Math 212: Calculus I

Fall 2024 – Section 1

Class meeting: M, T, W, Th, F 8 - 8:50 AM at SCB 200/201.
Instructor: Dr. Tuan Pham
Email: tpham@byuh.edu
Office: SCB 316, telephone: 808-675-3044
Office hours: M, W, F 12:00-1:30 PM or by appointment
Canvas: https://byuh.instructure.com/courses/1479758
Course website: https://web.engr.oregonstate.edu/~phamt3/Courses/F24-Math-212
Prerequisite: Competency in the course material from Math 110 and Math 111.
Credit hours: This 3-credit hour course approximates one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately 14 weeks.
Textbook: "*Calculus: Early Transcendental*", 9th Edition by Stewart, Clegg, and Watson. WebAssign access is required. You can sign up through Canvas.

This class will be participating in Inclusive Access this semester. "Inclusive Access" is the course content solution that is giving you access to the eBook and/or course materials on the first day of school at a lower price. To access the eBook and/or course materials, go to Canvas, click on VitalSource Bookshelf. From there you are able to access the eBook and/or coursework. If you have already purchased your book and don't need access to the eBook and/or coursework, please be sure to opt out. The deadline to opt-out and avoid your student account being charged is 14 days after the first day of school, after which refunds will not be provided. This charge will be listed on your student account as a "digital fee" with the course name. The price of your course materials will sent to you directly in a separate email. If you have any questions or concerns, regarding Inclusive Access, please contact the textbook manager at textbooks@byuh.edu.

Course description: This course provides a comprehensive study of basic theoretical concepts related to differentiation and integration of functions of single variable. Among such concepts are limits, continuity, derivatives, antiderivatives, definite integrals, and the Fundamental Theorem of Calculus. The course also presents some applications of derivatives and integrals in two-dimensional analytic geometry such as calculating the area of the region between two curves and volume of solids of revolution.

Learning Outcomes: Upon successful completion of this class, a student will be able to:

1. Develop critical thinking skills through the study of calculus and its applications, which are prerequisites for many programs;
2. Strengthen their algebra skills, which form the foundation of calculus;
3. Understand and apply the concepts of differential and integral calculus to various problems;
4. Grasp and apply key definitions and theorems, both abstract and applied, in the context of calculus;
5. Engage with proofs presented in class and apply proof techniques in a limited capacity on exams;
6. Effectively communicate mathematical solutions and reasoning in writing, particularly on tests;
7. Use technology for select problems, while demonstrating the ability to solve the majority of problems by hand;
8. Recognize the relevance of calculus in various real-world applications and its importance as a requirement for many graduate schools.

Course goals: By the end of the course student's reasoning skills will be increased and they will begin to understand how to approach and solve problems. Mathematics also promotes the development of critical thinking and logic. Given the information, they will begin to learn how to logically process that data to determine whether it is believable or not. This course is also a prerequisite for many programs. The math department has established eight outcomes for graduating majors. The table below indicates which outcomes will be addressed in Math 212.

Program L.O.	Student L.O.	Institutional L.O.
Demonstrate proficiency in Algebra and Trigonometry necessary for success in Advanced mathematical studies. [high priority]	Use algebraic, exponential, and trigonometric formulas in the context of calculus problems and modeling	Knowledge, Analysis
Demonstrate proficiency in Differential, Integral, and Multivariable Calculus necessary for success in Advanced mathematical studies. [high priority]	Perform the derivatives on functions and equations, and evaluate integrals, all two dimensional	Knowledge, Analysis
Demonstrate content knowledge of both abstract and applied mathematical disciplines by stating definitions, salient theorems, and proofs of major theorems and concepts that are core content in upper division courses. [low priority]	Be able to read and use theorems involving calculus such as the mean value theorem, Newton's method, L'Hopital's Rule, and the Fundamental Theorem of Calculus	Knowledge, Inquiry, Analysis
Organize and explain their knowledge of logic and mathematical content in the structure of original valid proofs. [low priority]	Be able to read and use theorems involving calculus	Analysis, Communication
Communicate mathematical ideas effectively in both written and oral context. [high priority]	Demonstrate mathematical thinking in written format and oral communication	Knowledge, Communication
Apply major definitions, theorems and algorithms in problem solving [high priority]	Be able to apply theorems within the context of calculus	Knowledge, Inquiry, Analysis
Use appropriate technological tools while solving mathematical problems. [medium priority]	Use of calculators and/or computer programs will be encouraged throughout the course	Knowledge, Analysis
Prepare professionally for graduate school or employment in mathematics or related fields. [low priority]	Participate in class discussion about the role of calculus and its applications in related fields	Knowledge, Inquiry, Service, Stewardship

Grading components:

Homework: 25%
Attendance: 5%
Quizzes: 10%
Mathematica labs: 10%
Exam 1: 5%
Exam 2, Exam 3, Final Exam: 15% each
There will be opportunities for extra credit during the course.

