Math 31B: Integration & Infinite Series
Winter 2023

Contact Information

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Course Information

Course Website: https://bruinlearn.ucla.edu/courses/158762
Piazza: https://piazza.com/class/lcjastm345s4k3
Course Meetings:

- (Lecture) MWF 11:00 - 11:50 am, MS 5117
- (Discussion) Th 11:00 - 11:50 am, Boelter 5273

Prerequisites: Math 31A with a grade of C- or better.

Textbook: *Single Variable Calculus* (4th edition) by Rogawski, Adams, Franzosa. Older editions cover the same content, as does the text just title *Calculus*. However, homework problems will be assigned from the edition that I have listed.

Description: This course is a continuation of Math 31A. You should be reasonably comfortable with computing basic limits, derivatives, and integrals, and you should also be comfortable with the algebra required to do so. We have five goals for the course:

- Finish up differential calculus and learn additional techniques for computing limits/derivatives.

- Cover the standard techniques for integration of elementary functions.

- Understand what it means for an integral to be "improper", and examine some techniques for computing integrals when it cannot be done exactly.

- Understand what an infinite series is, and what it means for an infinite series to "converge". We will devote a lot of time to learning tests for checking when a series does/does not converge.

- Understand how to make "good" approximations to functions using polynomials, and how this leads to the theory of power series. Ultimately, our goal is to understand how to do calculus using power series.

Evaluation Information

Grading: Your course grade will be computed based on the maximum of the following two schemes:

Scheme 1

- 20 % Homework
- 20 % Midterm
- 20 % Midterm 2
- 40 % Final

Scheme 2

- 20 % Homework
- 25 % Best midterm
- 55 % Final

An average of 90% or higher will guarantee you at least an A−, an average of 80% or higher will guarantee you at least a B−, and an average of 70% or higher will guarantee you at least a C−. In general, final letter

grades will be assigned by adjusting these cutoff scores lower, relative to the overall performance of the class. In other words, the course is graded on a curve, but that curve cannot hurt you.

Homework: Homework assignments will be posted weekly on Bruin Learn and will be collected via Gradescope, generally due the following week. A subset of homework problems will be graded for accuracy, and the rest will be graded for completion. **Your lowest homework score will be dropped** when computing your course grade. **Late homework will not be accepted.**

You are encouraged to work together on the homework. In fact, you are likely to learn the course content better by discussing it with other students! (on Piazza, or otherwise.) However, your homework submissions must be your own work, written in your own words. Copying from websites like Chegg, for example, will be treated as plagiarism.

Midterm Exams: There will be two midterm exams taken in place of lecture. The dates are as follows:

- Friday, February 3rd
- Friday, March 3rd

There are no make-up exams. If you miss a midterm, you will automatically be graded via the second scheme.

Final Exam: A cumulative final exam will be held on **Thursday, March 23rd** from **8:00 - 11:00 am** in **TBD**. Per UCLA policy, you must take the final exam to pass the course.

For all exams, you are permitted a basic scientific calculator. This means a non-graphing calculator, and it must not be able to symbolically differentiate or integrate.

Academic Policies

Academic Integrity: Academic dishonesty in any area of coursework will not be tolerated. Please refer to `http://www.deanofstudents.ucla.edu/Portals/16/Documents/UCLACodeOfConduct_Rev030416.pdf`. **Violation of course policy involving plagiarism, cheating, or possession of course materials during exams will be referred to the Dean of Students**.

Accessibility: If you are already registered with the Center for Accessible Education (CAE), please request your Letter of Accommodation in the Student Portal. If you are seeking registration with the CAE, please submit your request for accommodations via the CAE website. Students with disabilities requiring academic accommodations should submit their request for accommodations as soon as possible, as it may take up to two weeks to review the request. For more information, please visit the CAE website (`www.cae.ucla.edu`), visit the CAE at A255 Murphy Hall, or contact us by phone at (310) 825-1501.

Tentative Schedule

Here is a (rough) schedule of what textbook sections I plan to cover and when they will be introduced in lecture. Note: some sections will correspond to multiple lectures, and therefore may bleed into the next week.

- Week 1: 7.1, 7.2, 7.3, 7.6
- Week 2: 7.5, 8.1
- Week 3: 8.2, 8.3
- Week 4: 8.5
- Week 5: 8.7, 8.8

- Week 6: 11.1, 11.2
- Week 7: 11.3, 11.4
- Week 8: 11.5
- Week 9: 11.6,11.7
- Week 10: 11.8