Math 213: Calculus II

Winter 2025 – Section 1

Class meeting: M, T, W, Th, F 8 - 8:50 AM at SCB 303.
Instructor: Dr. Tuan Pham
Email: tpham@byuh.edu
Office: SCB 316, telephone: 808-675-3044
Office hours: M, W, F 11:00 AM-12:30 PM or by appointment
Canvas: https://byuh.instructure.com/courses/1480617
Course website: https://web.engr.oregonstate.edu/~phamt3/Courses/W25-Math-213
Prerequisite: Math 212 (Corequisite recommended: Math 343).
Credit hours: This 5-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 builds upon the foundational concepts learned in Calculus I (Math 212) and further develops students' understanding of calculus techniques and their applications. The topics include: methods of integration, analytic geometry, transcendental and hyperbolic functions, infinite sequences and series, and polar coordinates.

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

1. Master various methods of integration and their applications in solving complex problems;
2. Apply principles of analytic geometry to analyze and solve calculus problems;
3. Understand and work with transcendental and hyperbolic functions in the context of calculus;
4. Analyze infinite sequences and series, and determine their convergence or divergence;
5. Utilize polar coordinates to solve problems and represent curves in the plane;
6. Develop a deeper understanding of the connections between calculus concepts and their applications in various disciplines;
7. Enhance critical thinking and problem-solving skills through the study of advanced calculus topics;
8. Communicate mathematical solutions effectively in written and oral formats.

Course goals: By the end of the course, your reasoning skills will be increased and you will begin to understand how to approach and solve problems. Mathematics also promotes the development of critical thinking and logic. Given information, you will know how to logically process that data to

determine whether it is believable or not. The math department has established eight outcomes for graduating majors. The table below indicates which outcomes will be addressed in Math 213.

Program L.O.	Student L.O.	Institutional L.O.
Demonstrate proficiency in Algebra and Trigonometry necessary for success in Advanced mathematical studies. [high priority]	Students need this proficiency to understand problems and proofs, and do develop problem solving skills	Knowledge, Analysis
Demonstrate proficiency in Differential, Integral, and Multivariable Calculus necessary for success in Advanced mathematical studies. [very high priority]	Techniques of integration, Differential Equations is the basis of this course and is the main component of it.	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]	Content knowledge will be expanded; definitions and theorems are key to understanding calculus and how they help us develop a living knowledge of mathematics.	Knowledge, Inquiry, Analysis
Organize and explain their knowledge of logic and mathematical content in the structure of original valid proofs. [low priority]	Proofs will be demonstrated by the instructor and examples will be presented in the book. Original proofs required of the student will be minimal.	Analysis, Communication
Communicate mathematical ideas effectively in both written and oral context. [medium priority]	Students must be able to write solutions in a logical and cohesive manner; likewise, oral explanations are very important for the successful student.	Knowledge, Communication
Apply major definitions, theorems and algorithms in problem solving. [high priority]	Application problems appear in many chapters in calculus.	Knowledge, Analysis
Use appropriate technological tools while solving mathematical problems. [low priority]	Students will gain a good knowledge of calculator use and computers to aid them in solving problems.	Knowledge, Analysis
Prepare professionally for graduate school or employment in mathematics or related fields. [low priority]	Applications of calculus are discussed throughout the course.	Knowledge, Inquiry, Service, Stewardship

Grading components:

Homework: 20%
Attendance: 5%
Quizzes: 15%
Mathematica labs: 15%
Midterm 1: 15%
Midterm 2: 15%
Final exam: 15%
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 Wednesday, except the Wednesdays right after the midterm exams. 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 two midterm exams and a final exam. Each exam will be done in class through WebAssign. The final exam will be from **8 AM - 10:50 AM on Wednesday, April 16, 2025** at the regular classroom (SCB 303).

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.

Use of Artificial Intelligence (AI): in this course, the use of AI tools is permitted only to find more examples and instructions in addition to the examples and instructions given in class to help you better understand the topics taught in class.

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.

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.