UNIVERSITY of HAWAI'I®
WINDWARD
COMMUNITY COLLEGE

Math 203 (Calculus for Business & Social Science) Course Syllabus

(Credits: 4 / CRN#: 61413-258 / Mode: Online - Asynchronous / Semester: Fall 2023 – 1st 8 Weeks)

Professor: *Navtej (Johnny) Singh* || Office Location: *Manaopono 110*

E-Mail: navtej@hawaii.edu << *This is the best way to get in touch. Provide name & class information*>>

Zoom Video Link: https://hawaii.zoom.us/j/2025344398 <<Meeting ID: 202 534 4398 >>

Dedicated Office Hours: *T 9am – 11am (zoom), F 10am – 12pm (in person & Zoom), & by appointment*

Office Telephone #: *(808) 236 – 9278* << *If I don't answer leave a message with contact information* >>

Websites: https://laulima.hawaii.edu   &   www.MyMathLab.com

Windward Community College Mission Statement

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawaiʻi and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide the Koʻolau region of Oʻahu and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

Catalog Description

Basic mathematical concepts, topics in differentiation and introductory integration of algebraic, exponential and logarithmic functions. Related applications to management, finance, economics and social science will be considered. Prerequisite for this course is grade of "B" or better in MATH 103 or equivalent, or grade of "C" or better in MATH 135 or equivalent, satisfactory math placement test score or consent of instructor.

Learning Resources and Materials

This course is participating in the Bookstore's Interactive Digital Access Program (IDAP). Through this program, you will access your course material digitally, and it will be available to you by the first day of class. A charge for the digital course material through IDAP will be added to your MyUH account. You have the option to opt-out of receiving your course material through IDAP. By opting-out, you will lose access to the course material and the charge will be refunded on your MyUH account. If you do not opt-out, the charge will stay on your MyUH account. Any unpaid charges on your MyUH account will turn into a hold. Holds on your account will prevent you from accessing various services within the University. You may opt-out by visiting your unique Inclusive Access Student Portal, which can be found in your IDAP welcome email (Subject Line: "IMPORTANT: You have enrolled in an IDAP Course"). For more information regarding IDAP, please contact your campus bookstore. Hard copy of the course textbook, "Calculus for Business, Economics, Life Sciences & Social Sciences" 14th edition by Raymond Barnett, Michael Ziegler and Karl Byleen is available at WCC library. In addition, I recommend that you have a graphing calculator utility to help you with homework. A free graphing utility is available at https://www.desmos.com. In addition, there are various graphing applications available for use on smartphones and tablets. If you are planning to buy a stand along graphing calculator TI 83/84 (regular or plus) is recommended. Reliable computer with access to broadband internet is required for this course. You are allowed to use a scientific calculator the exam.

Tasks and Grading

Point Distribution		
Consultations	Two Meetings @ 10 points each	020 pts
Homework	14 Assignments on MML @ 10 points each	140 pts
Quizzes	14 Quizzes @ 10 points each	140 pts
Midterm	Up to Section 3.6 Homework	100 pts
Final Exam	Comprehensive	100 pts
Total Points		500 pts

Letter grades will be assigned based on the following standard scale:
A $\Rightarrow$ 90% $\uparrow$; B $\Rightarrow$ 80% $\uparrow$; C $\Rightarrow$ 70% $\uparrow$; D $\Rightarrow$ 60% $\uparrow$; F $\Rightarrow$ below 60%;

Other grade options include N, CR, NR, I, and W. See the following information for detail:

"The 'N' grade indicates that the student has worked conscientiously, attended regularly, finished all work, fulfilled course responsibilities, and has made measurable progress. However, either the student has not achieved the minimal student learning objectives and is not yet prepared to succeed at the next level, or the student has made consistent progress in the class but is unable to complete the class due to extenuating circumstances, such as major health, personal or family emergencies." If you would like to request for N grade in this class, you must provide a formal letter of request to me no later than the time of final examination addressing how you have met the criteria for N grade. Then I will decide on whether or not you qualify for the N grade.

The CR/NC grades require written instructor consent. Overall score of 70% or higher is consider CR and below 70% is NC. Students must apply for CR/NC grading option at the Admissions Office by the posted deadline. If a student does not apply for CR/NC grading option at the Admissions Office by the required deadline and if s/he does not withdraw, a letter grade (A, B, C, D, F, N) will be assigned for the course. The W grade is given only when the student officially withdraws from the course by the posted deadline. The "I" grade is a temporary grade given at the instructor's option when a student has failed to complete a small part of a course because of circumstances beyond his or her control. The "I" grade is given by student request and must be approved by the instructor.

