

Math 1210-001 : Calculus I, Spring 2019

Class Meetings	MWF 9:40 - 10:30 AM, WEB L112. T 9:40 - 10:30 AM, WEB L110.
Lab Meetings	Section 002 - H 8:35 - 9:25 AM, WEB L112. Section 003 - H 9:40 - 10:30 AM, WEB L110.
Instructor	Gaoyang Bridget Fan
Contact	Office : LCB 318 Email : gfan@math.utah.edu Office Hours : M 3:00-4:00, F 1:00-2:00 or by appointment
Learning Assistant	Emma Fine
LA Office Hour	H 11-1 at LCB Loft
Textbook	Calculus with Differential Equations, by Varberg, Purcell, and Rigdon (9th edition)
Course Information	Math 1210 Calculus I is a 4 credit course.
Prerequisites	“C” or better in (((MATH 1050 AND 1060) OR MATH 1080 OR (MATH 1060 AND Accuplacer CLM score of 80+)) OR AP Calc AB score of 3+ OR Accuplacer CLM score of 90+ OR ACT Math score of 28+ OR SAT Math score of 630+.
Course 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.
Course Website	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 . Students should check the Canvas page regularly 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.
Additional Resources	<i>Tutoring Center & Computer Lab</i> There is free tutoring in the T. Benny Rushing Mathematics Student Center (room 155, the lower level between JWB and LCB), as well as a computer lab. For more information see http://www.math.utah.edu/undergrad/mathcenter.php <i>Private Tutoring</i> University Tutoring Services, 330 SSB. There is also a list of tutors at the math department office JWB 233. <i>Departmental Videos</i> The math department has a full set of lecture videos which you are welcome to use to supplement our course material. These can be found at http://www.math.utah.edu/lectures/
Calculators	Calculators will not be allowed on exams. They may be used on homework, but you should still write out the details of your computation. It is in your best interest not to become too dependent on your calculator since they will not be allowed on exams.

Grading

Grades for each student will be calculated using the following formula:

$$\begin{aligned} & \text{Homework (15\%)} + \text{Labs (10\%)} + \text{Quizzes (5\%)} \\ & + 3 \text{ Midterms (3} \times 15 = 45\%) + \text{Final (25\%).} \end{aligned}$$

1. **Homework:** Homework will be assigned after every lecture and **due electronically every Friday at 6 pm on Canvas**. No late submissions will be accepted. However, per life-proof policy, two of the lowest scores will be dropped to cover the days when you are busy, or sick, or simply forget.
2. **Quizzes:** There will be weekly quizzes every Monday at the beginning of class, covering material from the previous week's lecture note and homework. No makeup quizzes will be given. For the same reason of life-proof, two lowest scores will be dropped.
3. **Labs:** Every Thursday a Learning Assistant-directed lab section will be held. These lab sections will have smaller class sizes, consisting of working on lab worksheets in groups. The LA will be there to help guide students through the problems. The worksheets will typically be due at the end of the lab period. One half of the lab grade (5% of the total course grade) will be given for timely attendance, the remaining grade (5% of the total course grade) will be based on completion of the lab reports. No makeup labs will be given. The lowest two lab scores will be dropped.
4. **Midterm Exams:** Three 50-minute midterm exams will be given on select Fridays. You will have the whole class period to complete the exam. A practice exam will be posted a week prior to the midterm that will cover the same material. Dates of the midterm exams will be **Friday, 02/01, 03/01, 04/05**.
5. **Final Exam:** A two-hour comprehensive exam will be given. As with the midterms, a practice final will be posted a week prior. Our final exam is scheduled for

Thursday, April 25, 2019 8:00 – 10:00 AM.

Students with university excused absences (band, debate, student government, intercollegiate athletics) should make alternate arrangements with me as soon as possible if the absence interferes with any course components.

Letter Grades

Semester letter grades will be converted from the numerical semester scores N as follows:

$93 \leq N \leq 100$:	A	$73 \leq N < 78$:	C
$90 \leq N < 93$:	A-	$70 \leq N < 73$:	C-
$88 \leq N < 90$:	B+	$68 \leq N < 70$:	D+
$83 \leq N < 88$:	B	$63 \leq N < 68$:	D
$80 \leq N < 83$:	B-	$60 \leq N < 63$:	D-
$78 \leq N < 80$:	C+	$N < 60$:	E

Course Outline

Schedule and lab topics subject to change.

Week 1 Introduction, Chapters 1.1-1.3 (Lab: algebra review)

Week 2 Chapters 0.7, 1.4, 1.5 (Lab: limit basics)

Note, Friday Jan. 18th is the last day to drop

Week 3 Chapters 1.6, 2.1, 2.2 (Lab: limits and infinities)

Week 4 Chapters 2.3, review, Exam 1 (Feb. 1) (Lab: exam review)

Week 5 Chapters 2.4-2.6 (Lab: derivative as a limit)

Week 6 Chapters 2.7-2.9 (Lab: derivative rules)

Week 7 Chapters 3.1-3.3 (Lab: linearization and differentials)

Week 8 Chapters 3.4, review, Exam 2 (Mar. 1) (Lab: exam review)

Week 9 Chapter 3.5-3.7 (Lab: optimization)

Note, Friday Mar. 8th is the last day to withdraw

Week 10 Spring Break (Mar. 10- Mar. 17)

Week 11 Chapters 3.8-4.1 (Lab: graphing functions & MVT)

Week 12 Chapters 4.2-4.4 (Lab: antiderivatives and applications)

Week 13 Chapters 4.5, 4.6, review, Exam 3 (Apr. 5) (Lab: exam review)

Week 14 Chapters 5.1-5.2 (Lab: evaluating definite integrals)

Week 15 Chapters 5.3-5.4 (Lab: applications of integration)

Week 16 Chapter 5.5, review

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 $0/0$, 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 and understand the limit definitions of derivative for polynomial, rational and some trigonometric functions, 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, domain and limit information to determine vertical and horizontal asymptotes. Use all of that 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.

Student Responsibilities	All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. Students have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, plagiarism, and/or collusion, as well as fraud, theft, etc. Students should read the Code carefully and know they are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, and I will do so, beginning with verbal warnings and progressing to dismissal from and class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee. http://regulations.utah.edu/academics/6-400.php
ADA Statement	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, veterans status or genetic information. 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 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 the police, contact the Department of Public Safety, 801-585-2677(COPS).
Student Names and Personal Pronouns	Class rosters are provided to the instructor with the students legal name as well as Preferred first name (if previously entered by you in the Student Profile section of your CIS account). 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, on papers, exams, group projects, etc. Please advise me of any name or pronoun changes (and update CIS) so I can help create a learning environment in which you, your name, and your pronoun will be respected. If you need assistance getting your preferred name on your UIDcard, please visit the LGBT Resource Center Room 409 in the Olpin Union Building, or email bpeacock@sa.utah.edu to schedule a time to drop by. The LGBT Resource Center hours are M-F 8am-5pm, and 8am-6pm on Tuesdays.
Wellness Statement	Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a students 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.
Disclaimer	This syllabus is not a binding legal contract. I reserve the right to make changes as I see fit at any time, but all adjustments will be announced.