

Welcome to Math 273 Multivariable Calculus 2 – Winter 2018

3:00 - 3:05 M-Th in Bouillon 102, occasional Tuesdays in Bouillon 103

Instructor: Dr. Jean Marie Linhart

Phone: (509) 963-2123

Webpages: (course) <http://canvas.cwu.edu>

(HW) <http://webwork.math.cwu.edu>

(me) <http://www.cwu.edu/math/jean-marie-linhart>

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Office Hours: M-Th 9:00 - 9:50 am
and by appointment.

Required Text: *Multivariable Calculus*, by Rogawski and Adams, 3rd edition

We cover Chapter 15, 16, 17

Assignments and grades will be posted to Canvas. We will be using WeBWorK for online homework. Login to WeBWorK the first time using your Canvas user name (all lowercase) as your user name and password. Please change your password immediately.

Course Goals: We can readily observe 3 spatial and one time dimension in our day-to-day lives, yet most of the math you've learned up to now is restricted to one or two dimensions. Then there are phenomena like the wind, which give a vector at every point of space; these are called vector fields. In order to describe this world and phenomena that depend on more than one influencing factor, we need multivariate (more than one variable) mathematics, and this is the subject matter we will be investigating this quarter.

Math 273 is a second course in multivariable calculus, and the main object of study is multivariable integration in a wide variety of flavors.

Perhaps the most important part of the course comes at the end, when we will discuss generalizations of the fundamental theorem of calculus to calculate such integrals: Green's Theorem, Stokes' theorem and the divergence theorem. That might all sound like gobbledygook for now, but I will do my best to help you understand what these things refer to in our physical world, as well as help you learn how to do mathematics with them.

In terms of book chapters, we will be covering Chapters 15 through 17.

Occasionally, we may use the computer lab in Bouillon 103.

Grades/Exams/Homework

Grades

Grades will be calculated using the following weighting system and scale.

3 Exams	55%	93-100	A	77-79.9	C+	60 - 62.0	D-
Final	20%	90-92.9	A-	73-76.9	C	below 60	F
Homework	21%	87-89.9	B+	70-72.9	C-		
		83-86.9	B	67-69.9	D+		
Attendance	4%	80-82.9	B-	63-66.9	D		

Exams

There will be three in-class midterm exams, and a final exam. The Final Exam will be cumulative. The midterm exams are equally weighted.

Homework

Graded homework consists of assignments posted to Canvas, this may include reading summaries from the book, WebWoRK, problems to be done at home, or take-home quizzes.

Your work to be neat and easy to read; your work should be presented in a logical order; you should use words to explain your line of reasoning. Include a graph or a diagram; almost every problem in multivariate calculus requires one.

WebWoRK is the online homework system for the math department at CWU. Problems assigned through WebWork are to make sure you get practice with some of the problems of multivariable calculus. WebWoRK can easily be started early and worked on incrementally; deadlines are firm, no extensions will be given. You will have at most 5 attempts on any problem that requires a typed answer; for multiple choice and true-false questions you will only get one attempt, so check your answer before submitting it. The lowest assignment score will be dropped to take into account unexpected emergencies.

Attendance

I expect you to be in class daily, and I take attendance daily. I will include an attendance assignment that is worth 20 points. You lose a point every time you miss a class, or are more than 8 minutes late. Lates are valued as 25% of an absence. A documented excused absence will result in missing 0.5 point.

Late and Make-up Policy for Graded Assignments, Quizzes and Exams

Field trips, illnesses, accidents and deaths in the family are a part of life. I will arrange to take late work or for a make-up or an alternative if you contact me either ahead of time or within 24 hours and provide documentation.

Because everyone can run into an occasional conflict, I will accept at most **one** late homework or other take-home (not WebWork) assignment, no questions asked, for full credit, provided it is handed in at the beginning of the next class period, or if you get my written (emailed) agreement to hand it in later. Likewise, your lowest quiz grade and lowest WebWork score will be dropped to take care of conflicts.

