

Course Number and Title: Math1210-03, Calculus 1

Semester and Year: Summer 2021

Instructor: Kelly MacArthur (she/her/hers) Preferred Name/Address: Kelly

Class Mission Statement: This is kind, inclusive, brave and failure-tolerant class.

Email: macarthur@math.utah.edu

My Accessibility & Support: If you need to contact me, please email me either via my email address (above) or via Canvas. I will typically respond within 24 hours, or less for this particular fast-paced class. I'm happy to set up a zoom meeting with you to go over your questions individually.

COURSE "FEEL"

Teaching Philosophy: I believe strongly that mathematics, at its core, is the art/experience/science of problem solving and pattern recognition. It is inherently a creative process, one to be struggled with, repeated, and enjoyed. The process requires imagination, persistence, courage, processing time, and ultimately produces experiential, mathematical skill. It is from this perspective that I teach. I'm not as concerned with the destination, i.e. the answer, as I am about the journey of problem-solving and mathematical exploration since it is exactly the entirety of the journey that creates the answer. And, self-confidence and mastery are then natural by-products of the mathematical journey.

Growth Mindset, Making Mistakes and Failure: The best mathematicians, engineers and scientists fail big and fail often. I strive to kindly challenge you in class (i.e. in discussions, help sessions, exam feedback, etc.) and to push you into perhaps an uncomfortable zone, in order to help you grow mathematically. Sometimes you'll be able to solve the problems we are working on and sometimes you won't. Sometimes you'll be able to solve the problems on your own and other times, you'll need the support of your class colleagues to get the work done. This is the nature of doing mathematics. I ask that you don't get discouraged by that process and instead consider having a growth mindset, focusing on your own growth and improvement. Always remember this motto: mathematics is not an innate ability; it is a skill we learn and refine through work and persistence.

Student Rights in a Mathematics Classroom: Every student in this class has a right to (1) be confused, (2) claim a mistake, (3) speak, listen and be heard, and (4) write, do, and represent only what makes sense. (These student rights are taken from Kalinec-Craig, C. A. (2017). The Rights of the Learner: A Framework for Promoting Equity through Formative Assessment in Mathematics Education. *Democracy and Education*, 25 (2), Article 5.

Available at: <https://democracyeducationjournal.org/cgi/viewcontent.cgi?article=1298&context=home>)

Course Structure Overview: There is much research to date regarding active-learning classrooms in STEM courses, at the collegiate level, that suggests strongly that active-learning classrooms can provide a more equitable class, particularly for typically underserved students, including womxn, students of color and first-generation students. The research I've read, and my own experience from teaching with active-learning classrooms for many years now, also is suggestive that no one is not well-served in this way. In other words, an active-learning classroom, statistically, serves students much better than traditional lecture courses. Compared to a traditional lecture format, literally any amount of active, engaged learning that happens in class is better, for STEM courses. Much research continues to prove that claim. Due to this research and my own experiences in teaching for many years, our class will be one where you are doing mathematics every day in class, not just copying down what I write.

(Note: womxn is spelled that way intentionally, to include cis-women, trans-women, women of color, Native women, etc. It's intended to be an inclusive term.)

COURSE DESCRIPTION

This course covers functions and their graphs, differentiation of polynomial, rational and trigonometric functions, velocity and acceleration, geometric applications of the derivative, minimization and maximization problems, the indefinite integral, and an introduction to differential equations. We also cover the definite integral and the Fundamental Theorem of Calculus.

