages of the textbook before coming to class.

There will be a number **quizzes** to prepare you for the exams. There will be two or three **midterm exams**. A preliminary time schedule is listed below. Timing may change depending on the progress we make with the course material. The **Final Exam** is cumulative and I will talk more about it in class.

The primary assessment tools for the evaluation of learning outcomes and for grades are quizzes and exams. Exams are listed in the schedule and a reminder will be announced approximately a week or two before the exam is administered.

Please come to **Office Hours** after you get your quizzes and exams back so we can go over your mistakes. Various **extra credit opportunities** are given throughout the course and announced in class.

EVALUATION AND GRADES:

-	Midterm Exams (2 to 3 midterms):	40%
-	Final Exam:	15%
-	Quizzes: (12-14 quizzes)	25%
-	Homework, Worksheets and Participation	20%
	Total:	100%

Grading Scale:

98 – 100%	A+	4.0
93 – 97%	A	4.0
90 – 92%	A-	3.67
87 – 89%	B+	3.33
83 – 86%	B	3.00
80 – 82%	B-	2.67
77 – 79%	C+	2.33
70 – 76%	C	2.00
60 – 69%	D	1.00
0 – 59% F	F	0

ACADEMIC DISHONESTY: Plagiarism and cheating are serious offenses and may be punished by failure on the exam, paper or project, failure in the course and/or expulsion from the University and a letter placed in your permanent file. For more information refer to the academic dishonesty policy in the University handbook.

COURSE POLICIES:
Attend each class on time, participate and do the coursework. If you cut a class, it is your responsibility to make up any missed class material. Cell phones, or any distractive devices must be turned off in the classroom. Be courteous in class, don't chat, respect and pay attention to your instructor/classmate who works at the board. Focus on learning so that your understanding benefits the most from your participation in the class activities. Academic dishonesty and plagiarism are serious violations of university policy, punished by failing grade and/or suspension. Never cheat and never be dishonest!

DROP DATE:
Please see the current UOG Course Schedule for the last days to withdraw. Voluntary Withdrawal is now done online. Contact the academic advisor or registrar's office on how to proceed.

FOR CLASSMATES:
You are encouraged to exchange contact information with your classmates. Choose at least one study partner. Contact your classmate(s) if you miss a class and make up the missed material. You are also encouraged to form study groups. List here some contact information from your classmates:

STUDENT WORK LOAD:
Read all sections covered every day, work all homework and worksheet problems assigned on a daily/weekly basis, work on all review problems assigned for scheduled exam.

Your Math Resources: There are several campus resources available to you if you need extra help with any of the course material.
• Your instructor! Make an appointment to meet with me.
• The Math Tutor Lab! The CNAS Math Tutor Lab is located at the Agriculture and Life Sciences Building in Room 230 (ALS230). For more information, please call 735-2064, email mathtutorlab@triton.uog.edu or visit the tutor lab website www.uogmathlab.org

STUDENT LEARNING OBJECTIVES AND MA203 CURRICULAR MAPPING:

MA203 Course Learning Outcomes (**SLOs**)	Mathematics Degree Program Learning Outcomes (**PLOs**)	UOG's Institutional Learning Outcomes (**ILOs**)
SLO1: Demonstrate understanding of limits, continuity, and derivatives of functions.	**PLO1:** Demonstrate critical thinking, problem solving skills and ability to use mathematical methods by identifying, evaluating, and classifying, analyzing, synthesizing, data and abstract ideas in various contexts and situations.	**ILO1:** Mastery of critical thinking & problem solving.
SLO2: Use the product, quotient and chain rules for direct and implicit differentiation.	**PLO2:** Demonstrate the knowledge of current mathematical applications, computing practices and technology use in industry, and science and education.	**ILO2:** Mastery of quantitative analysis
SLO3: Find derivatives of polynomial, rational, exponential, logarithmic, trigonometric and hyperbolic functions.	**PLO3:** Demonstrate ability to use modern software, abstract thinking, and mathematical practices connected to scientific and industrial problems, and demonstrate these skills that are currently used by technologies in society and education.	**ILO3:** Effective oral and written communication
SLO4: Use differential calculus in curve sketching and problems solving.	**PLO4:** Perform skills that enable them to evaluate, propose and convey novel solutions to scientific and business problems, etc.	**ILO4:** Understanding & appreciation of culturally diverse people, ideas & values in a democratic context
SLO5: Find definite and indefinite integrals of a limited number of elementary functions.	**PLO5:** Demonstrate a sense of exploration that enables students to pursue lifelong learning and currency in their careers in mathematics, statistics, education, high-tech and bi-tech industries.	**ILO5:** Responsible use of knowledge, natural resources, and technology
SLO6: Apply basic optimization techniques to selected problems arising in various fields such as physical modeling , economics and population dynamics.		**ILO6:** An appreciation of the arts & sciences
		ILO7: An interest in personal development & lifelong learning