Emailing me with information about absences and late work will help to make sure there's a documentation trail in case I don't remember a verbal conversation.

Academic Integrity

You have to do your own practice in order to gain a new skill; we all know this. Most of academic integrity is simply making the work you hand in reflect the understanding in your brain. Since understanding something while you are reading it or looking at or having someone explain it to you it is often different from being able to explain or produce it yourself, try to write up your home work by yourself when you've put all the other resources away. Likewise, take the time to understand, answer, and write-up the WebWork assignments solo.

All in-class quizzes and tests are expected to be done without any resources except those explicitly authorized by the instructor. Do not discuss exams and quizzes with others who may not yet have taken the exam or quiz or within earshot of anyone who may be taking the exam or quiz at a later time. It is entirely possible for someone to be taking an exam or quiz at a later time than you are.

Cheating will result in at minimum a zero on the assignment, quiz or exam. Cheating will be reported to the office of student conduct. Egregious offenses may result in a failing grade for the course and/or more serious consequences as merited by the situation.

Getting Help:

We've all needed help with something. Working with students on math is one of the best parts of my job. If you find yourself feeling uncertain, wanting a deeper understanding, wanting to get better grades, or struggling to learn and succeed, please ask questions in class, post questions on Canvas, and come see me. I want to answer all your questions thoroughly, even though it may not be possible to answer every question during class itself. Please give me a chance to help. If you can't attend office hours, please send me an email and suggest several times when you are available so we can find a mutually convenient time to meet.

Secrets for success:

1. Read the book before class and take notes on what you read.
2. Attend class daily and participate willingly, whether it is by asking questions, answering questions, or working with others.
3. Budget time for homework – a minimum of 10 hours per week for work outside of class. It can help to have a regular times scheduled when you know you'll work on math.
4. Start on the homework problems as soon as you can.
5. Attempt to work on your math every day or at least every other day. The hardest part is usually getting started. Find a quiet place to work, get your book and notes together. Put away distractions such as your cell phone, TV, or laptop. Then, set a timer for 30 minutes (or 15 if you are having a bad day) and resolve to put your best effort in for at least that length of time.
6. Discussing problems and solutions with peers and using the internet is encouraged, with two caveats.
 - Before you go ask or look for a solution, make an honorable effort to solve the problem on your own. Spend time thinking and strategizing before asking or searching for help.
 - You must write up your understanding of a solution **on your own**. Practice makes perfect! See my [guide to group work and using outside resources](http://www.cwu.edu/math/group-work-and-using-outside-resources), <http://www.cwu.edu/math/group-work-and-using-outside-resources>, on the web.
7. As you progress in your university studies and in your career, problems get more and more difficult to solve. You may have to start with easier (possibly unassigned) problems before you are even ready to start to work on an assigned problem. Some problems may take more than an hour to solve. Persistence pays off.
8. Explain what you are doing. Use your words. This will help you to understand the concepts critical to success in the class, and will help you get a higher grade.
9. I am always happy to help you if you are stuck. You will get the most out of my help and the University Math Center if you attempt the problem on your own or with your peers before asking an expert.

10. Do your scratch work before you do a final write-up of your work. What you hand in should be neat and professional and all pages should be stapled together.

Important Dates

January 3 – classes begin
January 9 – change of schedule period ends
January 15 – MLK Day, no class
January 25 – First mid-term exam
February 15 – Second mid-term exam
February 16 – uncontested withdrawal period ends
February 19 – President’s Day, no class
March 1 – Third mid-term exam
March 9 – Last day of classes
March 14 - Final exam at noon in our usual classroom

Students with Disabilities

I am happy to work with students with disabilities. To set up academic adjustments in this class, you should give me or email me a copy of your *Confirmation of Eligibility for Academic Adjustments* from the Disability Support Services Office. **You must also come see me in office hours or make an appointment to come see me 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, Hogue 126 or ds@cwu.edu or (509) 963-2171. **Testing requests with testing services must be submitted at least 48 hours before an exam is given, or you will have to take the exam with the rest of the class.**