Math 1210-030 Syllabus - Calculus I - Fall 2020

Class Meetings: (IVC Lectures) MoTuWeFr 08:35am-09:25am (in Mountain time) on CANVAS (Zoom Meeting ID: 986 6726 5849)

Instructor: Yen-An Chen

Lab Meetings: Section 031: Th 07:30am-08:20am on CANVAS
Section 032: Th 08:35am-09:25am on CANVAS

Office: JWB 112
Email: yachen (at) math (dot) utah (dot) edu
Office Hours: TBD or by appointment on Zoom.

Accessibility & Support: To contact Yen-An, please use email. Students will get a response typically in one business day.

Learning Assistant: 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 LA: Emma Coates
LA email: u1198559 (at) utah (dot) edu

LA Office Hours: MoTu 3:30pm-4:30pm via Zoom.

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.
Prerequisites 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+.

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.

For every hour of lecture, the university requires/suggests that you invest 2-3 hours of additional work (every week). For this 4 credit hour class, it means that you need to put in 8-12 hours of additional work on a weekly basis.

Technical Requirements: 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 the online synchronous course components (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 (on a smartphone or a laptop). Homework and Tests will be submitted digitally, so some form of digitizing technology will be needed. This could be a scanner, but there are excellent alternative scanning apps for smartphones. Homework and Tests must be submitted as a single PDF file. There are many scanning apps available for Android and IOS, some examples are: https://play.google.com/store/apps/details?id=com.adobe.scan.android&hl=en_US and https://apps.apple.com/us/app/adobe-scan-digital-pdf-scanner/id1199564834

For technical assistance, review the Canvas Getting Started Guide for Students and/or contact TLT, Knowledge Commons, etc.

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 class and posted on Canvas.
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. 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.

Communication: 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, and pay attention to the announcements given in class and Discussion Section.

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 Fridays by midnight. Your homework must be submitted online through Canvas as SINGLE pdf file. 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. 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.** No late homework will be accepted, unless accompanied by a doctor’s note or other verification of extenuating circumstance.

- **Labs (10%):** Every Thursday a Learning Assistant- (LA) 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 attendance, the remaining grade (5% of the total course grade) will be based on the quality/completion of the lab reports. **The lowest lab score will be dropped.**

- **Tests (75%):** Four 50-minute tests will be given. A practice test will be posted a week prior to the test that will cover the same material. **The weights for all tests are equal.** All tests will be online, proctored and administered through Canvas. In order to proctor these tests, each student will need access to a webcam (on a smartphone or a laptop). Dates of the tests will be Friday Sep. 18th, Oct. 16th, and Nov. 13th during the class time and Monday Dec. 7th from 3:30 to 4:20 pm. The last date and time is assigned by the University of Utah scheduling office. You can view the Fall 2020 final exam schedule at (math 1210 is listed under the departmental finals):


Final Grading Scale: Final course letter grades will be determined as follows: If $X$ is your course percentage weighted according to the above, then

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<thead>
<tr>
<th>Grade</th>
<th>Range</th>
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<tbody>
<tr>
<td>A</td>
<td>$X \geq 93%$</td>
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<tr>
<td>A–</td>
<td>$X \geq 90%$</td>
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<tr>
<td>B+</td>
<td>$X \geq 87%$</td>
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<tr>
<td>B</td>
<td>$X \geq 83%$</td>
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<tr>
<td>B–</td>
<td>$X \geq 80%$</td>
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<tr>
<td>C+</td>
<td>$X \geq 77%$</td>
</tr>
<tr>
<td>C</td>
<td>$X \geq 73%$</td>
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<tr>
<td>C–</td>
<td>$X \geq 70%$</td>
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<tr>
<td>D+</td>
<td>$X \geq 65%$</td>
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<tr>
<td>D</td>
<td>$X \geq 60%$</td>
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<tr>
<td>D–</td>
<td>$X \geq 55%$</td>
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<td>E</td>
<td>$X \leq 55%$</td>
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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.

Absences: 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.

Calculators: Calculators will not be allowed on tests. 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 tests.

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 [http://www.math.utah.edu/undergrad/mathcenter.php](http://www.math.utah.edu/undergrad/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/](http://www.math.utah.edu/lectures/)

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 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](http://regulations.utah.edu/academics/6-400.php)

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 (8/24-8/28) Introduction, Chapters 1.1-1.3 (Lab: algebra review)

Week 2 (8/31-9/4) Chapters 0.7, 1.4, 1.5 (Lab: limit basics) **Note, Friday Sep. 4th is the last day to drop**

Week 3 (9/7-9/11) Chapters 1.6, 2.1, 2.2 (Lab: limits and infinities) **Note, NO class on Monday Sep. 7th.**

Week 4 (9/14-9/18) Chapters 2.3, review, Exam 1 (Sep. 18) (Lab: exam review)

Week 5 (9/21-9/25) Chapters 2.4-2.6 (Lab: derivative as a limit)

Week 6 (9/28-10/2) Chapters 2.7-2.9 (Lab: derivative rules)

Week 7 (10/5-10/9) Chapters 3.1-3.3 (Lab: linearization and differentials)

Week 8 (10/12-10/16) Chapters 3.4, review, Exam 2 (Oct. 16) (Lab: exam review) **Note, Friday Oct. 16th is the last day to withdraw**

Week 9 (10/19-10/23) Chapter 3.5-3.7 (Lab: optimization)

Week 10 (10/26-10/30) Chapters 3.8-4.1 (Lab: graphing functions & MVT)

Week 11 (11/2-11/6) Chapters 4.2-4.4 (Lab: antiderivatives and applications)

Week 12 (11/9-11/13) Chapters 4.5, 4.6, review, Exam 3 (Nov. 13) (Lab: exam review)

Week 13 (11/16-11/20) Chapters 5.1-5.2 (Lab: evaluating definite integrals)

Week 14 (11/23-11/27) Chapters 5.3-5.4 (Lab: applications of integration) **Note, NO lab on Thursday Nov. 26th and NO class on Friday Nov. 27th.**

Week 15 (11/30-12/4) Chapter 5.5, review (Lab: final exam review) **Note, NO class on Friday Dec. 4th.**

Week 16 Final Exam on Monday Dec. 7th from 3:30 to 5:30 pm

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.
University 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 https://safeu.utah.edu/

Crisis Services Center: This center offers services Mo-Fr 8 am – 5 pm. If you would like to talk to one of the staff members, please call 801-581-6826 or walk into the Center at 426 Student Services Building (SSB). For more urgent situations and after hours, please go to the University Neuropsychiatric Institute (UNI), 501 Chipeta Way, or to the Emergency Department at the University Hospital. UNI Crisis Line: 801-587-3000 offers crisis response 24/7, including: crisis support over the phone, a mobile outreach option (MCOT) that will respond to persons in their home, and the Receiving Center where individuals from Salt Lake County can access a safe and supportive environment to help individuals work through their crisis situation. Individuals may spend up to 23 hours at the Receiving Center, at no cost.

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, and 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 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, 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.