

Winter 2019 Math 272
Multi-variable Calculus 1
Samuelson 101, 8:00 - 8:50 M-F

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Office Hours: M-F 9:00 - 9:50, and by appointment.

Course Goals: Math 272 is a first course in multi-variable calculus, although the first topic is infinite sequences and convergence. You will learn what about Taylor polynomials and their error estimates. Then, you will learn what it means for an infinite series to converge, as well as various tests to determine when a given series converges. Then, we will move on to vectors and the geometry of space. Here, you will learn what the dot and cross products are, as well as how to calculate them and their geometric interpretations. In addition, you will learn how to use the dot product to decompose a given vector. Then, we will learn about multi-variable functions, their graphs, contours, and what continuity for such functions means. Finally, we will study partial derivatives and their applications. You will learn how to calculate partial derivatives, and use them to classify critical points and maximize and minimize multi-variable functions. In terms of chapters in the book, we will cover Sect 8.4, and portions of Chapters 10 through 14.

Occasionally, we will be using the computer lab in Samuelson 138 on Tuesdays. I will announce these lab days ahead of time, and I'll try to put a note up on the regular class door to remind you if you forget.

Required Text: Calculus, by Rogawski and Adams, 3rd ed.; Freeman

Make sure that you have Chapters 9, 10, and 12 through 15!

1 Grades/Exams/Homework

Grades

Grades will be calculated using the following weighting system: Exams: 55% (broken up as follows: 15% for each mid-term and 25% for the final), Quizzes: 40%, and Homework: 5%. This corresponds to the formula

$$(.4) * \frac{\text{quiz points earned}}{\text{quiz points possible}} + (.05) * \frac{\text{HW points earned}}{\text{HW points possible}} + (.15) * \frac{\text{Exam 1 score}}{\text{points possible on Exam 1}} \\ + (.15) * \frac{\text{Exam 2 score}}{\text{points possible on Exam 2}} + (.25) * \frac{\text{Final Exam score}}{\text{points possible on Final Exam}}.$$

Letter grades will be assigned according to the following scale:

	87 – 89.9 : B+	77 – 79.9 : C+	67 – 69.9 : D+	below 60 : F
93 – 100 : A	83 – 86.9 : B	73 – 76.9 : C	63 – 66.9 : D	
90 – 92.9 : A–	80 – 82.9 : B–	70 – 72.9 : C–	60 – 62.9 : D–	

Exams

There will be three exams: two mid-terms and a final. The first mid-term will be on Thursday, January 24, the second mid-term will be Thursday, February 14 and the Final Exam will be on Thursday, March 14. The Final Exam will be cumulative, and **CANNOT** be taken early! **DO NOT** plan on taking your final early. If you miss an exam, you can take a make-up, but only if you have proof of a compelling reason for having missed the exam and notify me before (if possible) or within 24 hours after an exam to get a make-up. I will not give make-ups for circumstances you know about ahead of time! When a make-up exam cannot be taken before I return the corrected exam, I reserve the right to instead replace that portion of your course grade with your final exam grade.

Quizzes

We will have a take-home quiz every week, except for those weeks when we have an exam. Each quiz will be due **at noon** two days after being handed out. (So, a quiz handed out on Tuesday will be due at noon on Thursday.) I encourage you to work with other students, but you should write up your solutions in your own words. There will be a quiz in the last week of class.

Homework

Homework will be assigned as we go. Problems assigned on a Wednesday or later will be due on the Friday of the following week **at noon**. (For example, any problems assigned on January 3, 4, 7, 8 or 9 will all be due on Friday, January 11.) I will be assigning odd problems from the book and will grade on completion only. This means I'll be most interested in the work you've done - if you just write down an answer, you won't receive any points. It is a good idea to work with other students from class. We won't have time to do many homework problems in class, so please feel free to ask during office hours. However, don't put off asking about homework until the day before it's due. There will be a homework due the last week of class, and at your final exam.

Late and Make-up Policy for Homework and Quizzes

Homework and quizzes are due at noon on their due date. Assignments handed in after that time on their due date will lose 4 points immediately, and 4 more points for every 24 hours after. That means: if you hand in a quiz at 12:30 on its due date, you can earn at most 16 out of 20 on that quiz. If you hand in your quiz at 12:30 the day after it is due, you can earn at most 12 out of 20, since over 24 hours will have passed. You may email me pictures or scans of your completed homework or quizzes, but you must still hand in a hard copy for me to grade as soon as possible.

Expectation for Quizzes and Exams

Your quizzes and exams should be written up neatly and legibly. You should remember that you earn points by showing that you know what you're doing. As a result, work that has no explanations or that is disorganized will not earn full credit! You should always try and describe what you are doing. For example, if you want to show a series converges using the ratio test, you should write "This series converges by the ratio test, because...[mathematical formulas here]". We have a great deal of material to cover in a quarter. As a result, the pace of the class will be very fast, and it may not always be possible to answer every question in class. If you have a question that we weren't able to get to in class, please come by office hours or email me to set up an appointment if you can't make office hours. **You must bring your notes to office hours!**

2 Important Dates

January 9 - Last Day for Add/Drop

January 24 - first mid-term exam

February 14 - second mid-term exam

February 15 - uncontested withdrawal deadline

March 14 - final exam

Central Washington University is committed to creating a learning environment that meets the needs of its diverse student body. If you anticipate or experience any barriers to learning, discuss your concerns with the instructor. Students with disabilities should contact Disability Services to discuss a range of options to removing barriers, including accommodations. Student Disability Services is located in Hogue 126. Call (509) 963-2214 or email ds@cwu.edu for more information.