

Summer B 2021 Math 1202 S: Calculus IV

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Office Hours: Wednesday and Friday, 1:00 - 2:00 pm

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Office Hours: Monday and Tuesday, 10:00 - 11:00 am

Course Webpage: math.columbia.edu/~pieloch/columbia-calculus-IV-summerB-2021.html

Textbook: James Stewart, *Calculus: Early Transcendentals*, 8th edition (ISBN-13: 978-1305071759)

Course Description: An introduction to integral calculus of several variables. We will cover multiple integrals and vector calculus, including the famous theorems of Green, Gauss and Stokes. This roughly comprises chapters 15 and 16 from the textbook. As time permits, the course will conclude with introducing the theory of functions of a complex variable. Notes and references will be provided for this material. For a more detailed list of topics, see the schedule below.

Lectures: All lectures will be held via Zoom. The Zoom links, meeting IDs, and passcodes can be found under the "Zoom Class Sessions" tab on courseworks.

Office Hours: Both the instructor and TA will hold weekly office hours. All office hours will be held via Zoom. The Zoom links, meeting IDs, and passcodes can be found under the "Zoom Class Sessions" tab on courseworks.

Homework: We will be using WebAssign for the submission and grading of homework. There will be a homework assigned each week. New problems will be added/assigned after *every*¹ lecture. All problems assigned during the week will be due the following Monday. Note, that when problems are assigned Thursday after class, you will have roughly three days to complete them. Given the fast pace of the course, it is suggested that students complete the newly assigned problems in a timely manner. For some information on WebAssign, please see: <https://www.math.columbia.edu/programs-math/undergraduate-program/web-assign/>

Exams/Quizzes: There will be two exams for this course. The exact format of the exams has yet to be determined; however, they will most likely be timed, closed book exams. There will also be weekly quizzes during the weeks when no exams are given. These quizzes will be timed, closed book quizzes that will be conducted via CourseWorks. For tentative dates of the quizzes and exams, see the schedule below.

¹almost every

Grading: The final course grade will roughly be determined by:

- Homework: 10%
- Quizzes: 20%
- Midterm 1: 30%
- Midterm 2: 40%

Academic Honesty: Copying your assignments, quizzes, exams, etc. from somebody else's assignment or from any other source is considered cheating. Any cheating on assignments, quizzes, or exams will be reported and dealt with severely.

Important Dates: Please see the university's academic calendar for deadlines for drop/add, change of grading, withdraw, etc.. (<https://www.registrar.columbia.edu/event/academic-calendar?page=1>) Note, you will have taken the first two quizzes by the drop/add date; however, you will not have taken the first of two exams.

Schedule: The tentative schedule for the course is below.

Week	Day	Topics
Week 1	6/28 6/29 6/20 7/1 7/4-7/5	(15.1) Introduction; Double integrals over Rectangles (15.2) Double integrals over general regions (15.3) Double integrals in polar coordinates (15.4) Applications of double integrals (probability) Quiz 1
Week 2	7/5 7/6 7/7 7/8 7/11-7/12	No Class - University Holiday (15.5) Surface area (15.6) Triple integrals (15.7) Triple integrals in polar coordinates Quiz 2
Week 3	7/12 7/13 7/14 7/15 7/18-7/19	(15.8) Triple integrals in spherical coordinates (15.9) Change of variables in multiple integrals (16.1) Vector fields Review of chapter 15 Exam 1
Week 4	7/19 7/20 7/21 7/22 7/25-7/26	(16.2) Line integrals (16.3) The fundamental theorem for line integrals (16.4) Green's Theorem (16.5) Curl and divergence Quiz 3
Week 5	7/26 7/27 7/28 7/29 8/1-8/2	(16.6) Parametric surfaces and their areas (16.7) Surface integrals (16.8) Stokes's theorem (16.9) The Divergence Theorem Quiz 4
Week 6	8/2 8/3 8/4 8/5 8/8-8/9	Complex Functions 1 Complex Functions 2 Complex Functions 3 Final exam review Quiz 5
Week 7	8/11-8/12	Exam 2