MATH 32A, Calculus of Several Variables, Lecture 3, Fall 2015

Exterior Course Website: http://www.math.ucla.edu/∼heilman/32af15.html
Prerequisite: MATH 31A, with a grade of C- or better.
Course Content: Differential calculus of several variables, curves and surfaces, optimization.

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, 1PM-150PM, Rolfe 1200
Instructor: Steven Heilman, heilman@math.ucla.edu
Office Hours: Mondays, 9AM-12PM, MS 5634
TAs: Cutler, J. joshuacutler@math.ucla.edu, Boozer, A. D. davidboozer@ucla.edu, Flapan, L. B. lflapan@math.ucla.edu
TA Office Hours: Cutler, J. 1130AM-1230PM, Tuesdays and Thursday, MS 3921, Boozer, A. D. Thursdays 2PM-3PM, MS 2344, Flapan, L. B., Thursdays, 2PM-3PM, MS 6160
Discussion Session Meeting Time/Location:

- 3A, Tuesday, 1PM-150PM, Bunche 3157, Cutler, J. https://www.math.ucla.edu/people/grad/joshuacutler
- 3B, Thursday, 1PM-150PM, Royce 150, Cutler, J. https://www.math.ucla.edu/people/grad/joshuacutler
- 3C, Tuesday, 1PM-150PM, Bunche 3178, Boozer, A. D. https://www.math.ucla.edu/people/grad/davidbooze
- 3D, Thursday, 1PM-150PM, WGYoung 2200, Boozer, A. D. https://www.math.ucla.edu/people/grad/davidb
- 3E, Tuesday, 1PM-150PM, WGYoung 2200, Flapan, L. B. http://www.math.ucla.edu/∼lflapan/teaching.htm
- 3F, Thursday, 1PM-150PM, PAB 2748, Flapan, L. B. http://www.math.ucla.edu/∼lflapan/teaching.html

Recommended Textbook: J. Rogawski and C. Adams, Multivariable 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: Monday, October 19th, 1PM-150PM. Last names beginning with A through Kim: Perloff 1102. Last names beginning with Kimsey throuh Z: Franz 1178
Second Midterm: Monday, November 16th, 1PM-150PM. Last names beginning with A through Kim: Perloff 1102. Last names beginning with Kimsey throuh Z: Franz 1178
Final Exam: Monday, December 7th, 3PM-6PM, 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, Applets from Monroe CC with activities, Applets from wordpress.

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 32A class. Here is a page containing old exams for a similar multivariable course. (Exams 1A,1B,2A and 2C are most relevant.) Here is another page containing old exams for a similar multivariable 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 9 homework assignments, assigned weekly on Friday and turned in at the **beginning** of class on the following Friday.
- 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 two quizzes, administered in the second and sixth weeks of class. In the second 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: 13.1, Vectors in the Plane
1	Sep 28: 13.2, Vectors in Three Dimensions	Sep 29	Sep 30: 13.3, Dot Product	Oct 1	Oct 2: Homework 1 due. Read the Syllabus. 13.4, Cross Product
2	Oct 5: 12.1, Parametric Curves	Quiz in section	Oct 7: 13.5, Planes in 3-Space	Quiz in section	Oct 9: Homework 2 (ungraded). 13.6, Quadric Surfaces
3	Oct 12: 14.1, Vector-Valued Functions	Oct 13	Oct 14: 14.2, Calculus of Vector-Valued Functions	Oct 15	Oct 16: Homework 3 due. 14.3,14.4: Arc Length, Speed, Curvature
4	Oct 19: Midterm #1	Oct 20	Oct 21: 14.4,14.5, Motion in 3-Space, Planetary Motion	Oct 22	Oct 23: Homework 4 due. 15.1, Functions of Two or More Variables
5	Oct 26: 15.2, Limits and Continuity	Oct 27	Oct 28: 15.2, Limits and Continuity	Oct 29	Oct 30: Homework 5 due. 15.3, Partial Derivatives
6	Nov 2: 15.3, Partial Derivatives	Quiz in Section	Nov 4: 15.4, Differentiability and Tangent Planes	Quiz in Section	Nov 6: Homework 6 (ungraded), 15.4, Differentiability and Tangent Planes
7	Nov 9: 15.5, Gradient and Directional Derivatives	Nov 10	Nov 11: no class	Nov 12	Nov 13: Homework 7 due. 15.5, Gradient and Directional Derivatives
8	Nov 16: Midterm # 2	Nov 17	Nov 18: 15.6, Chain Rule	Nov 19	Nov 20: Homework 8 due. 15.6, Chain Rule
9	Nov 23: 15.7, Optimization	Nov 24	Nov 25: 15.7, Optimization	Nov 26	Nov 27: no class
10	Nov 30: 15.8, Lagrange Multipliers	Dec 1	Dec 2: 15.8, Lagrange Multipliers	Dec 3	Dec 4: Homework 9 due. Review of course

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.