

Instructor: Jennifer Thorenson

Textbook: James Stewart, Multivariable Calculus, 8th Ed., Cengage Learning, 2015

Prerequisite: Math 281

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Office Hours: Monday at 2-3:50pm, Tuesday at 1-2pm, Friday at 10-10:50am or by appointment.

Course Description: Math 282 is the second of two quarters on Multivariable Calculus. It is the study of integral calculus of multivariable functions and vector fields. The course begins with double integrals over regions in a plane and triple integrals over regions in space. It then transitions to vector calculus by defining and applying line integrals and surface integrals with an emphasis on Green's Theorem, Stokes' Theorem and the Divergence Theorem.

Workload: There will be homework due every week, as well as reading and class attendance. An average well-prepared student should expect to spend about 12 hours per week on this class.

Homework: A combination of WeBWorK and written homework will be used for assigned homework. These two components of the weekly homework will be due on Wednesday where the written assignment must be submitted by the beginning of class. Late assignments will not be accepted. However, special circumstances may be considered if notified in person prior to the due date. These assignments will be in addition to homework from the text (listed on the following page) which will not be collected, but is mandatory. The graded homework will not provide sufficient practice to learn the material or even cover all of the material so you must keep up with the text problems as well.

Note: WeBWorK homework can be found at

webwork.uoregon.edu/webwork2/Math282-23793

Your username is your duckid and your password is the same as your UO email password. If you have any difficulty logging in, please let me know as soon as possible.

While completing the WeBWorK assignments, it is important to write out all steps on a piece of paper. Even though the WeBWorK assignments are submitted online and all it grades is your final answer, it is crucial that you complete the assignment as if it is read and graded by me for your own understanding and as a means to practice writing solutions for exams. These assignments should be used as a study aid, but can only be useful if you have a complete solution.

When help is needed, WeBWorK has an Email Instructor button on the bottom of the screen. Please include as much detail as possible about what you have tried to solve the problem and the work you have done towards a solution. In WeBWorK, all I can view is your submitted answer so simply stating that the answer is incorrect and that you need help will not provide me with enough information to assist you.

Exams: There will be two in-class exams during the term; the first exam is on February 1 and the second exam is on March 1. The final exam is cumulative and scheduled for March 22 at 2:45pm. Exams can only be taken other than the scheduled time if arrangements are made in **advance** and a valid and admissible reason for not attending the scheduled time is provided. However, the final exam will not be administered early.

Bring your UO student ID to all exams.

Grade: The final grade will be based on homework (25%), midterm exams (20% each) and the final exam (35%).

Percentage	Grade
90-100%	A-, A
80-89%	B-, B, B+
70-79%	C-, C, C+
60-69%	D-, D, D+
0-59%	F

Learning Environment: The University of Oregon strives for inclusive learning environments. Please notify me if the instruction or design of this course results in disability-related barriers to your participation. You are also encouraged to contact the Accessible Education Center in 164 Oregon Hall at 541-346-1155 or uoac@uoregon.edu.

Classroom Environment: Disruptive behavior in the classroom will not be tolerated. Leaving class early or arriving late, unless by prior agreement with the instructor, is considered disruptive behavior. All cell phones and music players must be turned off during the class period.

Academic Misconduct: The code of student conduct and community standards is at <http://conduct.uoregon.edu>. While I encourage students to study together, any submitted homework must be your own and reflect your own understanding. It is not appropriate to help each other on exams, to look at other students' exams, or to bring unauthorized material to exams. In the event of academic dishonesty, the offense will be reported to the Office of Student Conduct and Community Standards and the student will be sanctioned up to receiving a failing grade in the course.

Course Goals:

Students should be able to understand the integral calculus of vector fields and multivariable functions. This overall goal includes:

1. The evaluation of integrals of multivariable functions over regions in a plane (double integrals) and over regions in space (triple integrals) using iterated integrals.
2. Understanding the polar coordinate system to evaluate double integrals and the cylindrical and spherical coordinate systems to evaluate triple integrals.
3. Using double integrals to compute moments, center of mass and moments of inertia of a lamina with a variable density.
4. The definition and application of line integrals of both scalar functions and vector fields. Additionally, use the fundamental theorem of line integrals to evaluate the line integral of a conservative vector field.
5. The evaluation and physical meaning of the curl and divergence of a vector field.
6. Using a multivariable vector function parameterization of a surface to find the tangent plane to the surface at a point, the area of the surface and define the integral of a multivariable function or a vector field over the surface.
7. Understand and apply Green's Theorem, Stokes' Theorem and the Divergence Theorem to compute line integrals and surface integrals of vector fields.

APPROXIMATE SCHEDULE

We will cover Chapters 15 and 16 of the text.

Week 1	15.1-15.3	Week 6	16.3-16.4
Week 2	15.4, 15.6	Week 7	16.5-16.6
Week 3	15.6-15.8	Week 8	16.7 (exam 2)
Week 4	15.8-15.9 (exam1)	Week 9	16.7-16.8
Week 5	15.9-16.2	Week 10	16.9 (Review)

Homework from the Text

Sec.	Problem	Sec.	Problem
15.1	4, 5, 12, 14, 15, 17, 19, 29, 32, 37, 43	16.1	5, 9, 11-18, 23, 26, 29-32
15.2	3, 4, 9, 13, 17, 19, 23, 25, 27, 31, 47-52	16.2	1, 3, 7, 10, 13, 19, 21, 33, 34, 39, 41, 45
15.3	8, 9, 11, 15, 20, 22, 25, 29, 31	16.3	4, 6, 9, 13, 15, 17, 22, 23, 25, 26, 35, 36
15.4	5, 7, 11, 14, 16	16.4	1, 3, 7, 9, 10, 12, 13, 17, 18, 22, 23, 31
15.6	5, 7, 9, 12, 13, 17, 19, 20, 29, 33, 39, 42	16.5	1, 2, 5, 7, 12, 13, 15, 17, 19, 33, 34, 38
15.7	15, 17, 19, 20, 21, 23, 24, 27,29	16.6	4, 6, 20, 23, 24, 35, 41, 42, 45, 46, 61
15.8	15, 17, 21, 23, 24, 25, 27, 30, 34, 35, 37, 41	16.7	6, 9, 14, 15, 16, 23, 25, 27, 31, 40, 43, 44
15.9	15, 17, 19, 21, 23, 25	16.8	3, 4, 7, 9, 13, 15, 17, 19
		16.9	2, 3, 5, 7, 8, 11, 13, 17, 26, 29, 31, 32