COURSE DETAILS

- **Course Type:** This is a fully online, but synchronous, course. This means you will be attending class in zoom every week day for the posted times. You should expect to be fully engaged during class, with lots of time for doing problems and collaborating with your peers.
- **Location & Meeting Times:** We meet Monday-Friday, 9:30 am to 1:30 pm MDT. You can find the zoom link for these class meetings in the Canvas course.
- **COVID-19 Considerations:** Students must self-report if they test positive for COVID-19 via coronavirus.utah.edu.
 - Here is information from the University about logistics in light of COVID-19. There is also information about financial assistance, counseling, the food pantry, and much more. <https://coronavirus.utah.edu/#students>
- **Instructional Support Team:** This semester, we're very lucky to have a Learning Assistant (LA) assigned to this class to help you all!
 - The LA is an undergraduate student who has taken this class, with me in a previous summer (although when he took it, it was an in-person class because we weren't in the middle of a pandemic). Each LA in the College of Science receives special training on how to help students learn math/science (*see more details on the [U of U Learning Assistant program page](#)*). LAs facilitate student learning by holding regular help sessions outside of class time, being in class to answer questions during class breakout room discussion time, answering questions via the Canvas discussions and basically being an advocate for students. The LA will have **no** grading duties in the class (I'll have separate graders to help with that), which means they are fully here to be advocates for your learning. They can be thought of as peer mentors. The names and contact information for the LA will be on the Canvas page for this course.
- **Course Materials:**
 - **Textbook:** This course uses *Calculus with Differential Equations*, 9th edition, by Varberg, Purcell and Rigdon. ISBN: 0-13-230633-6
This is a book that's been around for quite a while, so you should be able to find used copies online or through the campus store at really reasonable price. Also, you should note that we use the same textbook for Calculus 1, 2 and 3.
- **Additional course materials:**
 - The course website is in Canvas.
 - The course will use [online lecture videos](#) created specifically for the class. They are available through the video links in our course Canvas modules or in both streamable and downloadable versions at <http://www.math.utah.edu/lectures/math1210.php>.

- We will use Gradescope (an online software for grading mathematics) for grading and giving feedback on all quizzes and exams. There is a link in Canvas to Gradescope. You will be asked to submit all quizzes and exams directly to Gradescope.
 - Any additional course materials will be available on Canvas.

- **Technical requirements:**
 - The following equipment is required for class time and proctored testing. Having this equipment will also make accessing course materials and attending study sessions more efficient and effective.
 - A strong internet connection with sufficient bandwidth (in order to access course materials, attend class and take exams).
 - A webcam on your computer or camera on your phone (this is required for class time and for taking exams in Zoom).
 - A scanning device which is different than the device you are using for your webcam (smartphones can be used as scanning devices).
 - a microphone (though it may be muted during class and exams).
 - Students are expected to be computer literate and Canvas and Zoom navigation skills are expected. Knowledge and navigation of Canvas and Zoom is critical to access all features and resources of this course. For technical assistance, review the *Canvas Getting Started Guide for Students* and/or contact TLT, Knowledge Commons.
 - During quizzes, students are required to have audio and microphone enabled (students may be asked to mute your microphone for portions of the assessments). Students need to position the camera and/or themselves so that their head, hands and workspace is visible. Students are required to have a separate scanning device and continue to have their Zoom camera turned on while scanning; during the scanning phase, students may be gone from the screen for a few seconds if this is prearranged with their instructor.
 - A printer is recommended, but not required, so that you can print out templates for quizzes and exams ahead of time. If you do not have a printer, you will need to make and use hand-written versions. **You must copy these exactly**, but they are designed to be fast and straight forward to create by hand.
 - Calculators will be useful on some homework assignments, but will not be allowed on midterm nor final exams. If you do not have a scientific or graphing a calculator, there are free calculator applications online.

- **U of U Learning Support:**
 - Math Center Online Tutoring (already paid for by your student fees)
<https://www.math.utah.edu/undergrad/mathcenter.php>
 - The Learning Center, 3 free tutoring sessions, \$5 after that, learning consultations
<https://learningcenter.utah.edu/>
 - Student Success Advocates <https://ssa.utah.edu/events.php>

- **Syllabus subject to change:** This syllabus is meant to serve as an outline and guide for our course. Please note that I may modify it with reasonable notice to you. I may also modify the Course Schedule to accommodate the needs of our class. Any changes will be announced in and posted on Canvas.

COURSE EXPECTED LEARNING OUTCOMES

Upon successful completion of this course, a student should be able to:

1. Take limits of algebraic and trigonometric expressions of the form $0/0$ (that simplify), non-zero number over 0 , including limits that go to (positive or negative) infinity, limits that don't exist and limits that are finite.
2. Use the limit definitions of derivative and definite integral for polynomial, rational and some trigonometric functions; understand definition of continuity.
3. Differentiate all polynomial, rational, radical, and trigonometric functions and compositions of those functions; perform implicit differentiation and compute higher order derivatives.
4. Use differentiation to find stationary, singular and inflection points, as well as domain and limit information to determine vertical and horizontal asymptotes, and then use all of that information to sketch the graph of a curve, $y = f(x)$.
5. Apply differentiation to optimization and related rates problems.
6. Compute indefinite and definite integrals, using the power rule and basic u-substitution and the Fundamental Theorems of Calculus.
Apply the definite integral to compute area between two curves, volumes of solids of revolutions, arc length, surface area for surfaces of revolution and center of mass.
- 7.