Student Learning Outcomes

➢ Demonstrate proficiency in determining limits, derivatives, and integrals.
➢ Use calculus techniques to analyze and solve applied problems.
➢ Utilize precise mathematical language and symbols to effectively communicate mathematics in written and/or oral form.

Note: All SLOs assessment are embedded in class activities, homework, quizzes, or exams.

Basic Rubrics for Grading Multistep and Word Problems	
Full Credit	- Shows complete understanding of a problem's mathematical concepts and procedures - Performs algorithms correctly using appropriate notation and precise mathematical language - Gives an elaborate and effective explanation of the solution process in an organized way
Partial Credit	- Shows near understanding of the problem's mathematical concepts and procedures - Using appropriate notation, performs algorithms completely that may contain minor errors. - Identifies most relevant information and shows a general understanding - Shows effective explanation and some evidence of a systematic solution process
Very Little Credit	- Shows some understanding of a problem's mathematical concepts and procedures - Performs algorithms that may contain major computational errors - Identifies some relevant information and shows limited understanding - Shows little evidence of a solution process or use of appropriate mathematical language - Gives some explanation of the solution process but may be vague or difficult to interpret
No Credit	- Shows no understanding of a problem's mathematical concepts and procedures - Identifies no relevant information, algorithmic pattern, or evidence of a solution process - Fail to explain significant parts of the problem or omit it altogether

Homework

All homework assignments are available online. I encourage you to work together on homework by utilizing the online tools such as message board to communicate with each other. You should at least complete 70% of the homework assignment in order to move on to the next homework assignment. However, you may continue to work on previously due homework assignments to improve your scores. To receive help on the homework, students are welcome to reach out to me during dedicated office hours or make an appointment for consultation.

Quizzes

There are 14 online quizzes worth 10 points each. Each quiz covers the material learned on the corresponding homework. Make sure to complete all homework problems before taking the quiz on that particular homework. To improve your score, each quiz may be taken twice. A quiz will become available for you to work on at least 6 days before the due date.

Exams

There will be two scheduled exams for this course, worth 100 points each. The midterm will cover homework assignments 1 – 7 and the final exam will be comprehensive with higher emphasis on homework assignments 8 – 14. Note that due to the nature of the subject, you need to know the pervious information in order to understand the next topic. Best way to prepare for the exams is to study related homework and provided study guides or practice exams or review sheets. For exam due dates, refer to the last page of this syllabus. Make-up for any missed exams is not allowed after the due date. Instructor will share more information via email about each exam within reasonable timeframe prior to exam dates.

Getting Help

In addition to reaching out to me for help (via zoom using the ID 2025344398 or google meet using the ID navtej@hawaii.edu), you may also utilize the following websites resources:

- Ka Piko Center - Provides online tutoring via WCC Math Lab
- http://www.hawaii.edu/tutor – Provides free 24/7 online tutoring using your UH username & password.
- http://www.khanacademy.org – Provides small lecture videos on selected topics
- www.wolframalpha.com – Provides computational tools, facts, and examples.
- WCC Library – Provides resources such as laptops, calculators, and hard copy of the textbook for short term to semester use in addition to many other resources.

Consultations

There are three required consultations for this class worth 10 points each that can be conducted via connecting through zoom video with me during dedicated office hours or scheduling a meeting at a time that is convenient for both of us.

- 1st Consultation: This must be done within first week of classes so that I can go over any questions you may have regarding the syllabus, quizzes, homework assignments, exams, where to get help, or getting started use the online system.
- 2nd Consultation: This can be done any time to get help on homework, exam review, go over your mistakes on a particular exam, or discuss your progress in class (preferably before the drop date). Any general questions regarding the class or ways to improve grades can also be discussed.
- Extra Consultations: Additional consolations can take place somewhere close to the end of the semester. The time can be used to ask questions about the final exam or discuss overall grades.

Note that purpose of these consolations is for us to connect with each student few times during the semester. I encourage you to reach out to me for help as often as needed.

