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Winter 2014 Math 272
Multi-variable Calculus 1
Shaw 106, 10:00 - 10:50 M-F and Bouillon 103 on occasional Wednesdays

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Instructor: Dr. Jim Bisgard   **Office:** Bouillon 118
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Webpage: http://www.cwu.edu/~bisgardj   **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 portions of Chapters 9 and 10, as well as Chapters 12 through 15.

Occasionally, we will be using the computer lab in Bouillon 103. 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: <u>Calculus</u>, by McCallum, Hughes-Hallett, et al, **5th** ed.; Wiley
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

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

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 30 , the second mid-term will be Thursday, February 20 and the Final Exam will be on **Thursday, March 20**. 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.

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 8, 9, 10, 13 or 14 will all be due on Friday, January 17.) 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.

Late and Make-up Policy for Homework and Quizzes

I will accept **TWO** late assignments for full credit. An assignment is a quiz or a homework. To get credit for a late assignment, it must be turned either before I return the corrected assignments to the rest of class or within two days of instruction of the due date, whichever comes FIRST. After that, I will not accept any late work for credit.

Expectation for Quizzes and Exams

Your quizzes and exams should be written up neatly and legibly, using complete sentences where appropriate. In addition, 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. Please remember: **You must bring your notes!**

2   Important Dates

January 10 - Last Day for Add/Drop
January 30 - first mid-term exam
February 14 - uncontested withdrawal deadline
February 20 - second mid-term exam
March 20 - final exam

3   Fine Print

Students with disabilities who wish to set up academic adjustments in this class should give me a copy of their "Confirmation of Eligibility for Academic Adjustments" from the Disability Support Services Office as soon as possible so we can discuss how the approved adjustments will be implemented in this class. Students without this form should contact the Disability Support Services Office, Bouillon 140 or dssrecept@cwu.edu or 963-2171.