Calculus I (QL)

MATH - 1210 002

READ:

Welcome to Calculus! This syllabus has a lot of information. Please take time to read through it and re-read relevant parts when questions about the course arise later. This will help you be familiar with the course. Ask your instructor questions you have that are not directly addressed in the syllabus; frequent communication with your instructor is highly recommended. Ignorance regarding information in the syllabus, the course's due dates, assignments, exams, etc., is not accepted nor excused. Be aware and be prepared. Work well and work hard. If you do, then you will learn a lot in this course, and consequently, you will develop mathematically and intellectually, which is part of its many purposes. Have a great semester!

Course Prerequisites

This course is for students who, within the past year, have successfully completed both College Algebra (Math 1050) and Trigonometry (Math 1060) courses within the last year, or a Precalculus course (Math 1080) within the last year, with a grades of C or better (preferably, B or better).

Course Description

Calculus I introduces the following topics: limits, derivatives of algebraic and transcendental functions, applications of differentiation, integration, the Fundamental Theorem of Calculus, the technique of substitution, and finding the area between curves.

Prerequisite(s): Within the last year, MATH 1050 and MATH 1060 w/C grade or better; OR MATH 1080 w/C grade or better, OR appropriate placement.
Semester(s): All

Required Text

This course makes use of Open Education Resources (OER), which means you are not required to purchase any textbooks or software, but instead can use free quality resources.

The OER textbook for this course is Calculus Volume 1 from OpenStax.

For more information on text accessibility, contact Accessibility & Disability Services at ads@slcc.edu.

Engagement Plan

Example language:

- I will respond to email within 2 business days. I will offer feedback on major assignments within one week. The best way to contact me is via the Canvas Inbox, as I will prioritize this email over other modes of communication.
- You will ask content questions in class or attend office hours when you are not understanding concepts. You will take responsibility for your own learning.

Calculator Rule

Programmable calculators, graphing calculators, and any calculators capable of algebraic manipulations, are not allowed on in-class quizzes, regular exams, or the final exam.

Prohibited calculators include all the various makes of the following base models: TI36, TI83, TI84, TI86, TI89, TI92, TI-Nspire, HP48, as well as other similar models and brands. An example of an acceptable standard, scientific, non-graphing calculator is the TI30, which is relatively inexpensive. Your instructor can verify if a calculator is acceptable for

use during quizzes or exams. How to use graphing software or how to program will not be taught in Math 1050, but it will also not be assessed.

Occasionally, a standard scientific calculator, say, a TI30, is required for basic approximation of radicals, logarithmic expressions, and the like, even on exams, like the final exam. It is advised that students always have a basic calculator with them for quizzes and exams just in case that one is allowed or needed. Note that it is the instructor's prerogative to give quizzes, tests, or portions of tests that do not allow any calculator. Not having a calculator does not excuse a student from being responsible for taking a quiz or exam at the assigned time or completing problems.

Students are expected to be able to perform basic calculations such as fractional arithmetic, finding exact simplified root values, manipulating algebraic expressions at the course level, etc., without a calculator. While a few homework problems and applications may require the use of a graphing calculator or online app, e.g., Desmos, questions on in-person quizzes or exams will only test basic facts that must be demonstrated by students without aid beyond blank scratch paper and a standard, scientific, non-graphing calculator. A student's performance will be measured primarily on their understanding of the concepts and their competency in performing symbolic operations rather than a mere ability to use technology (pushing buttons) to get answers. Full credit will only be awarded on exam questions when answers are justified by a legible and valid argument.

Brief Description of Assignments/Exams

Homework: Online through Lumen OHM

You are expected to work homework exercises from each section that we cover. Further details of how and when to submit homework, and other due dates, etc., will be discussed in class and/or posted in Canvas. Ask your instructor if you have questions! Please keep current on your homework and ask questions about the homework when/if needed. It is very easy to feel overwhelmed if one gets too far behind. Don't allow that to happen! Be and remain diligent.