Communication

The following methods will be used to communicate:

- E-mail will be our primarily mode of communication (make sure to check your UH email frequently). I will do my best to response to your emails within 24 hours on instructional days (perhaps much sooner). This is an effective method of communication if you expect a short response.
- You can connect with me via **Zoom Video using the ID 202 534 4398** or via Google Video using the UH ID navtej@hawaii.edu during dedicated office hours (or schedule an appointment).
- If you go to windward community college or live nearby, you can stop by office anytime during my office hours or make an appointment to see me (This option is limited during summer).
- Alternatively, you can also connect with me via my office phone (808) 236 – 9278 during my office hours or leave a message for me to return your call.
- Online discussion board can be used to interact with classmates by asking homework questions and answering previously posted problems.

Important Information

Please check your @hawaii.edu e-mail account frequently for important announcements. Note this syllabus is subject to change in extenuating circumstances. All online homework assignments are due by midnight of the deadline date. All due dates for homework assignments and exams are listed on the schedule below. If you need to discuss your performance, I recommend you get in touch with me as soon as possible. E-mail is the preferred method of communication. Instructor will inform you of any additional opportunity such as extra credit when or if they become available.   For important academic information refer to WCC website www.windward.hawaii.edu or go to www.hawaii.edu for system wide information. Plagiarism, or copying and use of another's work without proper acknowledgment, is not permitted and may result in failing grade for the course. In the event instructor cannot be reached, you may contact the Academic Affairs Office (located in Alakai 121) at (808) 235-7422 or email wccaa@hawaii.edu.

Foundations Quantitative Reasoning Hallmarks

Math 203 also fulfills 3 credits of the General Education requirements for both an A.A. degree at WCC and a Bachelor's degree at 4 year UH institutions. Consequently, it meets the hallmarks of the quantitative reasoning requirement. This course will:

1. provide students with theoretical justifications for, and limitations of, mathematical or statistical methods, and the formulas, tools, or approaches used in the   course.
2. include application of abstract or theoretical ideas and information to the solution of practical quantitative reasoning problems arising in pure and applied research in specific disciplines, professional settings, and/or daily and civic life.
3. provide opportunities for practice and feedback that are designed to help students evaluate and improve quantitative reasoning skills by including a course component at least once per week with a maximum 30:1 student-to-teacher ratio.
4. be designed so that students will be able to
    a. identify and convert relevant quantitative information into various forms such as equations, graphs, diagrams, tables, and/or words;
    b. select appropriate techniques or formulas, and articulate and evaluate assumptions of the selected approaches;
    c. apply mathematical tools and perform calculations (including correct manipulation of formulas);
    d. make judgments, create logical arguments, and/or draw appropriate conclusions based on the quantitative analysis of data, the assumptions made, the limitations of the analysis, and/or the reasonableness of results; and
    e. effectively communicate those results in a variety of appropriate formats.

Title IX

Windward Community College is committed to providing a learning, working, and living environment that promotes personal integrity, civility, and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking. If you or someone you know is experiencing any of these, WCC has staff and resources to support and assist you. To report an incident of sex discrimination or gender-based violence, as well as receive information and support, please contact one of the following:

UH Confidential Advocate
Phone: (808) 348-0663
Email: advocate@hawaii.edu

Desrae Kahale, Mental Health
Counselor & Confidential Resource
Phone: (808) 235-7393
Email: dkahale3@hawaii.edu

Karen Cho Title IX Coordinator
Phone: (808) 235-7474
Email: kcho@hawaii.edu

As a member of the University faculty, I am required to immediately report any incident of sex discrimination or gender-based violence to the campus Title IX Coordinator. Although the Title IX Coordinator and I cannot guarantee confidentiality, you will still have options about how your case will be handled. My goal is to make sure you are aware of the range of options available to you and have access to the resources and support you need. For more information regarding sex discrimination and gender-based violence, the University's Title IX resources and the University's Policy, Interim EP 1.204, go to manoa.hawaii.edu/titleix/

Student's Responsibilities

Responsible students take ownership of their actions by exhibiting the following behaviors:
- Take an active role in learning and set aside adequate time for doing assignments
- Maintain a positive and inquiry attitude towards learning.
- Complete assignments by the designated dates with attention to quality of work.
- Actively communicate with instructor and seek immediate help when needed.
- Be proactive and do not procrastinate since new concepts are built on previously learned material.

Taking an online course actually requires great deal of discipline and individual effort on the part of the student. In an online course student are expected to be independent learner using provided resources and with guidance from instructor. Furthermore, Mathematics is not a subject that you can consistently be successful in by cramming work since it takes time developing proficiency in doing the problems and long-term understanding of the process. Also, do not procrastinate in this course because you could fall way behind that it will becomes impossible to catch up.

