MATH 1210-010 Calculus I, Spring 2021

Class Meetings: IVC Lectures (interactive video conferencing; synchronous online)
Tu & Th at 3:40PM-5:40PM on CANVAS (note all times are in Mountain Time, MT)

Lab Meetings (all on CANVAS):
Section 011: M at 3:05-3:55PM - LA: Katherine Metcalf
Section 012: M at 4:10-5:00PM - LA: Morgan Kelley
Section 020: M at 5:15-6:05PM - LA: Lexi Moore

Instructor: Dr. Jody Reimer
Preferred name & pronouns: Jody or Dr. Reimer; she/her
Email: reimer@math.utah.edu
Accessibility & Support: To contact Jody, please use email. She is also happy to set up a Zoom meeting. Jody will also stay on Zoom for 10 minutes after each class in case you want to stay behind to ask a question or discuss something.
Virtual Office Hours: W 4:10-6:10PM CANVAS, or by appointment

Learning Assistants: This class is supported by Learning Assistants (LAs). 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. Discussion is an efficient learning strategy, and LAs help our discussions stay on track. In general, the only time you'll work with an LA is through discussion.

Our class LAs and contact information:
Katherine Metcalf (she/her) - katherine.metcalf.11@gmail.com
Morgan Kelley (she/her) - morgan.kelley@utah.edu
Lexi Moore (she/her) - u1310497@umail.utah.edu

LA Office Hours (all on CANVAS):
M 12:30-1:30PM (Morgan Kelley)
M 3:00-4:00PM (Lexi Moore)
M 4:00-5:00PM (Katherine Metcalf)
Th 11:00AM-12:00PM (Lexi Moore)
Th 2:30-3:30PM (Katherine Metcalf)
F 12:30-1:30PM (Morgan Kelley)

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

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

Canvas: Canvas will be used for hosting lectures, posting course announcements, homework assignments, grades, files and any relevant supplementary material. You can access the Canvas page through CIS or by logging in at utah.instructure.com. 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. Email notifications and correspondence will be sent to the student's UMail address ([u-number]@utah.edu); this email account must be checked daily.

Technical requirements: Students are expected to be computer literate, with the ability to navigate Canvas and Zoom. These skills are critical for accessing all features and resources of this course. It is strongly encouraged that students log into Zoom for class with audio and video enabled, as this will help foster the interactive environment that leads to successful learning. For the online synchronous course components (e.g., lectures and labs), a strong internet connection and adequate bandwidth is needed. Tests will be proctored using Zoom with video enabled, so students are required to have a working webcam (note: a phone with a webcame is sufficient if no laptop is available).

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

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.

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

- **Homework Assignments (15%)**- Roughly three textbook sections are due most Wednesdays by midnight. Scanned images of your homework must be submitted online through Canvas, preferably as a pdf (suggestion: use a free phone app that scans files to pdfs such as "Adobe Scan" or "Genius Scan"). The homework will typically cover material covered up to and including the preceding Monday. The list of assigned problems will be available well in advance of the due date on Canvas. 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 two homework scores will be dropped.** Late homework is, in general, not accepted.

- **RATEL* - Random Assignments To Encourage Learning (5%)**- On weeks where there is no test, there will be short assignments of a diverse nature due most Wednesdays by midnight. The goals of these assignments include: encouraging reflection on the material, making use of the available support resources, and engaging with the material and course in new ways. Each of these assignments will be graded solely for completion. **The lowest two RATEL scores will be dropped.**

- **Labs (10%)**- Every Monday, lab sections will be held and facilitated by our class Learning Assistants (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. Your LA will be there to help guide students through the problems. The worksheets will 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 successful completion of the lab assignments. **The lowest two lab scores will be dropped.** Labs cannot, in general, be made up if missed.

- **Tests (70%)**- We will have six 40-minute tests on select Thursdays during class time (except for the final test, which will be given during the scheduled final exam time). All tests will be online, proctored and administered through Canvas. In order to proctor these tests, each student will need access to a webcam (note: the webcam on a phone is fine). The test will occur in the first 40 minutes of class time, followed by regular lecture for the remainder of the time. Tests will cover material up to and including the preceding Thursday. Practice tests and their solutions will be posted several days prior to each test. **Tests will be Feb. 18, Mar. 4, 18, Apr. 1, 15 during class time, and during**

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*Also, *ratel* is another name for a honey badger, a terrifying mammal that deserves our respect.

the final scheduled exam time Thursday, Apr. 29, 3:40-4:20PM. The lowest test score will be dropped. Note, the final test is not cumulative and is not worth any more points than the other tests.

