

# Calculus 1 - Math 1210

## Section 001 - Spring 2021

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<b>Learning Assistant</b> Danielle Evans <b>Mail</b> u1240312@utah.edu	<b>Office Hours</b> TBA
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<b>Learning Assistant</b> Vivian Nguyen <b>Mail</b> u1113288@utah.edu	<b>Office Hours</b> Mondays & Wednesdays 11am - 12pm via Zoom
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### Course Details

**Meeting Times** This is an IVC (interactive video conferencing; synchronous online) course. Our meeting schedule is the following:

**Lecture:** Mon/Tues/Wed/Fri Canvas/Zoom 9:40 - 10:30am

**Lab:** Thurs Canvas/Zoom 8:35 - 9:25am (Section 2)  
9:40 - 10:30am (Section 3)

**Prerequisites** “C” or better in ((MATH 1050 AND MATH 1060) *or* MATH 1080 *or* (MATH 1060 AND (Accuplacer AAF 263+ *or* Accuplacer CLM 80+))) *or* AP Calc AB 3+ *or* Accuplacer AAF 276+ *or* Accuplacer CLM 90+ *or* ACT Math 28+ *or* SAT Math 650+.

**Description** 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. The definite integral and the Fundamental Theorem of Calculus. This is a four credit course.

**Expected Learning Outcomes** Upon successful completion of the course, students should be able to:

1. Take limits of algebraic and trigonometric expressions of the form  $\frac{0}{0}$  (that simplify), non-zero number over 0, including limits that go to  $\pm\infty$ , nonexistent limits, and finite limits.

2. Use and understand the limit definitions of derivative for polynomial, rational and some trigonometric functions; understand the definition of continuity and consequences.
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 critical points and inflection points, the signs of the first and second derivatives, and domain and limit information to determine vertical and horizontal asymptotes, use this information to sketch the graph of  $y = f(x)$ .
5. Apply differentiation to optimization, related rates, linear approximation, and problems involving differentials.
6. Compute indefinite integrals and find antiderivatives, including finding constants of integration given initial conditions.
7. Compute definite integrals using the definition for simple polynomial functions. Compute definite integrals using the power rule, basic  $u$ -substitution, and the Fundamental Theorems of Calculus.
8. Apply the definite integral to compute area between two curves, volumes of solids of revolutions, arc length, surface area for surfaces of revolution, and work problems.

**Syllabus Subject to Change** This syllabus serves as an outline for our course and is subject to change. It may be modified with reasonable notice students. The course schedule is tentative and may be changed to accommodate the needs of our class.

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### Required Materials

**Course Textbook** *Calculus with Differential Equations*, by Varberg, Purcell, and Rigdon (9th edition) For information on purchasing the textbook, see <http://www.math.utah.edu/schedule/bookInfo/>

**Technical Requirements** Students are expected to be computer literate and Canvas/Zoom navigation skills are expected. Knowledge of Canvas, Zoom, and your university e-mail account is critical to access all features and resources of this course. Lectures are given synchronously via Zoom, and a strong internet connection with adequate bandwidth is needed. In general, assignments will be turned in via Canvas. **All course communications will be posted on Canvas and sent to your University of Utah e-mail address. As this course is completely online, you are expected to check these frequently.**

*If you have questions or need help with any of these requirements, please contact me!*

**Canvas** Canvas will be used for posting course announcements, homework assignments, grades, files and any relevant supplementary material. You are also welcome to make use of the Canvas discussion board to discuss course problems or topics. You can access the Canvas page through CIS or by logging in at [utah.instructure.com](http://utah.instructure.com). Students should check the Canvas page daily for course information and resources. Email notifications and correspondence will be sent to the student's UMail address ([u-number]@utah.edu); this email account must be checked regularly.

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## Coursework

**Homework** Homework is due every Friday at midnight unless otherwise specified. Students are required to submit their homework assignments as a single **pdf** file via Canvas. You are encouraged to work with classmates on these assignments, but you must write up your own solutions and cite who you worked with. It is your responsibility to work through the homework problems in their entirety in order to gain mastery of the material. Thorough guidelines on how to submit homework will be provided with the first assignment.

**Quizzes** Quizzes will be given on course content. The purpose of these is two-fold: to inform the instructor on student progress, as well as to guide the student in their studies/provide a preview of what one may expect on an exam. Occasionally, quizzes will be replaced with a reflection prompt.

**Labs** Every Thursday, lab sections will be held and facilitated by our class Learning Assistant (LA). These lab sections will have smaller class sizes, consisting of working on lab worksheets in groups. The lab problems will typically be more abstract and challenging than the homework problems, helping you think deeply about key concepts. The LA will be there to help guide students through the problems. In terms of grades, the lab worksheets are weighted the same as weekly quizzes. Your two lowest lab scores will be dropped from your final grade.

Note that this class is supported by a Learning Assistant (LA), LAs are undergraduates who have completed this class (or similar), and who are here to help you learn. Their job is **not** to offer you answers, but rather to help you figure out how to problem solve, and how to learn from your classmates.

**Midterm Exams** There will be four midterm exams given throughout the semester. They are tentatively scheduled to be due on the following days:

**Exam 1** - *Friday, February 5*

**Exam 2** - *Friday, February 26*

**Exam 3** - *Friday, March 19*

**Exam 4** - *Friday, April 16*

*For more detailed information, see the attached (tentative) schedule.*

**Final Exam** There will be a cumulative final exam given during finals week.

**Late Policy** Late work will not be accepted, and in general no make-up exams will be given. Exceptions may be made in the case of a documented illness, emergency, or extracurricular scheduling conflicts, and in this case I request that you contact me immediately for arrangements.

### Grades

Your grade will be calculated according to the following weights:

Midterm Exams	4 @ 15% each	60%
Final Exam		10%
Homework		15%
Quizzes & Labs		15%
Total		100%

Grades will be assigned based on the following scale:

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

### Expectations

**Participation & Respect** In our classroom, (both online and offline) diversity and individual differences are respected, appreciated, and recognized as a source of strength. Students in this class are encouraged and expected to work collaboratively, participate during class, and to carefully and respectfully listen to each other. Any attitudes or actions that are destructive to the sense of community that we strive to create are not welcome and will not be tolerated. Your job as a student in this course is to be respectful and supportive of your peers.

**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. gender, sexuality, disability, age, socioeconomic status, ethnicity, race, culture, 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 class meetings conflict with your religious events, please let me know so that we can make arrangements for you.

**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 <https://safeu.utah.edu>.

**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 managed 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 class or 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](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](http://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](http://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](http://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>).

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