Additional Learning Outcomes (for this particular course instructor):

- Collaborate, analyze and address mathematical problems with colleagues.
- Articulate and discuss mathematical ideas, via written, oral and/or video expression.
- Engage in diverse problem-solving with other classmates.
- Expand your knowledge, skills and attitudes about how mathematics can prepare you to be global citizens.

ASSIGNMENTS, ASSESSMENT & GRADING

The grades will be calculated as follows:

Daily Quizzes	20%
Attendance and participation	5%
Breakout room leader	5%
Midterm	20%
Midterm	20%
Midterm	5%
Final Exam	25%

(Note: There will be 3 midterms. Your lowest midterm score will count for 5% of your grade and your top two midterm scores will each count for 20% of your final grade.)

Suggested Homework: There are suggested homework problems assigned for each section of the book that we cover. You can access that list of problems at our public class web page. It is important to do at least some of the homework problems even though I will not collect the homework. These problems are provided for you to practice, and maximize your success in the course. This practice is the best way to be prepared for the daily quizzes and weekly exams.

Attendance & Participation: Students will be expected to attend all classes in Zoom for this summer online intense course. This is such a shortened course that there really isn't a way to succeed in the course without full involvement on a daily basis. Also your quizzes will be group quizzes and as such your group mates need to know that they can count on you and you will likely want to be there for your group, to learn from and contribute learning to the group. If there is a compelling reason that you cannot attend class one day, please email me.

Breakout Room Leader: All students will take 1-3 turns (depending on how many students we have total in the class) being the breakout room leader in the zoom classes. When you are the assigned breakout room leader, you need to take the initiative to lead the discussion about whatever math problem or question we're working on. This does NOT mean you have to know what you're doing with the math, only that you're the one leading the discussion and showing the whiteboard or tablet on your shared screen and possibly also being the scribe.

Quizzes: There will be a total of 15 quizzes. Basically, there will be a 20 to 40-minute quiz every Monday, Tuesday, Wednesday and Thursday with the exception of Memorial Day (since we don't have class). The daily quiz will cover the material presented the previous day in class. Quiz questions will be taken from text examples, class examples, assigned problems or problems very much like those problems. The quizzes will be done in small groups, that I will assign. **I will drop your lowest three quiz scores.**

Midterm Exams: There will be a midterm exam every Friday for the first three weeks of class. I will announce in class every Thursday exactly which sections will be covered on the midterm. They will occur in our normal Zoom class time, split between two one-hour blocks, to accommodate a group portion and solo portion of each midterm exam. Groups will be assigned semi-randomly by me.

Final Exam: The final exam for this class is comprehensive and it will occur on the last Friday of class. It will take about two to three hours and will cover all the material covered in the class with an emphasis on the last week's assignments.

Regrade Requests on Quizzes and Exams:

For every quiz and exam, you can submit regrade requests directly in Gradescope, within two days from the time it was graded. (This is a short turnaround time because it's a very fast-paced class.)

The grading scale is:

A [93-100),	B- [80-83),	D+ [66-70),
A- [90-93),	C+ [78-80),	D [60-66),
B+ [88-90),	C [73-78),	D- [55-60),
B [83-88),	C- [70-73),	E [0-55).

It is the student's responsibility to ensure the accuracy of all recorded quizzes, attendance, and exam grades. If you see any error in your grades on Canvas, reach out to the instructor as soon as possible, or at the latest within two weeks from when the assignment was returned.

Incomplete Grades: According to university policy, to be considered for an incomplete, a student must have 20% or less of the course work remaining and be passing the course with a C or better.

Students cannot receive incomplete grades if they are failing the class. If, toward the end of the semester, you find yourself in a situation that you think warrants an incomplete grade, you must request an incomplete grade and I will consider giving that grade only under exceptional circumstances.

Plagiarism: Students must adhere to the standards of academic integrity for this course. In particular, assessments that are not specifically labeled as being group work should be completed without outside help. We encourage you to make use of other internet sources in the learning process and for assistance on homework, but online resources are not to be used during quizzes or exams. Incidences of academic dishonesty will result at a minimum of a zero grade for that particular assignment, or possible stricter sanctions in accordance with University policy (see below).