Of course, regular and often intense practice is essential for learning and retaining mathematics, like learning any demanding subject. You should be prepared to spend at least two hours studying outside of the class for each hour of class. For online classes, that minimum will require additional time to complete the lessons on your own. However,

many students find that much more time is required to perform as well as they desire on exams. You are encouraged to work more exercises than those assigned, say, from the text, for extra practice. Do what is necessary for you to perform well.

Course Folder: In case of human or computer error, it is highly recommended that you keep all homework, projects, and exams in a folder (hardcopy or digital) until you have received a final grade for the entire course. Protect yourself!

Late Homework: No late work will be counted for credit. Three lowest section homework assignments (online Lumen OHM homework) scores will be dropped. You will have access to past-due assignments in Lumen OHM for review purposes.

Regular Exams: There will be 3 regular exams on the dates indicated below. No sample regular exams will be given to students by the instructor for any regular exams (this is a Math Departmental Rule).

Final Exam: There is a mandatory, departmental, comprehensive, proctored final exam. Its format will be paper, and pen-or-pencil, with 20 to 30 mandatory, show-your-work problems, no multiple choices. Students will show/write their work for each problem and all final exams will be graded according to the work shown. Partial credit is possible for relevant, partially correct work. Final exams are not given early or late (plan now). All students must take the final exam to pass the class. Final exams can only be taken once a semester. Final exams are not returned to students, not even upon request. The Math Department keeps final exams on record for up to a few years for data collection, samples of student work, and to help prevent cheating in following semesters.

Exam Rules: *Every* exam is proctored. No note cards, notes, texts, collaboration, internet devices, programming/graphing calculators, or external aid of any kind are allowed on any exam, including the final exam. Scratch paper and a standard scientific, non-graphing, non-programmable calculator are allowed, e.g., TI30 but not TI36 or higher; see the Calculator Rule below. All exam-work to be graded must be (re)written on the exam's pages itself. There are no final exam retakes and no final exam corrections of any kind can be submitted for points.

60% Final Exam Rule: The Math Department's 60% Final Exam Rule is that if a student scores less than 60% on their final exam then their total course grade will be the

lower of a D or their grade as calculated according to the weights of the grading categories on the syllabus. In other words, if a student fails their final exam (scores less than 60%), then the highest total course grade that they can earn for the course is a D.

This is an important departmental rule, which must be enforced to help ensure the success of students taking courses that have Math 1210 as a prerequisite. Moreover, it enforces a reasonable standard. Rules such as this also help make, "seamless," transfers to other USHE institutions possible. Without such rules, your SLCC math credit might not transfer to other higher ed institutions!

The Dates and Times of

Regular Exams and the Final Exam

Exam 1: 9/24

Exam 2: 10/22

Exam 3: 12/1

Final Exam: Monday, 5/5, 5:50-7:50 PM

SLCC's Final Exam Schedule This link is typically for in-person classes, whose final exams are conducted according to this schedule. We include for mere convenience in case it applies.

Math Department's Testing Rule: *All* SLCC math exams, regular exams and final exams, must be taken in person in a live proctored/monitored environment for *all* modalities (in-person, hybrid, broadcast, or online). Online and broadcast students are required to take their exams at an SLCC testing center facility or, if outside a 50-mile radius, coordinate with the Testing Center for a proctoring site nearer to their home. Any accommodations to this rule must be approved by the SLCC Math Department Associate Dean. Students are encouraged to make arrangements early in a semester with employers

and families to ensure they are free during the scheduled exam periods; see the disclaimer below.

In-Person Testing Disclaimer: It is a student's responsibility to make arrangements early with employers, family, etc. to be free during all scheduled exams. **Missing an exam for work, for example, is not excused** as students are aware of exam dates the first day of classes. Any student not willing or not able to comply with in-person testing in their classroom, or at an SLCC Testing Center, during scheduled times should not register, or remain registered, for this class.