CURRICULAR MAPPING FOR MA203			
COURSE SLOs	**PROGRAM PLOs**	**UOG ILOs**	**METHODS OF ASSESSMENT**
SLO1	PLO1	ILO1, ILO2, ILO3	Questions on homework assignments, quizzes, workshop problems and tests.
SLO2	PLO1	ILO1, ILO2	Questions on homework assignments, quizzes, workshop problems and tests.
SLO3	PLO1, PLO4	ILO1, ILO2	Questions on homework assignments, quizzes, workshop problems and tests.

SLO4	PLO1, PLO3	ILO1, ILO2	Questions on homework assignments, quizzes, workshop problems and tests.
SLO5	PLO1, PLO3	ILO1, ILO2	Questions on homework assignments, quizzes, workshop problems and tests.
SLO6	PLO1, PLO4	ILO1, ILO2, ILO3, ILO5, ILO6	Questions on homework assignments, quizzes, workshop problems and tests. Classroom discussions.

Mathematics Program Learning Outcomes (PLOs):

Students completing the mathematics program at the UOG will:
- o MA PR PLO1 – demonstrate critical thinking, problem solving skills and ability to use mathematical methods by identifying, evaluating, classifying, analyzing, synthesizing data and abstract ideas in various contexts and situations;
- o MA PR PLO2 – exhibit a sound conceptual understanding of the nature of mathematics, and demonstrate advanced mathematical skills in mathematical analysis, modern algebra and other mathematical discipline(s);
- o MA PR PLO3 – argue and reason using mathematics, read, create and write down logically correct mathematical proofs, use exact mathematical language and communicate mathematics efficiently orally, in writing and using information technology tools;
- o MA PR PLO4 – apply abstract thinking, mathematical methods, models and current practices in the sciences, including state-of-the-art mathematical software, to solve problems in theoretical mathematics or in a diverse area of mathematical applications;
- o MA PR PLO5 – show maturity in mathematical knowledge and thinking that prepares and encourages students to pursue graduate studies in mathematics or in related fields;
- o MA PR PLO6 – demonstrate an appreciation of and enthusiasm for inquiry, learning and creativity in mathematical sciences, a sense of exploration that enables them to pursue lifelong learning and up-to-date professional expertise in their careers through various areas of jobs, including governmental, business or industrial jobs in mathematics, related sciences, education or technology.

UOG Institutional Student Learning Outcomes (ILOs)

For more information about the following ILOs, please refer to www.uog.edu/adminstration/academic-and-student-affairs/accreditation/assessment-and-program-review.

ILO-1   Mastery of critical thinking and problem solving

ILO-2   Mastery of quantitative analysis

ILO-3   Effective oral and written communication

ILO-4   Understanding and appreciation of culturally diverse people, ideas and values in a democratic context

ILO-5   Responsible use of knowledge, natural resources, and technology

ILO-6   An appreciation of the arts and sciences

ILO-7   An interest in personal development and lifelong learning

Academic Integrity Policy

Academic Integrity is about performing in your role as student in ways that are honest, trustworthy, respectful, responsible, and fair (see www.academicintegrity.org for more information). As a student, you will complete your academic assignments in the manner expected by the instructor. Academic dishonesty, including but not limited to cheating and plagiarism may result in suspension or expulsion from the University. Refer to the UOG Student Handbook and Code of Conduct for more information.

