MATH 1210-004 Calculus I, Fall 2020

Class Meetings: Lecture: MTWF at 9:40-10:30am in zoom
Lab Meetings: All sections in canvas.
Instructor: Dr. Predrag Krtolica
Email: krtolica@math.utah.edu
Online Office Hours: M 10:40-11:30 am & H 5:10-6:00 pm
Learning Assistant: TBA.
LA Office Hours: TBA.
Text: 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+.
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 canvas email or student’s UMail address ([u-number]@utah.edu); this email account must be checked daily.

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

- **Homework Assignments (16%)-** Roughly three textbook sections are due most Fridays at the beginning of class (including days of exams, but not the week following). The homework will typically cover material 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. Homework will only be accepted in class, no electronic copies. No late homework will be accepted, unless accompanied by a doctor’s note or other verification of extenuating circumstance.

- **Labs (16%)-** 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 third of the lab grade (about 4% of the total course grade) will be given for attendance, the remaining grade (about 8% of the total course grade) will be based on the quality of the lab reports. The lowest lab score will be dropped.

- **Midterm Exams (51%, 17% each)-** Three 50-minute midterm exams will be given on select Fridays. 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 Sep. 18th, Friday Oct. 16th, and Friday Nov. 13th. All exams will be taken via Zoom. During exams, students are required to have their cameras and microphones turned on (though there microphone may later be muted) and have their head, hands, and workspace be visible. They are required to show identification before beginning the exam. There will be a mandatory “Zoom rehearsal” one-two weeks before the exam, where students confirm that
their camera and microphone are set-up correctly, and also practice using the chat and raising their hand in Zoom.

Each exam will consist of two blocks with a short break in between. Before each exam, students should print out or hand-copy templates to write answers on. These will be made available in Canvas a few days before the exam. At the end of each block of the exam, students will scan their work and upload it to either Canvas or Gradescope, as instructed. Students may ask questions of their instructor through the chat feature in Zoom.

Students may also bring one page of notes (8.5 in by 11 in, writing on both sides) that they make during quizzes and exams. Each student should make their own notes. They should not use notes from other students or other sources. Scientific calculator will be allowed. Students are required to scan and upload their notes with their exam. Phones should not be used or visible until the scanning phase of the exam. Students are not allowed to use any computer or online resources (including math sites and online calculators), notebooks or books, or to communicate about the exam with other humans. Not following these rules is considered academic misconduct and will be penalized as such. See further comments about academic misconduct below.

• **Final Exam (17%)**- A two-hour comprehensive exam will be given. As with the midterms, a practice final will be posted a week prior. Final Exam Friday Dec. 11th from 8:00 - 10:00 am in zoom.

**NETIQUETTE – EXPECTATIONS FOR ONLINE LEARNING ENVIRONMENT**

• Classroom equivalency: Respectful participation in all aspects of the course will make our time together productive and engaging. Zoom lectures, discussion threads, emails and canvas are all considered equivalent to classrooms and student behavior within those environments shall conform to the student code. Specifically:
  - Posting photos or comments that would be off-topic in a classroom are still off-topic in an online posting.
  - Disrespectful language and photos are never appropriate.
  - Using angry or abusive language is not acceptable, and will be dealt with according to the Student Code. The instructor may remove online postings that are inappropriate.
  - Do not use ALL CAPS, except for titles, or overuse certain punctuation marks such as exclamation points and question marks.
  - Course e-mails, e-journals, and other online course communications are part of the classroom and as such, are University property and subject to the Student Code. Privacy regarding these communications between correspondents must not be assumed and should be mutually agreed upon in advance, in writing.