General Education Information

QL

This course fulfills the above requirement for the General Education Program at Salt Lake Community College. It is designed not only to teach the information and skills required by the discipline, but also to develop vital workplace skills and to teach strategies and skills that can be used for life-long learning.

General Education courses teach basic skills as well as broaden a student's knowledge of a wide range of subjects. Education is much more than the acquisition of facts; it is being able to use information in meaningful ways in order to enrich one's life.

While the subject of each course is important and useful, we become truly educated through making connections of such varied information with the different methods of organizing human experience that are practiced by different disciplines. Therefore, this course, when combined with other General Education courses, will enable you to develop broader perspectives and deeper understandings of your community and the world, as well as challenge previously held assumptions about the world and its inhabitants.

Grading Scale

Grade Weights:

The breakdown percentages are as follows.

- Homework (Online and Module Reviews): 20%

- Midterm exams: 40%
- GE Projects and Reflection: 10%
- Final exam: 30%

Total numeric course grades are mapped to letter grades according to the following partition, using interval notation:

A [93%, 100%] C [73%, 77%)

A- [90%, 93%) C- [70, 73%)

B+ [87%, 90%) D+ [67, 70%)

B [83%, 87%) D [63, 67%)

B- [80%, 83%) D- [60, 63%)

C+ [77%, 80%) E [0%, 60%)

Take note that grades are not, “rounded up“ or curved.

Incompletes: Typically, incompletes are only considered when a student has completed at least 70% of total course work and is passing the class at the time the incomplete is requested. In this class, this amounts to all course work being completed minus the final exam. Thus, if a student has completed all work except the final and is passing, then their instructor may consider, but does not have to grant, an incomplete grade to a requesting student; it is the instructor's prerogative. Incompletes are not given for more time to learn material or to avoid an undesirable grade. They are given primarily in the case of an emergency that prevented a student from being able to submit final papers/exams/etc.

Student Academic Calendar

As students you should be aware of all important dates in the semester, such as the day that courses begin and end, as well as the drop date and the last day to withdraw. To learn more about those dates, navigate to the Student Academic Calendar below:

SLCC Student Academic Calendar

Contingency Remote Workday/Learning Plan

Under Utah legislation, the governor can now call a "Remote Workday" given certain circumstances. These remote workdays can be due to inclement weather, pollution, or natural disasters.

1. Each math instructor (full or part-time) will **check-in/communicate** with the Math AD, say, with an email that acknowledges the remote workday and their relative plan for it.
2. The Math AD will verify whether a class will still meet on a campus if something happens at the campus, etc.
3. Each instructor will make a **Canvas class announcement and communicate with students**, informing them of the remote learning day and what their relative plan is for the day's class. Announcements will include pertinent info for the remote day and/or any adjustments to the next class:

- What are the assigned readings, video lectures to watch, practice problems to work?
- Is the instructor holding a Zoom meeting in lieu of the in-person class? The Zoom meeting must be optional and should be conducted at the same time as the regularly scheduled class, if possible. Moving to livestream modality is only an option, not required of the instructor or students. The Zoom meeting could simply be to answer student questions.
- Any test that was scheduled on a remote learning day will be postponed, either to the next class or possibly later scheduled through the Testing Center. Instructors will let students know that the exam has been postponed in their Canvas announcement.

Assignment Schedule

Due Date	Assignment Name	Assignment Type	Points
	Intro to MyOpenMath	Assignment	7
	Introduce Yourself	Discussion	0

Due Date	Assignment Name	Assignment Type	Points
	Module 1: Homework Questions Forum (Optional)	Discussion	0
	Module 1: Resource Builder (Optional)	Discussion	0
	Module 2: Homework Questions Forum (Optional)	Discussion	0
	Module 2: Resource Builder (Optional)	Discussion	0
	Module 3: Homework Questions Forum (Optional)	Discussion	0
	Module 3: Resource Builder (Optional)	Discussion	0
	Module 4: Homework Questions Forum (Optional)	Discussion	0
	Module 4: Resource Builder (Optional)	Discussion	0
	Module 5: Homework Questions Forum (Optional)	Discussion	0
	Module 5: Resource Builder (Optional)	Discussion	0
	Module 6: Homework Questions Forum (Optional)	Discussion	0

