

Math 281—Fall 2023—CRN 13164

Course Information

Instructor	Robert Lipshitz
e-mail	lipshitz@uoregon.edu
Office	Fenton 303
Office Hours	In person: M 3:00–3:50, F 4:00–4:50. Zoom: Tu 7:00–8:00 p.m.. Time and format subject to change.

Course Prerequisites	Math 253 or equivalent.										
Course Requirements	There will be WeBWorKs (online) homework due roughly once a week, required written homework due once a week (but not turned in or graded), weekly quizzes, two midterm exams, and a final exam. There <i>will</i> be new material covered and homework assignments due during the last week of classes.										
Test Dates	<i>Midterm 1:</i> October 23. Subject to change if necessary. <i>Midterm 2:</i> November 13. Subject to change if necessary. <i>Final exam:</i> per Registrar's schedule. See below for policy regarding missed exams.										
Grading Policy	<table><tr><td>Online Homework</td><td>15%</td></tr><tr><td>Quizzes</td><td>15%</td></tr><tr><td>Midterm 1</td><td>20%</td></tr><tr><td>Midterm 2</td><td>20%</td></tr><tr><td>Final Exam</td><td>30%</td></tr></table> The lowest two online homework scores and lowest two quiz scores will be dropped, as a uniform way of handling illnesses, family crises, and other events that might interfere with the course.	Online Homework	15%	Quizzes	15%	Midterm 1	20%	Midterm 2	20%	Final Exam	30%
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Students with disabilities	The University of Oregon is committed to an inclusive learning environment. If you have a disability which may impact your performance on exams, please contact the Accessible Education Center to discuss appropriate accommodations. If there are other disability-related barriers to your participation in the course, please either discuss them with me directly or consult with the Accessible Education Center.										

Course Policies

- Cell phones, computers, etc. are not permitted in this class except by instructor's permission. (They don't bother me, but there is strong evidence they distract other students.)
- You should read the sections in the textbook once *before* they are covered in class, and then again after they are covered in class.
- Using electronics, notes, or the textbook on quizzes or exams is not permitted. Getting help from anyone other than the instructor on a quiz or exam is also cheating. Any instance of cheating will result in a zero on the assignment and being reported to the university, with a recommendation of failing the class.
- Posting any course materials to Chegg or other online sites is a violation of policies, and will be reported to the university for disciplinary action.
- Even though you will not turn in the written homework, it is a required part of the course. Some quiz problems and exam problems will be based on the written homework.

Missed Exams

- If you have a conflict with a midterm exam and you alert me at least 10 days in advance, you will have the opportunity to take a version the exam a few days early, without penalty. In particular, this is the mechanism for accommodating cases 3 and 4 in the UO Attendance and Engagement policy.
- If you miss one midterm exam, I will compute your midterm exam score by taking a weighted average of your score on the other midterm exam and the final (after normalizing using the class means and standard deviations).
- If you miss both midterm exams, you will have the opportunity to take a makeup midterm 2 within two weeks of midterm 2, at a 15% linear penalty. That is, whatever score you get on the makeup exam will be multiplied by 0.85. If you do not take the exam within two weeks, your midterm exam score will be computed as zero.
- If you miss the final exam and are otherwise passing the class, you will receive an incomplete in the class and have the option to take a makeup exam in the first two weeks of the winter quarter, with a 5% linear penalty. If you do not take the exam in that time, I will compute your grade as if you received a zero on the final exam.
- If you miss the final exam but were otherwise failing the class, you will not have an opportunity to re-take the exam, and will receive an F in the class.

Course Resources

- Textbook: *Multivariable Calculus*, ninth edition, by James Stewart, Daniel Clegg, and Saleem Watson.
- We will use Canvas to track grades and post some solutions.
- There is also a non-Canvas course website, with up to date syllabus and assignments:

<http://pages.uoregon.edu/lipshitz/Teaching/Fa23Ma281.html>



Getting Help. I have office hours every week. Get help as soon as you feel confused. See the course webpage for additional advice.

Course goals. The main goals of this course (learning outcomes) are:

- Compute and understand the geometry of the dot and cross product, and be able to use them to compute angles, projections, distances, and normal vectors.
- Understand how to describe lines, planes, as well as other curves and surfaces, via parametric and implicit equations, and how to identify curves and surfaces from equations.
- Determine continuity, limits, and derivatives of vector-valued functions (curves), and the relationship with velocity and acceleration.
- Use derivatives and integrals to describe basic geometric properties of curves, including arclength, TNB frames, and curvature.
- Determine whether functions of several variables are continuous and find limits of functions of several variables.
- Compute partial derivatives, directional derivatives, and the gradient of functions of several variables, and understand their geometric meanings.
- Find tangent planes to graphs of functions of two variables, and use them to approximate the function.
- Find maxima, minima, and saddle points of functions of several variables, including with constraints.

General university policies

General university policies, discussing academic disruptions, COVID, reporting observations, and so on, are here:

<https://provost.uoregon.edu/syllabus-guidelines>

Grading standards

Grades will be assigned consistent with the following standards:

- A: Demonstrated comprehensive mastery of the course material.
- B: Demonstrated a solid command of all of the key concepts and techniques in the course.
- C: A solid command of many key concepts of the class, but with some serious gaps.
- D: Did not demonstrate understanding of substantial parts of the course.
- F: Did not demonstrate understanding of even more substantial parts of the course, or participated in some kind of academic dishonesty.

Pluses and minuses indicate a slightly stronger or weaker demonstrated command of the material. Note that grades are assigned on the basis of accomplishment, not effort.

A combined score of 90% or more will guarantee you receive *at least* an A-, a combined score of 80% or more will guarantee you receive at least a B-, and a combined score of 70% or more will guarantee you receive at least a C-; but the cutoffs may be more generous than this.