Tobacco Policy

The University of Guam is a tobacco-free campus and has a total ban on sales, smoking, distribution and use of tobacco and tobacco-based products on campus. UOG is committed to promoting the health, wellness and social well-being of the University Community, the people of Guam and the Western Pacific.

Americans with Disabilities Act Amendments Act (ADAAA) Accommodation Services

If you are a student with a disability who will require an accommodation(s) to participate in this course, please contact the UOG Student Counseling and Advising Service Accommodations Office to discuss your specific accommodation needs confidentially. You will need to provide me with an accommodation letter from the Student Counseling and Advising Service Accommodations counselor. If you are not registered, you should do so immediately at the UOG Student Center, Rotunda Office #4 (735-2460) to coordinate your accommodation request.

Notification of Rights Under FERPA

The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their education records. These rights for students, parents and school officials can be viewed at http://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html.

Tentative course calendar:

Week of	**Topics/Section**

8/15
(Mondays)
        First Day of Classes is 8/17 Wednesday
Gen. Info Syllabus
Intro. to MA203
  Chapter 1 Review 1.1, 1.2, 1.3

8/22
Chapter 1 Review 1.3, 1.5, 1.6
Quiz 0

8/29
1.6, 2.1, 2.2
Quiz 1 and Quiz 2

9/5
Holiday: Mon. 9/5 Labor Day
2.3, 2.5, 2.6
Quiz 3

9/12
2.6, 2.7
Exam 1 (1.1, 1.2, 1.3, 1.5, 1.6) and (2.2, 2.3)

9/19
2.7, 2.8
  Quiz 4

9/26
2.8, 3.1, 3.2
  Quiz 5

10/3
3.2, 3.3, 3.4
  Quiz 6

10/10
Fanuchånan Break (No Classes) 10/10-10/15

10/17
 3.4, 3.5, 3.6
  Quiz 6.5 and Quiz 7

10/24
3.6, 3.7, 3.8
  Exam 2 on Ch. 2 (2.5 to 2.8) and Ch. 3 (3.1, 3.2, 3.3, and 3.4)

10/31
Holiday: 11/2 Wednesday All Soul's Day
3.8, 3.9, 4.1
  Quiz 8

11/7   **Quiz 9**
                   4.2, 4.3, 4.4
                   Holiday: 11/11 Friday Veteran's Day

11/14   **Quiz 10**
                   4.4, 4.7, 4.9

11/21   4.9, 5.1, 5.2
                   Quiz 11

                   Holiday: Thanksgiving Break 11/24-11/26

                   Faculty Evaluations: 11/21-12/9

11/28   5.2, 5.3 **Quiz 12** and **Quiz 13**

12/5   5.3, 5.4, 5.5(if time permits)
                  Quiz 14   (OR if time permits maybe an Exam 3 instead of this Quiz)

                   Review for the Final
                   Last day of Instruction for MA 203 is Thurs. 12/7
                   Holiday: Our Lady of Camarin Day 12/8 Thurs.

12/12   **Final Exam Week**
                   FINAL EXAM DAY AND TIME TBA

<u>REDO and REVISION Policy for MA 203:</u>

- You can redo a total of **Eight problems** from any of the Quizzes. I decide on what count as "One problem". This depends on certain quizzes. It can be number labeling, or if a quiz consists of many parts (letter labeling a,b,c,), then I will let you know which counts as "One" problem".

- Redo is different from Make-Up work. For Excused Absence, you can make up the work first and then redo a problem later if it is not passed the deadline to redo. For Unexcused Absence, you cannot make up and cannot redo a problem.

- You can redo **One problem** in Exam 1 and another in Exam 2.

  But no redoes on the Final Exam. I decide on what counts as "One problem".

- To submit your redo, you must first discuss with me during class or during my office hours, and then you can submit the correction.

- The deadline for redoes for a quiz or exam will be announced in class.

Learning is all about revision.