Evaluation:

- **Homework**: all homework assignments are given (and automatically graded) through WebAssign. They are to be finished by the posted dates on WebAssign.
- **Attendance**: after the deadline for dropping the class, the instructor will check attendance every day of class.
- **Quizzes**: quizzes will be given in class on each Thursday. These quizzes are to test students' understanding of recent topics.
- **Mathematica labs**: this course has a lab component to enhance your learning experience with visualizing mathematical objects and performing intense computations. We will be using a mathematical software called Mathematica. No programming experience is required.
- **Exams:** there will be three exams during the course and a final exam. Each exam will be given in class through WebAssign. You must bring a laptop. See the class schedule for the dates of these exams. Links to access each exam can be found on the home page of the course on Canvas. The final exam will be from **8 AM - 10:50 AM on Thursday, December 12, 2024** at the regular classroom (SCB 200/201).

Make-up work and due-date extension: make-up exams will be given only in exceptional circumstances, with appropriate documentation, such as illness or family emergency. If possible, notify the professor as soon as you are aware of the issue. Extension of due dates for assignments may be considered under similar conditions.

Grade lines: the course grade lines will not be harder than the standard grade lines: A 100-93%, A- 92.99-90%, B+ 89.99-87%, B 86.99-83%, B- 82.99-80%, C+ 79.99 - 77%, C 76.99-73%, C- 72.99-70%, D+ 69.99-67%, D 66.99-63%, D- 62.99 - 60% and F $<$ 60%.

Other Learning Resources:

- The instructor has office hours dedicated to help you. Don't hesitate to make an appointment if the office hours conflict with your schedule.
- Your fellow classmates are also a good resource. Form a study group and you will find it helpful.
- You can find peer tutors at the Math Lab, located in SCB 302. Online tutoring is also available. Check out their hours here: https://mc.byuh.edu/math-lab.

Student Academic Grievance policy:
Students, who feel that their work has been unfairly or inadequately evaluated by an instructor, are encouraged to pursue the matter as an Academic Grievance by following the steps found in the Academic Grievance policy at https://catalog.byuh.edu/policies-procedures/grievances.

Final Exam Schedules: Final exams are to be offered on the specific day and time as determined by the official final exam schedule. Students must plan travel, family visits, etc., in a way that will not interfere with their final exams. Less expensive air fares, more convenient travel arrangements, family events or activities, and any other non-emergency reasons are not considered justification for early or late final exams.

Honor Code: The Honor Code exists to provide an education in an atmosphere consistent with the ideals and principles of the Church of Jesus Christ of Latter-day Saints. Students, faculty and

staff are expected to maintain the highest standards of honor, integrity, morality, and consideration of others in personal behavior. Academic honesty and dress and grooming standards are to be maintained at all times on and off campus. For specific information see http://honorcode.byuh.edu.

Discrimination: The University is committed to a policy of nondiscrimination on the basis of race, color, sex, pregnancy, religion, national origin, age, disability, genetic information or veteran status in admissions, employment or in any of its educational programs or activities. For specific information see the non-discrimination policy at https://policies.byuh.edu.

Title IX and Sexual Misconduct: The University will not tolerate any actions proscribed under Title IX legislation, specifically sexual harassment, sexual violence, domestic or dating violence or stalking perpetrated by or against any university students, university employees or participants in university programs. For specific information see https://titleix.byuh.edu. All faculty and staff are deemed responsible reporting parties and as such mandated to report incidents of sexual misconduct including sexual assault to the Title IX.

```
Title IX Office
Lorenzo Snow Administrative Building
55-220 Kulanui St.
Laie, HI  96762
Office Phone: (808) 675-4585
E-Mail: titleix@byuh.edu
```

Accommodating Students with Disabilities: Disability Services is dedicated to assisting students with disabilities by providing opportunities for success and equal access at Brigham Young University-Hawaii. We are committed to coordinating reasonable accommodations as outlined by Federal and State law. To learn more about available supports, go to https://disability.byuh.edu, call (808) 675-3518 or go to McKay Building 181 across from the Cafeteria. You may also email disabilityservices@byuh.edu with questions. For Canvas Accessibility Issues, please fill out this online form https://titanium.byuh.edu/Titanium_Disability_Intake.

Mental Health Resources: As a college student, there may be times when personal stressors interfere with your academic performance and/or negatively impact your daily life. If you or someone you know is experiencing mental health challenges at BYUH, please contact Counseling Services at (808) 675-3518. Services are free and confidential. For more information, visit https://counseling.byuh.edu/. Free mental health self-help resources are available through TAO Connect. To access them, simply go to https://us.taoconnect.org/register and sign in using your BYUH email address. In a crisis situation, or after hours, please contact BYUH Campus Safety at (808) 675-3911 or call 911 if you are off campus. You can also call the 24-hour crisis hotline at 1-800-753-6879 or contact the Crisis Text Line at 741-741.

Report a Concern: If you have a concern to report go to http://about.byuh.edu/reportaconcern. If you have reason to believe a student or dependent of a student is a danger to self or others please do one of the following depending on the urgency of the situation:

a. Call 911,

b. Call BYU-H Public Safety (675-3911),

c. Report a concern to the Behavior Intervention Team.