MATH 1210 - 001 Calculus I, Fall 2022

Class Meetings: MoTuWeFr at 7:30-8:20am in LCB 219
Lab Meetings: Section 002: Th at 7:30-8:20am in LCB 219, Section 003: Th at 8:35-9:25am in LCB 219
Instructor: Dr. Tim Tribone (he/him/his)
Email: tribone@math.utah.edu
Office Hours: TBA
Learning Assistants: Hannah Winslow
LA Office Hours: TBA.
Text: *Calculus with Differential Equations*, by Varberg, Purcell, and Rigdon (9th edition)
For information on purchasing the textbook, go to https://www.math.utah.edu/resources/bookinfo.php

Course Information: Math 1210 Calculus I is a 4 credit course.
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.

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 if 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.

Grading: The following are the grade components and the percentage each contributes to a student's final grade:

- **Homework Assignments (12%)** - Roughly three textbook sections are due most Fridays before our class time (including days of exams, but not the week following). The homework will typically cover material covered up to and including the preceding Monday. If you click on a homework assignment in the Assignments tab in Canvas, you will see the list of assigned problems. Approximately three of the problems will be selected for grading by the grader, each graded out of 5 points. There will also be 5 points given for completion. The lowest homework score will be dropped. Homework will be turned in electronically through Canvas, no paper copies accepted.

- **Labs (12%)** - Every Thursday the Learning Assistant for our section (Hannah Winslow) will lead the lab sections. 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 (6% of the total course grade) will be given for attendance, the remaining grade (6% of the total course grade) will be based on the quality of the lab reports. The lowest two lab scores will be dropped.

- **Midterm Exams (17% each)** - Three 50-minute midterm exams will be given on select Fridays. Dates of the midterm exams will be **Friday Sep. 16th**, **Friday Oct. 21st**, and **Friday Nov. 18th**. Note that these dates are subject to change.

- **Final Exam (25%)** - A two-hour comprehensive exam will be given. A practice final will be posted a week prior. Our final exam is scheduled for **Friday Dec. 16th** from 8:00-10:00am in LCB 219.

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.

Final course letter grades will be determined as follows: If X is your course percentage weighted according to the above, then $\{X \geq 93\% \Rightarrow A,\ X \geq 90\% \Rightarrow A-,\ X \geq 87\% \Rightarrow B+,\ X \geq 83\% \Rightarrow B,\ X \geq 80\% \Rightarrow B-,\ X \geq 77\% \Rightarrow C+,\ X \geq 73\% \Rightarrow C,\ X \geq 70\% \Rightarrow C-,\ X \geq 65\% \Rightarrow D+,\ X \geq 60\% \Rightarrow D,\ X \geq 55\% \Rightarrow D-,\ X < 55\% \Rightarrow E\}$.

The instructor retains the right to modify this grading scheme during the course of the semester; students will, of course, be well notified of any adjustments.

Additional Resources

- **Tutoring Center & Computer Lab** - 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 https://www.math.utah.edu/undergraduate/mathcenter.php

- **Private Tutoring** - ASUU Tutoring Center, 330 SSB. There is also a list of tutors at the math department office JWB 233.

- **Departmental Videos** - 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.

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 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. Then 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.

COVID Statement: The COVID-19 guidelines for the University of Utah are adapted often due to the ever-changing status of the pandemic. For the most up-to-date information regarding the campus guidelines, visit https://coronavirus.utah.edu.

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 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.

Safety Statement: 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.

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`.

Course Roadmap Week-by-Week: Below is an outline of the sections and topic covered in this course. Schedule and lab topics subject to change

Week 1 Introduction, Chapters 1.1 - 1.3

Week 2 Chapters 0.7, 1.4, 1.5 **Note, Friday Sep. 2nd is the last day to drop**

Week 3 Chapters 1.6, 2.1, 2.2

Week 4 Chapters 2.3, review, Exam 1 (Sep. 16)

Week 5 Chapters 2.4 - 2.6

Week 6 Chapters 2.7 - 2.9

Week 7 Chapters 3.1 - 3.3

Week 8 Fall Break

Week 9 Chapters 3.4, review, Exam 2 (Oct. 21) **Note, Friday Oct. 21st is the last day to withdraw**

Week 10 Chapter 3.5 - 3.7

Week 11 Chapters 3.8 - 4.1

Week 12 Chapters 4.2 - 4.4

Week 13 Chapters 4.5, 4.6, review, Exam 3 (Nov. 18)

Week 14 Chapters 5.1 - 5.2

Week 15 Chapters 5.3 - 5.4

Week 16 Chapter 5.5, review

Week 17 Final Exam Friday Dec. 16th from 8:00am-10:00am.