Disabilities Accommodation

If you have a physical sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. You can reach Roy Inouye (located in Hale Kakoʻo 106), Interim Disabilities Counselor, at (808) 235-7448 or at royinouy@hawaii.edu .

Concepts or Topics (What students should know or understand)

- Determine limits analytically, numerically and graphically including one-sided limits and limits at infinity of algebraic and transcendental functions.
- Verify, analyze, and classify the discontinuities of a given function.
- Use the limit definition of the derivative to determine the existence and to find the derivative of a given function.
- Find the derivative of a function by identifying and applying the appropriate derivative formula.
- Understand the interpretation of derivatives and its relationship to graph of functions.
- Solve applied problems such as marginal analysis applications.
- Understand the concept of integration and demonstrate the ability to find indefinite and definite integrals of select algebraic and transcendental functions.
- Understand and use the Fundamental Theorem of Calculus to evaluate definite integrals.
- Use definite integrals to calculate the area of the region under a curve and the area of the region between two curves.
- Solve applied problems involving integration such as determining present value and future value for an investment with interest compounded continuously.

Course Topics

1-1. Functions (review)
1-2. Elementary Functions: Graphs and Transformations (review)
1-3. Linear and Quadratic Functions (omitted/review)
1-4. Polynomial and Rational Functions (omitted/review)
1-5. Exponential Functions (review)
1-6. Logarithmic Functions (review)
2-1. Introduction to Limits
2-2. Infinite Limits and Limits at Infinity
2-3. Continuity
2-4. The Derivative
2-5. Basic Differentiation Properties
2-6. Differentials (omitted/optional)
2-7. Marginal Analysis in Business and Economics
3-1. The Constant e and Continuous Compound Interest
3-2. Derivatives of Exponential and Logarithmic Functions
3-3. Derivatives of Products and Quotients

3-4. The Chain Rule
3-5. Implicit Differentiation
3-6. Related Rates
3-7. Elasticity of Demand (omitted/optional)
4-1. First Derivative and Graphs
4-2. Second Derivative and Graphs
4-3. L'Hopital's Rule
4-4. Curve-Sketching Techniques
4-5. Absolute Maxima and Minima
4-6. Optimization
5-1. Antiderivatives and Indefinite Integrals
5-2. Integration by Substitution
5-3. Differential Equations: Growth and Decay (omitted/optional)
5-4. The Definite Integral
5-5. The Fundamental Theorem of Calculus
6-1. Area between Curves
6-2. Applications in Business and Economics
7-1. Functions of Several Variables
7-2. Partial Derivatives

		Math 203 Fall 2023 8-Week Schedule for Homework, Quizzes, and Exams			
Week	Dates (M-F)	Mondays	Tuesdays	Thursdays	Fridays
1	8/21 – 8/25	HW #1 Due (Chapter 1 Review)	Quiz #1 Due	HW #2 Due (Section 2-1 & 2-2)	Quiz #2 Due
2^	8/28 – 9/01	HW #3 Due (Section 2-3 & 2-4)	Quiz #3 Due	HW #4 Due (Section 2-5 & 2-7)	Quiz #4 Due
3*	9/4 – 9/8	HW #5 Due (Section 3-1 & 3-2)	Quiz #5 Due	HW #6 Due (Section 3-3 & 3-4)	Quiz #6 Due
4	9/11 – 9/15	HW #7 Due (Section 3-5 & 3-6)	Quiz #7 Due	Work on the Midterm Review	Midterm Due
5	9/18 – 9/22	HW #8 Due (Section 4-1 & 4-2)	Quiz #8 Due	HW #9 Due (Section 4-3 & 4-4)	Quiz #9 Due
6	9/25 – 9/29	HW #10 Due (Section 4-5 & 4-6)	Quiz #10 Due	HW #11 Due (Sections 5-1 & 5-2)	Quiz #11 Due
7	10/2 – 10/6	HW #12 Due (Sections 5-4 & 5-5)	Quiz #12 Due	HW #13 Due (Sections 6-1 & 6-2)	Quiz #13 Due
8	10/9 – 10/13	HW #14 Due (Sections 7-1 & 7-2)	Quiz #14 Due	Work on the Final Exam Review	Final Due
		All assigned tasks are due by midnight (HST) of the day indicated above each column			

^Drop Dates: August 30, 2023 – Last day to withdraw without a W grade
*Holidays: September 4, 2023 – Labor Day
                 November 7, 2023 – Election Day
                 November 10, 2023 – Veterans' Day
                 November 23-24, 2023 – Thanksgiving Break