COMMUNICATION

- All course materials, such as lecture video links, assignments, solutions, grades, etc. will be posted on the Course Canvas site. Class announcements will be done via Canvas. You will be responsible for all information contained in them.
- It is also your responsibility to check your Canvas messages regularly. There will be occasions during this four-week class that we may need to reach out to you individually (e.g. regarding a grade or quiz) and it is in your best interest to respond promptly.
- Feel free to contact me by email or Canvas message. I will do my best to answer emails promptly. I would like to encourage you to email me only if it is something personal that requires individual attention, if instead you have questions about logistics of the class, course material and assignments, and anything else your classmates may wonder as well, please post a question on the Discussions Board in Canvas instead. This way the information is shared quickly to the entire class, and each of you can benefit from seeing other classmates' questions. I will also be checking/monitoring those Canvas Discussions and making sure questions get answered.
- I will always do my best to ensure the communication relevant to the course is clear and transparent. It is your responsibility as well to keep yourself updated by regularly checking: the announcements on Canvas, your Umail, the posts on the Discussions Board.
- Students are expected to log in and check Canvas every day for posted announcements and assignments. Students are also strongly advised to set up notifications for Canvas so they do not miss any important notifications.

NETIQUETTE - EXPECTATIONS FOR ONLINE LEARNING ENVIRONMENT

- Classroom equivalency: Respectful participation in all aspects of the course will make our time together productive and engaging. Zoom classes & help sessions, discussion threads, emails and Canvas are all considered equivalent to classrooms and student behavior within those environments shall conform to the student code. Specifically:
 - Posting photos or comments that would be off-topic in a classroom are still off-topic in an online posting.
 - Disrespectful language and photos are never appropriate.
 - Using angry or abusive language is not acceptable, and will be dealt with according to the Student Code. The instructor may remove online postings that are inappropriate.
 - Do not use ALL CAPS, except for titles, or overuse certain punctuation marks such as exclamation points and question marks.
 - Course emails, e-journals, and other online course communications are part of

the classroom and as such, are University property and subject to the Student Code. Privacy regarding these communications between correspondents must not be assumed and should be mutually agreed upon in advance, in writing.

- Other expectations for online communication (on Discussion Board, emails, Zoom chat etc):
 - Emails: When emailing your Instructor and Teaching Team, keep a professional tone.
 - Treat your instructor, teaching team and classmates with respect in email or any other communication.
 - Avoid slang terms such as “wassup?” and texting abbreviations such as “u” instead of “you.”
 - Be cautious when using humor or sarcasm as tone is sometimes lost in an email or discussion post and your message might be taken seriously or be offensive to others.
 - Be careful with personal information (both yours and others).
- Online submissions: You are responsible for submitting the assignment with the required naming convention, correct file extension, and using the software type and version required for the assignment.
- Electronic or equipment failure: It is your responsibility to maintain your computer and related equipment in order to participate in the online portion of the course. Equipment failures will not be an acceptable excuse for late or absent assignments.
- Please note that Canvas allows students to change the name that is displayed AND allows them to add their pronouns to their Canvas name. Additionally, students can indicate their pronouns in Zoom.

ACADEMIC CODE OF CONDUCT

Students are encouraged to review the Student Code for the University of Utah:

<https://regulations.utah.edu/academics/6-400.php>. In order to ensure that the highest standards of academic conduct are promoted and supported at the University, students must adhere to generally accepted standards of academic honesty, including but not limited to refraining from cheating, plagiarizing, research misconduct, misrepresenting one's work, and/or inappropriately collaborating. A student who engages in academic misconduct as defined in Part I.B. may be subject to academic sanctions including but not limited to a grade reduction, failing grade, probation, suspension or dismissal from the program or the University, or revocation of the student's degree or certificate. Sanctions may also include community service, a written reprimand, and/or a written statement of misconduct that can be put into an appropriate record maintained for purposes of the profession or discipline for which the student is preparing.

ADDITIONAL POLICIES AND RESOURCES

Classroom Social Equity: I strive to be ethical, kind, fair, inclusive and respectful in my classroom and expect students to behave likewise. In this regard, I have these requests of you:

1. Please do tell me, discreetly, if you have any sort of anxiety disorder, TBI, PTSD, C-PTSD, or any other challenge that would cause psychological harm to you by me calling on you in class. I want students to feel a little uncomfortable and stretched during class, while working on problems as a large or small group, but I definitely don't want to cause any human being harm. So, please discreetly tell me if that is the case for you and I will confidentially accommodate your request.

