

Math 18C Multivariable Calculus Fall 2018

Sec. 3302, MWF 11:20am - 12:55 pm, Room: Sequoia 102

Instructor: Joe Manlove, Sequoia 103, manlovej@yosemite.edu, Office: 209.588.5083, Cell: 406.600.7281

Office Hours: 10:00 to 11:00 MWF, 11:00 to 1:00 Tuesday, and 12:30 to 1:00 Thursday (or by appointment)

Contact: To contact me, try my office first. I am often in my office outside of my hours. Feel free to come see me anytime. If you can't locate me, feel free to email or text me. I will respond quickly during reasonable hours and somewhat more slowly if I am asleep.

Accessibility: Columbia College is committed to providing access and inclusion for all persons with disabilities. Students with verified disabilities who are registered with Columbia Colleges Disabled Student Programs and Services (DSPS) who need specific access in this course, such as accommodations, should contact the instructor early in the semester so that accommodations may be implemented as soon as possible. Students can connect with Disabled Student Programs and Services (DSPS), located in upper Manzanita or call 209-588-5130 for an appointment with the DSPS Coordinator/Counselor. More information is available at <https://www.gocolumbia.edu/dsps/>. Through DSPS, course Accessibility Forms, the Academic Accommodation Plan (AAP) and Letter of Accommodation (LOA) may be created and brought or sent to instructors. This process informs instructors of potential access and accommodations that are reasonable. This syllabus is available in alternate formats upon request.

Textbook: [The textbook is here](#). It's a free pdf, you can order a printed copy from Lulu.

Prerequisites: C or better in Math 18B

Grades:

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

Videos	Quizzes	Test 1	Test 2	Project	Final
50	50	100	100	50	150

Videos: You'll need to do the boring bits of class on your own outside of class, so I need you to [go to edpuzzle](#) and sign up for my class. The boring bits are the part where I talk at you, the exciting bits are where your brain meets the paper. This means you probably will be able to get mostly or entirely done with the homework in class.

Homework: If you have questions (or would like feedback on homework) please come to my office hours, email me, go to the Math Lab, or check out [the videos on the 18C playlist on the Youtube Channel](#).

Quizzes: Quizzes will be given daily in class. There will be approximately 40 quizzes over the semester; 35 of them will count towards your grade.

Topics Covered: Vectors and solid analytic geometry, vector valued functions, partial differentiation, multiple integrals, vector fields and vector calculus.

Outcomes:

The Math Department SLOs state students successfully completing this course will be able to:

- Use vectors in multidimensional space
- Apply derivatives and integrals in multidimensional space
- Apply Stokes Theorem

The Course Objectives from the Course Outline of Record:

- Find vector, parametric, and scalar equations of lines and planes in three-dimensional space
- Use vector operations (dot product, cross product, triple product, and projections) to compute distances, angles, areas, and volumes in three dimensions.
- Find the limit of a function of several variables at a point.
- Determine differentiability. If applicable, find and interpret partial derivatives, directional derivatives, higher derivatives, and gradient vector fields for functions of several variables.
- Apply derivatives and integrals to problems of position, velocity, acceleration, and arc length.
- Correctly apply the chain rule for transformations.
- Find potential extrema and saddle points. Test to determine if such a point is a maximum, minimum, or saddle point.
- Solve optimization problems and constraint problems using either extrema or Lagrange multipliers.
- Set up and evaluate multiple integrals in rectangular, cylindrical, and spherical coordinates to find volume, mass, and surface area.
- Set up and evaluate line integrals.
- Find the divergence and curl of a vector field.
- Set up surface integrals and apply Green's theorem, the divergence theorem and Stokes' theorem.

This schedule is approximate, be prepared for small adjustments to it.

Monday	Wednesday	Friday
August 27 Syllabus Latex	29 12.2	31 12.3 12.4
September 3 Labor Day No Class	5 12.5	7 13.1
10 13.2	12 13.3	14 13.4
17 14.1	19 14.2	21 14.3
24 14.4	26 14.5	28 14.6
October 1 Review	3 Test 1	5 14.7
8 14.7	10 14.8	12 14.8
15 15.1	17 15.2	19 15.3
22 15.4	24 15.5	26 15.6
29 15.6	31 15.7	November 2 Review
5 Test 2	7 16.1	9 16.2 16.3
12 Veteran's Day	14 16.4	16 16.5
19 16.6	21 16.7	23 Thanksgiving No Class
26 16.8	28 16.8	30 16.9
December 3 16.9	5 Review	7 Review

Final Exam :: Monday, December 10 :: 11am - 1pm