Due Date	Assignment Name	Assignment Type	Points
	Module 6: Resource Builder (Optional)	Discussion	0
9/8/25	HW 1A Algebra and Trig Review	Assignment	29
9/8/25	HW 1B Algebra and Trig Review	Assignment	40
9/8/25	HW 1C Algebra and Trig Review	Assignment	17
9/15/25	HW 2A - Tangent & Velocity	Assignment	7
9/15/25	HW 2B - The Limit of a Function	Assignment	20
9/15/25	HW 2C - Limit Laws	Assignment	23
9/22/25	HW 2D - Formal Definition of Limit	Assignment	6
9/22/25	HW 2E - Continuity	Assignment	23
9/22/25	HW 2F - Limits at Infinity-Horizontal Asymptote	Assignment	11
9/23/25	HW 2G - Rates of Change	Assignment	14
9/23/25	HW 2H - The Derivative as a Function	Assignment	14
9/23/25	Module 2: Review	Quiz	10
9/24/25	Midterm Exam 1	Assignment	100

Due Date	Assignment Name	Assignment Type	Points
10/6/25	HW 3A - Differentiation rules (Power, Sum/Diff.)	Assignment	29
10/6/25	HW 3B- Product & Quotient Rules	Assignment	15
10/6/25	HW 3C - Derivatives of Trig Functions	Assignment	21
10/13/25	HW 3D - The Chain Rule	Assignment	23
10/13/25	HW 4A - Implicit Differentiation and Derivatives of Inverse Functions	Assignment	16
10/13/25	HW 4B - Derivatives of Logs	Assignment	17
10/20/25	HW 4C-Applications of Rates of Change	Assignment	10
10/20/25	HW 4D- Related Rates	Assignment	20
10/21/25	HW 4E- Linear Approximations and Differentials	Assignment	14
10/21/25	HW 4F - Hyperbolic Functions	Assignment	9
10/21/25	Module 3: Review	Quiz	10
10/21/25	Module 4: Review	Quiz	10
10/22/25	Midterm Exam 2	Assignment	100

Due Date	Assignment Name	Assignment Type	Points
10/24/25	GE Project 1: Signature Assignment	Assignment	100
10/27/25	Middle of the Course Student Survey	Quiz	0
11/3/25	HW 5A - Maxima and Minima	Assignment	16
11/3/25	HW 5B - The Mean Value Theorem	Assignment	8
11/3/25	HW 5C - Derivatives & Shape of Graph	Assignment	22
11/10/25	HW 5D- L'Hopital's Rule (Indeterminate Forms)	Assignment	19
11/10/25	HW 5E Curve Sketching	Assignment	18
11/14/25	GE Project 2: Signature Assignment	Assignment	100
11/17/25	HW 5F- Optimization	Assignment	23
11/17/25	HW 5G- Newton's Method	Assignment	6
11/24/25	HW 5H - Antiderivatives	Assignment	15
11/24/25	HW 6A - Area Under the Curve	Assignment	12
11/25/25	HW 6B - The Definite Integral	Assignment	17

Due Date	Assignment Name	Assignment Type	Points
11/25/25	HW 6C - The Fundamental Theorem of Calculus	Assignment	23
11/25/25	Module 5: Review	Quiz	10
12/1/25	Midterm Exam 3	Assignment	100
12/8/25	HW 6D - Indefinite Integrals	Assignment	22
12/11/25	GE Signature Assignments Reflection	Assignment	100
12/12/25	Module 6: Review	Quiz	10
12/15/25	HW 6E- Integration Using Substitution	Assignment	26
12/15/25	HW 6F - Finding the Area Between Curves	Assignment	13
12/17/25	Final Exam	Assignment	141
12/18/25	End of the Course Student Survey	Quiz	0

How to Navigate to Canvas

Student Conduct

Students are expected to follow the SLCC Student Code of Conduct at Student Code of Conduct.

