

MATH 31A, Differential and Integral Calculus, Lecture 4, Fall 2015

Exterior Course Website: <http://www.math.ucla.edu/~heilman/31af15.html>

Prerequisite: Successful completion of Mathematics Diagnostic Test or course 1 with a grade of C- or better.

Course Content: Differential calculus and applications; introduction to integration, optimization, Newton's Method, volumes.

This Document: Reading this syllabus counts as one homework grade. In order to receive credit for reading the syllabus, you must read the syllabus by October 2nd, noon, PST. Make sure to read to the end.

Lecture Meeting Time/Location: Monday, Wednesday and Friday, 2PM-250PM, Franz 1178

Instructor: Steven Heilman, heilman@math.ucla.edu

Office Hours: Mondays, 9AM-12PM, MS 5634

TAs: Christian, A. archristian@ucla.edu, Hong, P. C., philiphong@ucla.edu, Pham, M. H. minhrose@math.ucla.edu

TA Office Hours: Christian, A., Tuesdays and Thursday, 2PM-3PM, MS 3969, Hong, P. C., Tuesdays 11AM-12PM, MS 6221, Pham, M. H., 1PM-2PM Tuesdays and Thursdays, MS 3955

Discussion Session Meeting Time/Location:

- 4A, Tuesday, 2PM-250PM, MS 5127, Christian, A. <http://www.math.ucla.edu/~archristian/teaching/31a-f15.html>
- 4B, Thursday, 2PM-250PM, Boelter 5422, Christian, A. <http://www.math.ucla.edu/~archristian/teaching/31a-f15.html>
- 4C, Tuesday, 2PM-250PM, MS 5117, Hong, P. C.,
- 4D, Thursday, 2PM-250PM, MS 5117, Hong, P. C.,
- 4E, Tuesday, 2PM-250PM, PAB 1749, Pham, M. H. <https://www.math.ucla.edu/people/grad/minhrose>
- 4F, Thursday, 2PM-250PM, PAB 1749, Pham, M. H. <https://www.math.ucla.edu/people/grad/minhrose>

Recommended Textbook: J. Rogawski and C. Adams, Single Variable Calculus, **Third Edition**, W.H. Freeman & Co. [It is fine if you have the second edition of the book.]

Other non-required textbooks: Calculus, Thomas; Calculus, Strang.

First Midterm: Friday, October 23rd, 2PM-250PM, Moore 100

Second Midterm: Friday, November 13th, 2PM-250PM, Moore 100

Final Exam: Monday, December 7th, 8AM-11AM, Location TBD

The Student Math Center in MS 3974 offers group study and tutorials. For their schedule, click [here](#).

Other Resources: [Applets](#) by Flash&Math, [Videos](#) from another 31A class at UCLA.

Email Policy:

- My email address for this course is heilman@ucla.edu.

- It is your responsibility to make sure you are receiving emails from heilman@ucla.edu, and they are not being sent to your spam folder.
- Do NOT email me with questions that can be answered from this document.
- Homework questions sent to me by email will be answered altogether in the form of a “digest.” I will get to every question, but I cannot reply to every email. This digest will be sent out typically two days before the homework is due.

Exam Procedures: Students must bring their UCLA ID cards to the midterms and to the final exam. Phones must be turned off. Cheating on an exam results in a score of zero on that exam. Exams can be regraded at most 15 days after the date of the exam. This policy extends to homeworks as well. If you continue working on your exam after the exam concludes, you will receive a 10% deduction of your score. All students are expected to be familiar with the [UCLA Student Guide to Academic Integrity](#).

If you are an OSD student, I would encourage you to discuss with me ways that I can improve your learning experience; I would also encourage you to contact the OSD office to confirm your exam arrangements at the beginning of the quarter.

Exam Resources: [Here](#) is a page containing old exams for another 31A class. [Here](#) is another page containing old exams for another 31A class. [Here](#) is another page containing old exams for a similar calculus course. Occasionally these exams will cover slightly different material than this class, or the material will be in a slightly different order, but generally, the concepts should be close if not identical.

Homework Policy:

- Late homework is not accepted.
- If you still want to turn in late homework, then the number of minutes it is late will be deducted from the score. (The estimate of the number of minutes is not guaranteed to be accurate.)
- You may not use the internet to try to find answers to homework problems.
- The **lowest two** homework grades will be dropped. This policy is meant to account for illnesses, emergencies, etc.
- Do not submit homework via email.
- There will be 8 homework assignments, assigned weekly on Friday and turned in at the **beginning** of class on the following Friday. (Exception: in the ninth week, homework is due on Wednesday, and during quiz weeks, homework is not turned in; see the quiz policy below.)
- A random subset of the homework problems will be graded each week. However, it is strongly recommended that you try to complete the entire homework assignment.
- Collaboration on the homework is allowed and encouraged.