• Other expectations for online communication (on Discussion Board, Emails, Zoom chat etc):
  - Treat your instructor, teaching team and classmates with respect in email or any other communication.
  - Avoid slang terms such as “wassup?? and texting abbreviations such as “u?” instead of “you.?”
  - Be cautious when using humor or sarcasm as tone is sometimes lost in an email or discussion post and your message might be taken seriously or be offensive to others.
  - Be careful with personal information (both yours and others).
  - Electronic or equipment failure: It is your responsibility to maintain your computer and related equipment in order to participate in the online portion of the course. Equipment failures will not be an acceptable excuse for late or absent assignments.
Online submissions: You are responsible for submitting the assignment with the required naming convention, correct file extension, and using the software type and version required for the assignment.

Grading Scale: The grading scale is: A (93,100], A- [90,93), B+ [87,90), B [83,87), B- [80,83), C+ [77,80), C [72,77), C- [69,72), D+ [66,69), D [60,66), D- [50,60), E [0,50). If I do need to curve the grades, I will do so on individual assignments or exams, not on the course grade at the end of the semester.

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 support: This course is designed to challenge students. You may require additional support:

- Learning Assistants are undergraduate students who have taken this course previously, or a similar course, and who receive special training on how to help students learn science (see more details on the U of U Learning Assistant program page). LAs will help during class and discussion sections to facilitate student learning, they will also staff Study-Hall and hold Office Hours. LAs are not responsible for grading assignments and can be thought of as peer mentors. The names and contacts of the LAs will be posted on the Canvas website on the Teaching Staff page.

- Come to my office hours. This time is scheduled for you to come and ask questions on any of the material covered in class/homework/exams or any mathematical inquiry you may have.

- Math Center Online Tutoring, (Paid for by Your Student Fees) https://www.math.utah.edu/undergrad/mathcenter.php

- The Learning Center, 3 free tutoring sessions, $5 after that, learning consultations https://learningcenter.utah.edu/

- Here is information from the University about logistics in light of COVID-19. There is also information about financial assistance, counseling, the food pantry, and much more. https://coronavirus.utah.edu/#students.

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.

Communication

• All course materials, such as lecture slides, assignments, solutions, grades, etc. will be posted on the Course Canvas site. Class announcements will be done via email through the Canvas server. You will be responsible for any information contained in them as well as the information announced in class.

• It is your responsibility to also regularly check your Umail (make sure you set up forwarding if you do not check it regularly), your Umail is the only way for me to communicate privately with you, there will be occasions during the semester that we may need to reach out to you individually (e.g. regarding a grade or assignment) and it is in your best interest to respond promptly.

• Feel free to contact me by email for questions at krtolica@math.utah.edu, I will do my best to answer emails promptly. I would like to encourage you to email me only if it is something personal that requires individual attention, if instead you have questions about logistics of the class, course material and assignments, and anything else your classmates may wonder as well, please post a question on the Discussions Board instead. This way the information is shared quickly to the entire class, and each of you can benefit from seeing other classmates’ questions.

• 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 (or Canvas mail), the posts on the Discussions Board, and pay attention to the announcements given in class and Discussion Section.

• Students are expected to log in and check canvas everyday for posted announcements and assignments. Students are also strongly advised to set up notifications for canvas so they do not miss any important notifications.

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
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 Olpins 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.

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 (Lab: algebra review)

Week 2 Chapters 0.7, 1.4, 1.5 (Lab: limit basics) Note, Friday Aug. 30th 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 (Sep. 18 in Zoom) (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 (Oct. 16 in Zoom) (Lab: exam review) Note, Friday Oct. 16th is the last day to withdraw

Week 9 Chapter 3.5-3.7 (Lab: optimization)

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

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

Week 12 Chapters 4.5, 4.6, review, Exam 3 (Lab: exam review) (Nov. 13 in Zoom)

Week 13 Chapters 5.1-5.2 (Lab: evaluating definite integrals)

Week 14 Chapters 5.3-5.4 (Lab: applications of integration)

Week 15 Chapter 5.5, review (Lab: final exam review)

Week 16 Final Exam Friday Dec. 11th from 8:00 - 10:00 am in Zoom.