Instructor: Clover May
Office: MS 6903
Email: clovermay@math.ucla.edu

Office Hours: M 2:30-3:30pm,
W 2:30-3:30pm

Class Meetings: MWF 1:00-1:50pm, Franz Hall 1178

Course Website: https://ccle.ucla.edu/course/view/19F-MATH32B-1

Prerequisites: C- or better in Math 31B and Math 32A or equivalent.

Textbook: The textbook is *Multivariable Calculus* (3rd Edition or 4th Edition) by Rogawski and Adams. We will cover roughly Chapters 16, 17, and 18.

Grading: Your grade will be determined as the better of the following two options:

- 10% Homework + 35% Best midterm grade + 55% Final exam
- 10% Homework + 25% Midterm 1 + 25% Midterm 2 + 40% Final exam

Homework: Each week in discussion you will have a written homework assignment due at the beginning of discussion. Credit will only be given for complete solutions showing all work, written neatly and using correct notation. You are encouraged to work together on these problems, however you must turn in your own work. **No late homework will be accepted**, but your lowest two homework scores will be dropped. There may be online homework assignments as well.

Exams: There will be two in-class midterm exams and a cumulative final exam. The schedule for the midterm exams is below. The final exam is scheduled by the registrar.

Midterm Exam 1:	**Friday, October 25**	(Week 4)
Midterm Exam 2:	**Friday, November 22**	(Week 8)
Final Exam:	**Wednesday, December 11, 3:00-6:00pm**	(Week 11)

You must bring your student ID to exams. **There will be no make-up exams**. If you miss a midterm, your grade will be computed by the first rubric. **You must take the final exam as scheduled by the registrar in order to pass the class**.

Calculator Policy: You are welcome to use calculators or wolframalpha.com (a free online calculator) on homework, but *no* calculators or cell phones will be allowed on any of the exams in this course. Students are expected to be able to perform basic arithmetic operations with fractions and decimals by hand and know common values of trigonometric and log functions.

Campuswire: We will be using Campuswire to help manage course communication. To access it go to https://campuswire.com/ and log in to your account. More information can be found on CCLE.

Learning Outcomes: A successful student in this course will understand and be able to apply the integral calculus of vector fields and multivariable functions. Students successfully completing this course will be able to:

- set up and evaluate integrals of multivariable functions over regions in the plane (double integrals) and over regions in space (triple integrals) using iterated integrals.
- use the polar coordinate system to set up and evaluate double integrals.
- use cylindrical and spherical coordinate systems to set up and evaluate triple integrals.
- use double integrals to compute moments, center or mass, and the moment of inertia of a lamina with a variable density.
- define and apply line integrals of scalar functions and vector fields.
- use the fundamental theorem of line integrals to evaluate the line integral of a conservative vector field.
- evaluate and interpret the physical meaning of the curl and divergence of a field.
- use multivariable vector function parametrization of a surface to find the tangent plane to the surface at a point and the area of the surface.
- use parametrization to define the integral of a multivariable function or a vector field over the surface.
- interpret and apply Green's Theorem, Stokes' Theorem, and the Divergence Theorem to compute line integrals and surface integrals of vector fields.

General Expectations/Study Tips:

- *Attendance is mandatory.* You are responsible for any announcements, material, and assignments discussed in class.
- You must show all work and justify your reasoning on homework and exams. If I do not understand what you have written for a problem, you will not get credit for it.
- An atmosphere of mutual respect. In particular, cell phones, tablets, and laptops are to be powered off or silent and put away during class to limit distractions. Please keep talking to a minimum and raise your hand if you have a question.
- Go over your notes after each class. Explain to yourself or someone else what the lecture was about, what the key ideas were, and how the examples work.
- Read ahead in the book. It helps a lot to have already seen the material covered in class, even if you do not understand everything the first time through.
- Form a study group with others in the class. The best way to learn something is to try to explain it to someone else.
- Keep your old homework assignments and exams. Make sure you know how to do each problem correctly and use these for studying for future tests.
- If you are having trouble with the course material, I expect you to ask for help. You are encouraged to come to my office hours and to your TA's office hours. There is also free tutoring in the Student Math Center in MS 3974, M-Th 9am-3pm.
- If you need to contact me via email you should write **Math 32B** in the subject line or I may not receive it.

Student Conduct: Violations of the student conduct code can result in a failing grade on any course work related to the violation, a failing grade in the course, and/or suspension. Cheating includes, but is not limited to

(a) looking at another student's exam during a quiz or test,
(b) copying the work of another person and submitting it as your own, and
(c) using any materials except those explicitly approved during a test-taking situation.

For more information, see the Student Conduct Code at
https://www.deanofstudents.ucla.edu/studentconductcode.

Accessibility: Students needing academic accommodations based on a disability should contact the Center for Accessible Education (CAE) at (310)825-1501 or in person at Murphy Hall A255. In order to ensure accommodations, students need to contact the CAE within the first two weeks of the term.

Tentative Schedule:

Week	Date	Sections
0	Fri 9/27	16.1: Integration in two variables
1	Mon 9/30	16.1 Integration in two variables
	Wed 10/2	16.2 More general regions
	Fri 10/4	16.2 More general regions
2	Mon 10/7	16.3 Triple integrals
	Wed 10/9	12.3 Polar coordinates
	Fri 10/11	16.4 Integration in polar coordinates
3	Mon 10/14	16.4 Integration in polar coordinates
	Wed 10/16	16.5 Applications of multiple integrals
	Fri 10/18	16.6 Change of variables
4	Mon 10/21	16.6 Change of variables
	Wed 10/23	17.1 Vector fields
	Fri 10/25	**Midterm Exam 1**
5	Mon 10/28	17.1 Vector fields
	Wed 10/30	17.2 Line integrals
	Fri 11/1	17.2 Line integrals
6	Mon 11/4	17.3 Conservative vector fields
	Wed 11/6	17.3 Conservative vector fields
	Fri 11/8	17.4 Parametrized surfaces
7	**Mon 11/11**	**Veterans Day** - No class
	Wed 11/13	17.4 Parametrized surfaces
	Fri 11/15	17.5 Surface integrals
8	Mon 11/18	18.1 Green's theorem
	Wed 11/20	18.1 Green's theorem
	Fri 11/22	**Midterm Exam 2**
9	Mon 11/25	18.2 Stokes' theorem
	Wed 11/27	18.2 Stokes' theorem
	Fri 11/29	**Thanksgiving Holiday** - No class
10	Mon 12/2	18.3 Divergence theorem
	Wed 12/4	18.3 Divergence theorem
	Fri 12/6	Catch up and Review
11	**Wed 12/11**	**Final Exam**