- All homework assignments must be **written by you**, i.e. you cannot copy someone else's solution verbatim. I would encourage you to understand carefully how the homework solutions work, and how you would find such a solution on your own. Overusing collaborations or search technology should result in poor performance on the exams.
- Label your homework with the lecture number, and discussion section number.
- Homework solutions will be posted each Saturday, after the homeworks are collected.

Quiz Policy:

- There will be four quizzes, administered in the second, third, fifth and sixth weeks of class. In the second, third, fifth and sixth weeks of class, the homework will not be turned in, and instead, the quiz will count for the homework grade. The problems from the quiz will closely resemble or be identical to problems from the homework from that particular week.
- Quizzes will be administered in your discussion section, which is on either Tuesday or Thursday. Each quiz should last about 15 minutes.

Grading Policy:

- The final grade is given by the larger of the following two schemes. Scheme 1: homework (15%), the first midterm (20%), the second midterm (25%), and the final (40%). Scheme 2: homework (15%), the largest midterm grade (35%), final (50%). The final grade will be curved. However, anyone who exceeds my expectations in the class by showing A-level performance on the exams and homeworks will receive an A for the class.
- We will use the MyUCLA gradebook.
- If you cannot attend one of the exams, you must notify me within the first two weeks of the start of the quarter. Later requests for rescheduling will most likely be denied.
- You must attend the final exam to pass the course.

Tentative Schedule: (This schedule may change slightly during the course.)

Week	Monday	Tuesday	Wednesday	Thursday	Friday
0	Sep 21	Sep 22	Sep 23	Sep 24	Sep 25: Introduction, The Calculus Paradigm
1	Sep 28: 2.3,2.4, Limit Laws, Continuity	Sep 29	Sep 30: 2.5, Evaluating Limits	Oct 1	Oct 2: Homework 1 due. Read the Syllabus. 2.6,2.7, Trigonometric Limits, Limits at Infinity
2	Oct 5: 2.8, Intermediate Value Theorem	Quiz in section	Oct 7: 3.1, Definition of Derivative	Quiz in section	Oct 9: Homework 2 (ungraded). 3.2, The Derivative as a Function
3	Oct 12: 3.3, Product and Quotient Rules	Quiz in section	Oct 14: 3.7, The Chain Rule	Quiz in section	Oct 16: Homework 3 (ungraded). 3.5,3.6, Higher Derivatives, Trig Functions
4	Oct 19: 3.8, Implicit Differentiation	Oct 20	Oct 21: 3.9, Related Rates	Oct 22	Oct 23: Midterm #1
5	Oct 26: 4.1 Linear Approximation	Quiz in section	Oct 28: 4.2, Extreme Values	Quiz in section	Oct 30: Homework 4 (ungraded). 4.3, Mean Value Theorem
6	Nov 2: 4.4, The Shape of a Graph	Quiz in Section	Nov 4: 4.5, Graph Sketching	Quiz in Section	Nov 6: Homework 5 (ungraded), 4.6, Applied Optimization
7	Nov 9: 4.7, 5.1, Newton's Method, Area	Nov 10	Nov 11: no class	Nov 12	Nov 13: Midterm #2
8	Nov 16: 5.2, The Definite Integral	Nov 17	Nov 18: 5.3, The Indefinite Integral	Nov 19	Nov 20: Homework 6 due. 5.4, Fundamental Theorem I
9	Nov 23: 5.5, Fundamental Theorem II	Nov 24	Nov 25: Homework 7 due. 5.7, The Substitution Method	Nov 26	Nov 27: no class
10	Nov 30: 6.1,6.2, Areas Between Curves, Average Value	Dec 1	Dec 2: 6.3, Volumes of Revolution	Dec 3	Dec 4: Homework 8 due. 6.4, Method of Cylindrical Shells

Advice on succeeding in a math class:

- Review the relevant course material **before** you come to lecture. Consider reviewing course material a week or two before the semester starts.
- When reading mathematics, use a pencil and paper to sketch the calculations that are performed by the author.
- Come to class with questions, so you can get more out of the lecture. Also, finish your homework at least **two days** before it is due, to alleviate deadline stress.
- Write a rough draft and a separate final draft for your homework. This procedure will help you catch mistakes.
- If you are having difficulty with the material or a particular homework problem, review [Polya's Problem Solving Strategies](#), and come to office hours.

Compliance

Ten percent of your homework grade is reading and complying with this document. To acknowledge that you have read and agree to the above, click [here](#), and follow the instructions. (This link may not work on some smartphones, so make sure to use a computer instead.) To receive credit, this form must be submitted by 12 noon, PST, October 2, 2015.