MATH 31B - Integration and Infinite Series

Winter 2026

Instructor: Pablo López Rivera (plopez@math.ucla.edu)
Time and place: MWF 1:00-1:50 p.m.; Young Hall CS76.
Course website: https://bruinlearn.ucla.edu/courses/223206
How to reach me: Contact me after lectures, during office hours, or via email.
Office hours: (Tentative) Wednesday, 10:30-11:15 a.m.; Friday, 10:30-11:15 a.m. (Room: MS 6903.)
Teaching Assistants: Adam Knudson, Sean Ku, and Jonathan Woo.

Overview and additional resources

Lecture, three hours; discussion, one hour. Requisite: course 31A with grade of C- or better. Not open for credit to students with credit for course 3B. Transcendental functions; methods and applications of integration; sequences and series.

Important Note: You will not be prevented from enrolling in this class, even if you do not meet the prerequisites. It is your responsibility to verify that you are allowed to enroll in this class.

Required textbook: *Calculus*, 4th edition, by Rogawski, Adams, and Franzosa. This textbook is part of the Inclusive Access program. This program gives you access to an online version of the textbook which lasts until the end of the quarter. If you do not want to be charged money for this progam, you must opt-out by the end of week 2.

Student Math Center: The Student Math Center (SMC) is where Math TAs hold flexible office hours throughout Weeks 2-10 of an academic quarter (fall, winter, and spring). Students are welcome to stop by to ask questions about lower division math courses. No appointments needed.

Location: MS 3974

Times: 9 am – 3 pm (Monday – Thursday).

Piazza: Piazza is a discussion board like extension from Bruin Learn. You can use it for questions about course material. Before posting, see if your question has already been addressed by classmates, TAs, or the instructor. Piazza allows anonymous posting if preferred (though the TA and I will know who you are). Engaging with your peers can lead to quicker responses. You are encouraged to help each other by answering questions and discussing material until the TA or I can provide further clarification.

Grades

Math 31B is taught in parallel lectures. Grade boundaries will be determined at the end of the quarter through consultation between all Math 31B instructors. This process will ensure that students demonstrating equal levels of mastery will receive equal grades, independent of which lecture they are enrolled in.

Your grade will be the better of the following two schemes:

- **Scheme 1:** 15% Quizzes, 25% Midterm 1, 25% Midterm 2, 35% Final.
- **Scheme 2:** 15% Quizzes, 30% Better Midterm, 55% Final.

Homeworks and Discussion Worksheets: Homework assignments and discussion worksheets will not be collected and will not count towards your grade. However, they are extremely important for your learning process and will prepare you for the quizzes and exams. You should attend discussion sections and work on the homework regularly.

Quizzes: There will be 5 quizzes throughout the quarter. Each quiz will be open for 24 hours on Gradescope. For each quiz, the 24 hour window will begin on a Thursday at 5pm and end on the next day (Friday) at 5pm. Once you start the quiz, you will have 20 minutes to solve the problems and 10 minutes to scan and upload your work to Gradescope. If you have CAE accommodations for exam times, the accommodation will be automatically applied through Gradescope to the 20 minute solving portion of the quiz.

It is your responsibility to ensure all pages are included and legible in your submission. These are individual quizzes, and you should not collaborate with anyone. See the pdf on exam instructions for the full set of rules. To account for any missed quizzes, your lowest score will be dropped. There will be no make-up quizzes. The dates on which the quizzes will begin: Jan 15, Jan 22, Jan 29, Feb 19, and Mar 12.

Exams: There will be two midterm exams and a final exam. Both midterms will be held in the evenings. The dates and times of the exams are:

- Midterm 1: Thursday, Feb 5 (week 5), 7pm-7:50pm
- Midterm 2: Thursday, Feb 26 (week 8), 7pm-7:50pm
- Final Exam: Sunday, March 15, 11:30am-2:30pm

You must take the final exam in order to pass the class. All the details, locations, and policies of each exam will be formally announced one week ahead of the exam and posted on Bruin Learn.

Gradescope submission: Students are required to submit all quiz assigments to Gradescope as a PDF. If your work is hand-written on paper, then you must submit this work as a scan-quality PDF. Once an assignment is uploaded to Gradescope, please follow the prompts and select the portions of your PDF that correspond to each problem of the assignment. It is

each student's responsibility to ensure that their own assignments are uploaded correctly and that their uploads are legible. Please always double check that you have uploaded your work correctly. (Common errors include: uploading an assignment for another class, forgetting to upload all pages of work, etc.) Failure to follow the submission policies for an assignment may result in loss of points on that assignment.

After each quiz has been graded, there will be a week-long period during which you can submit regrade requests if you find a mistake in the grading. Gradescope will show you the exact time at which the window for regrade requests will be closed. After the window is closed, you will no longer be able to make regrade requests for that assignment.

Tentative schedule

Here is a tentative (i.e., subject to change) schedule for the topics covered in lecture. Please keep in mind that we may have to deviate from this schedule. (The dates of exams will not change.)

Week 1

M Jan 5 Introduction, review of 31A.

W Jan 7 The exponential function.

F Jan 9 Logarithms, part 1.

Week 2

M Jan 12 Logarithms, part 2.

W Jan 14 L'Hôpital's rule, part 1

Th Jan 15 Quiz 1 window opens at 5pm

F Jan 16 L'Hôpital's rule, part 2

Week 3

M Jan 19 **Holiday, no class**

W Jan 21 Inverse trigonometric functions

Th Jan 22 Quiz 2 window opens at 5pm

F Jan 23 Basic trigonometric integrals

Week 4

M Jan 26 Integration by parts

W Jan 28 Trigonometric substitution

Th Jan 29 Quiz 3 window opens at 5pm

F Jan 30 Partial fractions, part 1

Week 5

M Feb 2 Partial fractions, part 2

W Feb 4 Review of all integration strategies

Th Feb 5 **Midterm 1, 7pm-7:50pm**

F Feb 6 Improper integrals, part 1

Week 6

M Feb 9 Improper integrals, part 2

W Feb 11 Sequences (introduction)

F Feb 13 Limits of sequences

Week 7

M Feb 16 **Holiday, no class**

W Feb 18 Introduction to series

Th Feb 19 Quiz 4 window opens at 5pm

F Feb 20 Test for divergence, integral test, p-test

Week 8

M Feb 23 Direct and limit comparison tests

W Feb 25 Review/catch-up

Th Feb 26 **Midterm 2, 7pm-7:50pm**

F Feb 27 Absolute convergence, alternating series test

Week 9

M Mar 2 Ratio and root test

W Mar 4 Power series

F Mar 6 Calculus with power series

Week 10

M Mar 9 Taylor series, part 1

W Mar 11 Taylor series, part 2

Th Mar 12 Quiz 4 window opens at 5pm

F Mar 13 Review/catch-up

Common Final exam: Sun Mar 15, 11:30am-2:30pm

CAE accommodations

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 them by phone at (310) 825-1501.

Please note that CAE and the instructor can support only reasonable accommodations. In particular, remote proctoring by either CAE or the instructor will not be supported for any exam or quiz administered in this class.