

CALCULUS II

SPRING 2019

Logistics.

- **Lectures.** Mathematics 417, Tuesdays and Thursdays 2:40 PM–3:55 PM.
- **Instructor.** Raymond Cheng, Mathematics 207, rcheng@math.columbia.edu.
- **Office Hours.** Fridays 1:00 PM–2:30 PM, or by appointment.
- **Teaching Assistant.** Byung Chan Ko, bk2673@columbia.edu.
- **Website.** math.columbia.edu/~rcheng/S2019.html.

Course Content. This second course in Calculus revolves around applying the Fundamental Theorems and tools developed in Calculus I. Roughly speaking, the course is subdivided into three major parts:

- (I) Basic methods of integration;
- (II) Sequences and series;
- (III) Applications of integration.

The text for this course is James Stewart, *Calculus, Early Transcendentals*, 8th Edition.

Schedule. A tentative schedule for the course is as follows.

Class	Date	Topic
1, 2	01/22, 01/24	Chapter 5, §§6.1–6.3 (integration, areas, volumes)
3, 4	01/29, 01/31	§§7.1–7.2 (integration by parts, trigonometric methods)
5, 6	02/05, 02/07	§§7.3–7.4 (trigonometric substitution, rational functions)
7	02/12	§7.8 (improper integrals)
8	02/14	Review
9	02/19	Midterm I
10	02/21	§§11.1–11.2 (sequences and series)
11, 12	02/26, 02/28	§§11.3–11.6 (comparison, alternating, ratio, root tests)
13, 14	03/05, 03/07	§§11.7–11.9 (power series)
15, 16	03/12, 03/14	§§11.10–11.11 (Taylor series)
17, 18	03/26, 03/28	Review and Midterm II
19, 20	04/02, 04/04	§§8.1–8.2 (arc length, surfaces of revolution)
21, 22	04/09, 04/11	§§6.2–6.3 (volumes of rotation)
23, 24	04/16, 04/18	§9.1, §9.3, §9.5 (DEs, separable equations, linear equations)
25, 26	04/23, 04/25	§§10.1–10.4 (parameterized curves, polar coordinates)
27, 28	04/30, 05/02	Review

Evaluation. There will be

- approximately 12 weekly assignments, lowest two scores being dropped,
- 2 midterm exams, administered in class on 02/19 and 03/28, and
- a cumulative final exam, tentatively on 05/16 from 1:10 PM to 4:00 PM.

All exams are closed book and no calculators will be needed nor permitted. Your final grade will be determined as the maximum of the following three schemes:

- (i) 25% assignments + 22.5% midterm 1 + 22.5% midterm 2 + 30% final; or
- (ii) 25% assignments + 10% midterm 1 + 30% midterm 2 + 35% final; or
- (iii) 25% assignments + 10% midterm 1 + 10% midterm 2 + 55% final.

Conflicts. If you have a conflict with any of the exams, please see me as soon as possible and at least one week before the exam. You are expected to take exams at their scheduled times, except possibly in case of an appropriately documented medical emergency.

Assignments will typically be assigned on Tuesdays and are due by the end of the following Tuesdays. These are to be submitted in the drop box outside of Mathematics Room 407. *Late assignments will not be accepted.* The TA will grade your assignment and should be contact for grading issues.

When writing up your assignments, show your reasoning and computations. Solutions are graded on correctness and explanation. A correct answer without justification will generally not receive full credit.

Collaboration is welcome, but please understand and write your own solutions. Please also acknowledge your collaborators and any other sources by writing their name on the top of your assignment; this will not affect your assignment grade.