Classroom Deportment: Each student is responsible for their own behavior. Any student who shows a pattern of disrespect for others, or who at any time displays egregious disrespect for others, will be subject to penalties as per the student code of conduct.

Attendance: Class attendance and/or participation, whether in-person, broadcast, or online, are expected. They are typically essential to achieve satisfactory results. It is the student's responsibility to be aware of all material covered, in-class announcements, tests dates, assignment due dates, etc.

Electronic Devices in the Classroom: Absolutely no video or audio recording in the classroom is allowed without prior written authorization from the instructor. Cell phones and other electronic devices should be in silence mode during classes, tests, and final exams. Moreover, such devices should not be on desks during lectures, tests, and the final exam unless they are part of the class' participation activities.

Cell phones and tech in-class: In case of emergency, or otherwise, students should exit the classroom before they e-mail, text, or use their cell phones. If students choose to use a computer or electronic device in class to take notes, they may do so without distracting their classmates. Computer activities that are not directly related to the class should not be done in-class, e.g., watching YouTube or the like. Students who text, scroll on their phones, talk on their cell phone, or use their computers to do activities not directly related to the class will be asked to leave the classroom.

Cheating Rule: Cheating on any Math 1050 assignment or exam will minimally result in a failing grade of 0% for that assignment without any possibility for that work to be made up, resubmitted, or for the failing grade to be substituted by any other work's grade. Moreover, cheating on a single assignment or exam can result in a failing grade for the entire class; this is typically the prerogative of the individual instructor. Cheating is not tolerated, so, take heed and do honest work to learn and develop intellectually. For more details about academic dishonesty, consult the Student Code of Conduct, where this topic is addressed in section C (see below too):

Policies and Student Affairs.

Sanctions for Academic Misconduct (taken from the Student Code of Conduct): Faculty, program directors, associate deans, deans, and the provost for Academic Affairs are authorized to impose any one or a combination of the following sanctions after finding a student responsible for acts of academic misconduct. The possible sanctions include, but are not limited to

- verbal warning and reprimand,
- restriction of privileges, such as access to lab facilities, library facilities, or testing centers,
- failure of the exam, quiz, project, or other assessment,
- failure for the course,
- withdrawal from the course, or
- withdrawal from the academic program.

Upon the circumstance of catching a student cheating, even if the infraction seems minor or the student is remorseful, instructors are expected to fill out the following form (the Dean of Students uses these forms to establish patterns of behavior):

Academic Misconduct Violation Reporting Form.

Institutional Policies

As members of our academic community, we would like to invite you to review the Institutional Syllabus which covers important policies and procedures. This document contains important links for students on the code of student rights and responsibilities, academic integrity, and grading policies, Title IX and other important acknowledgements. By familiarizing yourself with this information, you can help us create a safe and respectful environment for everyone.

For more information, navigate to the Institutional Policies tab on the Institutional Syllabus page.

Learning Support and Tutoring Services

We are pleased to offer a range of tutoring and learning support services to help you achieve your academic goals. Whether you need assistance with a specific subject or want to improve your study skills, you have many options for tutoring or other support.

To learn more about the services we offer and how to access them, visit the Institutional Syllabus page under the Tutoring and Learning Support tab. We encourage you to take advantage of these resources to help you succeed in your studies. If you have any questions or would like to schedule a tutoring session, please don't hesitate to reach out to us. We are here to support you in any way we can.

General Learning Support & Tutoring Services

General Learning Support & Tutoring Services provide support for SLCC students enrolled in any class at the College. You may also ask your instructor about discipline-specific learning support and tutoring services. The following resources are provided free-of-charge.

- In your Canvas course, there is a (blue) tab, "Online Tutoring," in the left column of tabs. This literally provides free online tutoring during hours of operation.
- For in-person Redwood campus help in math, the next resource is highly recommended: **STEM Center** in SI building, which offers free STEM tutoring.

