UVU UTAH VALLEY UNIVERSITY.

Master Course Syllabus

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: https://catalog.uvu.edu/

Semester: Spring
Course Prefix: MATH
Course Title: Calculus 1

Year: 2025
Course and Section #: 1210-004
Credits: 4

Course Description

Covers limits, continuity, differentiation, applications of differentiation, integration, and applications of integration, including derivatives and integrals of polynomial functions, rational functions, exponential functions, logarithmic functions, trigonometric functions, inverse trigonometric functions, and hyperbolic functions. Is a prerequisite for calculus-based sciences..

Course Attributes

This course has the following attributes:

☐ General Education Requirements
☐ Global/Intercultural Graduation Requirements
☐ Writing Enriched Graduation Requirements
x Discipline Core Requirements in Program
x Elective Core Requirements in Program
☐ Open Elective
Other: *Click here to enter text.*

Instructor Information

Instructor Name: Dr. Wiktor Mogilski

Student Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Compute the limits of various types of functions including polynomial, rational, trigonometric, inverse trigonometric, exponential, logarithmic, hyperbolic, and piecewise-defined functions, and combinations of such functions using L'Hospital's Rule when appropriate.
2. Determine if a function is continuous or differentiable at a given point.
3. Compute the derivatives of polynomial, rational, trigonometric, inverse trigonometric, exponential, logarithmic, hyperbolic, and piecewise-defined functions, and the derivatives of products, quotients, and compositions of such functions using implicit differentiation when necessary.
4. Solve application problems related to differentiation including rates of changes in the sciences, related rates, linear approximations and differentials, Newton's method, and optimization.
5. Use information from the first and second derivatives to aid in graphing functions.

6. Use Riemann sums to approximate the area under a curve.
7. Apply the Fundamental Theorem of Calculus and the substitution rule where appropriate to compute definite and indefinite integrals.

Course Materials and Texts

This course uses a free open source textbook from OpenStax. Here is the link: https://openstax.org/details/books/calculus-volume-1

Course Requirements

Textbook Homework:

Homework is the personal responsibility of the student. It is necessary to complete all homework assignments to master the concepts of this course. To ensure your success in this class and future math classes, it is to your benefit to complete all assignments. Each course module has a list of suggested textbook problems.

I will never collect any of the problems you do out of the book, so it is entirely up to you to gauge whether or not you need to do more. A good standard is if you seem to be understanding a group of problems really well and continue to get the correct answer (the answers to the odd problems are the end of the book), then jump to the next group of problems; on the flip side, if you complete all of the odd problems and still feel like you need more practice in that problem group, start working the evens.

Homework Worksheets:

For every week of covered topics there will be a posted homework worksheet on Canvas. This sheet will contain problems similar to ones that might appear on an exam as well as some more challenging problems. I will also post the key to the worksheet on canvas. You are to work all of the problems on the worksheet without the key first. You may get help from any other source you wish.

Once you complete the worksheet, you are to check your work against the key. For any problems you get wrong, make notes with a different color pen that describe the mistake. Then on a separate piece of paper, rework the problem correctly. You will have one week to complete each worksheet. These worksheets and corrections will be submitted on Canvas and graded for completeness. That is, as long as you do the above, you will always get full credit on your homework. Since answer keys will be posted online, late homework will not be accepted.

Warm-Up Quizzes:

The day before each class period, the student is required to watch short lecture/example videos pertaining to the topics covered during that class period. Additionally, there will be a brief warm-up quiz covering the material of those brief videos. The warm-up quiz is due the day before the class period covering said material.

Participation:

As such, to exhibit your participation, you are required to answer a discussion question at the end of each module. You may find these discussions at the appropriate location in the modules on Canvas and they are all dated. These discussion questions are the same each week and ask about what you learned and if you had any questions about it. This will also give you and your classmates opportunities to discuss these topics together. Be sure to also email me through Canvas if you have specific questions you want answered as I may miss them if they are only asked in the discussion.

Exams:

There will be 4 exams. No notes or textbooks are allowed on exams. No midterm scores will be dropped and make-up exams are only allowed with an instructor approved excuse.

The first three exams take place online using Proctorio, while the fourth exam takes pace IN PERSON on Monday, April 28, 11:00am-12:50pm. Failure to take the final exam will result in a grade of UW or E (based on last date of attendance) for the course regardless of other grades. It is University policy that no one will be permitted to take a final exam early.

Grading of Exams:

Your work will be graded for clarity of presentation, neatness, and accuracy. Correct answers without justification earn no credit, unless otherwise indicated. All work required to solve a problem must be shown. Partial credit will be given when substantive progress towards the solution is detected. If you feel your paper was graded incorrectly, point it out to the instructor the day your exam is returned to you.