2. If your preferred name is different than your legal first name (*the preferred name you chose does indeed show up in CIS on my roll sheet, but not yet in Canvas*), please log into Canvas and go to Account (on far left)-->Settings and change your Display Name to be the name you prefer to be addressed by. This will help me greatly to know students' names, and to address you correctly when responding to Canvas quiz comments.

3. If there is ever a time that you feel this course or the curriculum is not equitable, please email me, interrupt me in class on the spot, or meet with me to discuss your concerns so I have a chance to address that.

Inclusivity Statement: It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: age, color, disability, gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, and veteran status, and other unique identities. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups. In addition, if any of our required class meetings (exams) conflict with your religious events, please let me know so that we can make arrangements for you.

Discrimination and Harassment: If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or Office of the Dean of Students, 270 Union Building, 801-581-7066. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS). Please see Student Bill of Rights, section E <http://regulations.utah.edu/academics/6-400.php>. I will listen and believe you if someone is threatening you.

Names/Pronouns. Canvas allows students to change the name that is displayed AND allows them to add their pronouns to their Canvas name. Class rosters are provided to the instructor with the student's legal name as well as "Preferred first name" (if previously entered by you in the Student Profile section of your CIS account, which can be managed at any time). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in discussions, emails and on assignments. Please advise me of any name or pronoun changes so I can help create a learning environment in which you, your name, and your pronoun are respected. If you need any assistance or support, please reach out to the LGBT Resource Center. https://lgbt.utah.edu/campus/faculty_resources.php

English Language Learners. If you are an English language learner, please be aware of several resources on campus that will support you with your language and writing development. These resources include: the Writing Center (<http://writingcenter.utah.edu/>); the Writing Program (<http://writing-program.utah.edu/>); the English Language Institute (<http://continue.utah.edu/eli/>). Please let me know if there is any additional support you would like to discuss for this class.

Undocumented Student Support. Immigration is a complex phenomenon with broad impact—those who are directly affected by it, as well as those who are indirectly affected by their relationships with family members, friends, and loved ones. If your immigration status presents obstacles to engaging in specific activities or fulfilling specific course criteria, confidential arrangements may be requested from

the Dream Center. Arrangements with the Dream Center will not jeopardize your student status, your financial aid, or any other part of your residence. The Dream Center offers a wide range of resources to support undocumented students (with and without DACA) as well as students from mixed-status families. To learn more, please contact the Dream Center at 801.213.3697 or visit dream.utah.edu.

Veterans Center. If you are a student veteran, the U of Utah has a Veterans Support Center located in Room 161 in the Olpin Union Building. Hours: M-F 8-5pm. Please visit their website for more information about what support they offer, a list of ongoing events and links to outside resources: <http://veteranscenter.utah.edu/>. Please also let me know if you need any additional support in this class for any reason.

Wellness Statement. Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at www.wellness.utah.edu or 801-581-7776.

Student Success Advocates: The mission of Student Success Advocates is to support students in making the most of their University of Utah experience (ssa.utah.edu). They can assist with mentoring, resources, etc. Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact a Student Success Advocate for support (<https://asuu.utah.edu/displaced-students>).

The Americans with Disabilities Act:

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability & Access, 162 Olpin Union Building, 801-581-5020. CDA will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability & Access.

Addressing Sexual Misconduct: Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted on the basis of your sex, including sexual orientation or gender identity/expression, you are encouraged to report it to the University's Title IX Coordinator; Director, Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or to the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to police, contact the Department of Public Safety, 801-585-2677(COPS).

Campus Safety: The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu

University Counseling Center The University Counseling Center (UCC) provides developmental, preventive, and therapeutic services and programs that promote the intellectual, emotional, cultural, and social development of University of Utah students. They advocate a philosophy of acceptance, compassion, and support for those they serve, as well as for each other. They aspire to respect cultural, individual and role differences as they continually work toward creating a safe and affirming climate for individuals of all ages, cultures, ethnicities, genders, gender identities, languages, mental and physical abilities, national origins, races, religions, sexual orientations, sizes and socioeconomic statuses.

Office of the Dean of Students The Office of the Dean of Students is dedicated to being a resource to students through support, advocacy, involvement, and accountability. It serves as a support for students facing challenges to their success as students, and assists with the interpretation of University policy and regulations. Please consider reaching out to the Office of Dean of Students for any questions, issues and concerns. 200 South Central Campus Dr., Suite 270. Monday-Friday 8 am-5 pm.