STEM Center Hours (may vary by semester): Monday-Thursday, 10:00 a.m.-9:00 p.m. Friday and Saturday, 10:00 a.m.-5:00 p.m.

Tutoring: This is an index of tutoring resources.

STEM Learning Centers: Provides free assistance in Math, Science, Accounting, CSIS and Allied Health Classes at 6 campus locations.

Student Writing Center: Provides in-person and online feedback on all writing assignments.

Library Services: Provides research help, print and online resources, computers and study space.

ePortfolio Lab: Provides drop-in assistance for all ePortfolio questions.

eLearning Support: Provides support for navigating online and hybrid classes.

Accessibility and Disability Services: If you have a disability and want an accommodation, please contact:

- Phone: 801-957-4659
- Email: ADS@slcc.edu
- Website: ADS

Advising and Counseling Support Services

At our institution, we are committed to supporting your academic and personal growth. That's why we offer a range of advising and counseling services to help you navigate the challenges of college life. To learn more about the resources available to you and how to access them, visit the Institutional Syllabus page under the Advising and Counseling Support Services tab. Our advising team and the support centers across campus are here to support you in achieving your goals and overcoming any obstacles you may face.

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- Email: ADS@slcc.edu
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Course Student Learning Outcomes

- Student will be able to find the value of limits using limit theorems.
- Student will be able to determine limits by inspecting graphs.
- Student will be able to use algebraic techniques to simplify limit expressions and evaluate.
- Student will be able to find points or intervals of discontinuity.
- Student will be able to find one-sided limits.
- Student will be able to find limits at infinity and infinite limits.
- Student will be able to use limits to find horizontal and vertical asymptotes.

- Student will be able to find the slope and equation of a tangent line.
- Student will be able to find f '(x) using the limit definition of derivative.
- Student will be able to find points at which a function is differentiable.
- Student will be able to find the average rate of change and instantaneous rate of change of a function.
- Student will be able to find higher order derivatives of a function.
- Student will be able to find derivatives by using differentiation rules.
- Student will be able to differentiate trigonometric functions.
- Student will be able to differentiate logarithmic functions.
- Student will be able to use logarithmic differentiation.
- Student will be able to use the chain rule to differentiate functions.
- Student will be able to find derivatives using implicit differentiation.
- Student will be able to find the derivative of the inverse of a function.
- Student will be able to differentiate exponential functions.
- Student will be able to fse L' Hospital's Rule to find limits of indeterminate form.
- Student will be able to solve word problems involving related rates.
- Student will be able to find critical points of a function.
- Student will be able to find maximum and minimum values for a function on an interval.
- Student will be able to determine whether Rolle's Theorem and the Mean Value Theorem apply to a given function.
- Student will be able to determine intervals where a function is increasing or decreasing.
- Student will be able to determine intervals where a function is concave up or concave down.
- Student will be able to find inflection points.
- Student will be able to solve optimization applications.
- Student will be able to find approximate solutions to equations using Newton's Method.

- Student will be able to find and use linear approximations of functions.
- Student will be able to find and use differentials.
- Student will be able to find antiderivatives.
- Student will be able to evaluate selected sigma expressions.
- Student will be able to write a given sum using sigma notation.
- Student will be able to calculate upper and lower sums to approximate the area between a nonnegative function and the x-axis on a given interval.
- Student will be able to use definite integrals to find areas.
- Student will be able to use the properties of definite integrals to evaluate integrals.
- Student will be able to use the Fundamental Theorem of Calculus to evaluate definite integrals.
- Student will be able to evaluate indefinite integrals.
- Student will be able to use substitution to evaluate integrals, changing limits of integration as necessary.
- Student will be able to find areas between curves using integration.
- Organize and communicate quantitative and mathematical information in writing, including proofs of mathematical theorems.
- Model real world problems using average rates of change, derivatives and integrals.
- Obtain mathematical knowledge and understanding of calculus including notation and theorems for use in upper division courses.