Calculator Policy:

No calculators are allowed for quizzes or exams. Feel free to use calculators for homework problems, but it is recommended that you avoid doing so in preparation for the in-class assessments. Please keep in mind that you need to show any relevant work on written assignments to receive full credit.

While it is important to know how to use a calculator, the emphasis in this course is not on calculator or computer use, but rather on concepts and on what you should be able to (reasonably) do by hand. You will be expected to carry out simple arithmetic, work with fractions and radicals, evaluate trigonometric functions at standard angles, etc., without the aid of a calculator.

Grade Scale

A = 100-93	B - = 82-80	D+ = 69-67
A - = 92-90	C+ = 79-77	D = 66-63
B+ = 89-87	C = 76-73	D - = 62-60
B = 86-83	C - = 72-70	F = 59-0

Grade Breakdown
Your grade for this class will consist of the following:
- Written Homework: 12%
- Participation: 4%

- Warm-Up Quizzes: 4%
- Exams (total of 4): 80%

Required or Recommended Reading Assignments
All textbook chapters.

General Description of the Subject Matter of Each Lecture or Discussion

Week	Assignments
Week 1 - Module 0: Course Orientation - Module 1: The Tangent Line and Velocity Problems	Proctorio Practice Quiz Get to Know Each Other Module 1 Discussion
Week 2 - Module 2: The Limit of a Function and Continuity	Worksheet 1 Module 2 Discussion
Week 3 - Module 3: The Derivative	Worksheet 2 Module 3 Discussion
Week 4 - Module 4: Differentiation Formulas	Worksheet 3 Module 4 Discussion
Week 5 - Module 5: The Chain Rule and implicit Differentiation	Worksheet 4 Module 5 Discussion Midterm 1 Practice Problems Midterm Exam 1: Modules 1-5
Week 6 - Module 6: Rates of Change in the Sciences and Linear	Worksheet 5 Module 6 Discussion

Week	Assignments
Approximation	
Week 7 • Module 7: Maximum/Minimum Values	Worksheet 6 Module 7 Discussion
Week 8 • Module 8: Derivatives and the Shape of a Graph	Read: Curve Sketching Guidelines Worksheet 7 Worksheet 8 Module 8 Discussion
Week 9 • Module 9: Applied Optimization and Newton's Method	Read: Guidelines for Solving Optimization Problems Worksheet 9 Module 9 Discussion Midterm 2 Practice Problems Midterm Exam 2: Modules 6-9
Week 10 • Spring Break!	
Week 11 • Module 10: Definite and Indefinite Integrals	Worksheet 10 Module 10 Discussion
Week 12 • Module 11: The Fundamental Theorem of Calculus Parts I & II	Worksheet 11 Module 11 Discussion
Week 13 • Module 12: The Substitution Rule	Worksheet 12 Module 12 Discussion

Week	Assignments
and Average Value of a Function	
Week 14 • Module 13: Logarithmic and Exponential Functions	Worksheet 13 Module 13 Discussion Midterm 3 Practice Problems Midterm Exam 3: Modules 10-14
Week 15 • Module 14: More Transcendental Functions	Worksheet 14 Module 14 Discussion
Week 16 • Module 15: L'Hospital's Rule	Worksheet 15 Module 15 Discussion
Week 17 • Module 16: Final Exam	Exam 4 (In Person)

Required Course Syllabus Statements

Generative AI
This course requires you to complete assignments that assess your understanding, application, and problem-solving ability applied to chemistry. You are expected to do your own work. Problem solving and scientific thinking are tools that are necessary for students to learn in this course. The use of artificial intelligence (AI) tools, such as chatbots, text generators, paraphrasers, summarizers, or solvers, is strictly prohibited for any part of your assignments. Using these tools will be considered academic dishonesty and will be handled according to the university's academic honesty policy. If you have questions about acceptable use of AI tools, please consult the instructor before submitting your work.

Using Remote Testing Software
☐ This course does not use remote testing software.

x This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic

honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Required University Syllabus Statements

Accommodations/Students with Disabilities
Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU [Accessibility Services](#) at accessibilityservices@uvu.edu or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in BA 112.

Academic Integrity
At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their [rights and responsibilities](#). In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in [UVU Policy 541: *Student Code of Conduct*](#).

Equity and Title IX
Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

Religious Accommodation

UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.

To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at accessibilityservices@uvu.edu. If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a specially dedicated space for meditation, prayer, reflection, or other forms of religious expression.