Solutions used for grading will be made available to students for all homework, labs, and tests. Students are encouraged to use this to check their score. Re-grade requests must be made no more than 2 weeks after a grade is posted.

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

Final course letter grades will be determined as follows: **A (93-100), A- (90-92), B+ (87-89), B (83-86), B- (80-82), C+ (77-79), C (73-76), C- (70-72), D+ (67-69), D (63-66), D- (60-62), E (0-59)**. Your instructor maintains the right to modify this grading scheme during the course of the semester. Students will, of course, be 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**- Learning Center, 330 SSB, learningcenter.utah.edu. 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: While basic calculators are not prohibited, it is in your best interest not to become too dependent on your calculator. On homework and exams, you must write out the details of your computation, regardless of whether a calculator was used. No graphing or scientific calculators (or their web equivalents) may be used on tests.

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.

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 your instructor 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). To report an incident online, visit: https://oeo.utah.edu/

Student Names and Personal Pronouns: 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). While CIS refers to this as merely a preference, your instructor 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 your instructor of any name or pronoun changes (and update CIS) so they 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.

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.

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 - Jan. 19-22 Introduction, Chapters 1.1, 1.2, 1.3

Week 2 - Jan. 25-29 Chapters 0.7, 1.4, 1.5, **Friday, Jan. 29: last day to drop**

Week 3 - Feb. 1-5 Chapters 1.6, 2.1

Week 4 - Feb. 8-12 Chapters 2.2, 2.3, 2.4

Week 5 - Feb. 15-19 Chapters 2.5, 2.6, Test 1 (Feb. 18), **Monday, Feb. 15, no classes**

Week 6 - Feb. 22-26 Chapters 2.7, 2.8, 2.9

Week 7 - Mar. 1-5 Chapters 3.1, 3.2, Test 2 (Mar. 4), **Friday, Mar. 5, no classes**

Week 8 - Mar. 8-12 Chapters 3.3, 3.4, 3.5 **Friday, Mar. 12: last day to withdraw**

Week 9 - Mar. 15-19 Chapter 3.6, 3.7, Test 3 (Mar. 18)
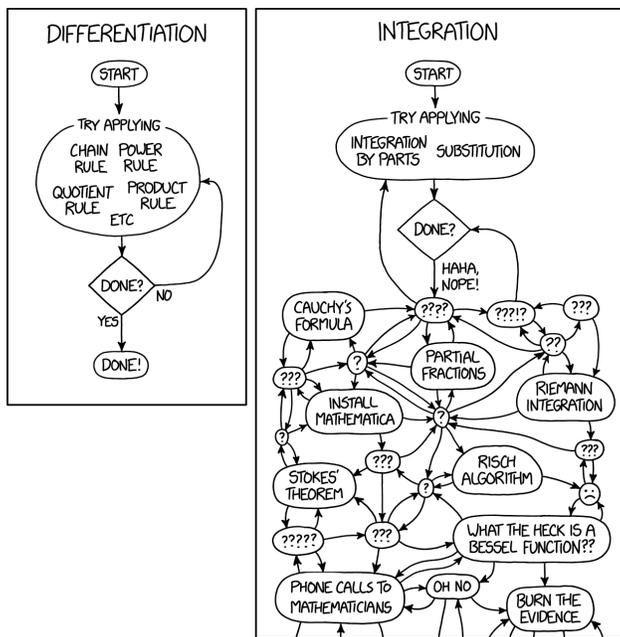
Week 10 - Mar. 22-26 Chapter 3.8, 3.9, 4.1

Week 11 - Mar. 29-Apr. 2 Chapters 4.2, 4.3, Test 4 (Apr. 1)

Week 12 - Apr. 5-9 Chapters 4.4, 4.5, 4.6 **Monday, Ap. 5, no classes; Friday, Apr. 9: last day to elect credit/no credit**

Week 13 - Apr. 12-16 Chapters 4.7, 5.1, Test 5 (Apr. 15)

Week 14 - Apr. 19-23 Chapters 5.2, 5.3, **Friday, Apr. 23: last day to reverse credit/no credit option**

Week 15 - Apr. 26-30 Chapters 5.4, Test 6 (Apr. 29) **Classes end Tues. Apr. 27**

(xkcd.com)