

MATH 202: VECTOR CALCULUS

Instructor: John Lind
Office: Library 390
Office Hours: M 15:00-16:30, T 10:30-11:30, F 11-11:50; also by appointment
lind@reed.edu
people.reed.edu/~lind/202/

Class meeting: MWF 9:00–9:50 Library 204 [S01]
MWF 12:00–12:50 Library 204 [S03]

This course explores differential calculus of many real variables. Drawing on your knowledge of linear algebra, we will examine how partial derivatives assemble to give the best linear approximation of a multivariable function. The integration of a function of many variables is substantially more subtle than differentiation. We will use the language of differential forms to study this idea and its geometric meaning. The course will end with the classic integral theorems (Green’s theorem, Gauss’s theorem, Stokes theorem). I will emphasize rigor throughout, and hope to inspire a more advanced mathematical perspective on this fundamental material.

Text. “Calculus and Analysis in Euclidean Space,” Jerry Shurman, Springer (2016) [ISBN: 978-3-319-49312-1]. Available in the bookstore, online (see Prof. Shurman’s website), and on reserve at the library.

Assignments, Exams. There will be weekly homework assignments, one midterm exam, and one final exam.

Tutoring. There is a drop-in math tutoring center open Sundays through Thursdays, 19:00–21:00, in Library 389.

I expect you to comport yourself with honor, as derived from respect for the academic program, your peers and your instructors. Collaboration is an important part of the mathematical life, and I encourage you to talk to your peers and work on problems together. Your homework is a reflection of your own understanding of the material and should be written entirely by you, in your own words, with proper attribution of your collaborators at the beginning. I consider copied homework to be an honor principle violation.