Teaching Statement, Steven Heilman

Teaching excellence to students requires leading by example. I strive for excellence in my own teaching through: organization, preparedness, punctuality, communication, curriculum development, and student interaction.

**Organization and Preparedness.** I create the publicly available course website during the course enrollment period, months before the course begins. At least two weeks before the course, the first two homeworks and the lecture notes (all written in LaTeX) are placed on the course website. Thereafter, I always put homeworks on the website two weeks before their due date. The freely available lecture notes (see links at the bottom of this page) can replace the textbook for those who are unable or unwilling to purchase a course textbook. Consequently, I never assign homework problems from the textbook. This way, some students cannot gain an unfair advantage by obtaining textbook solution manuals. Exam solutions are distributed at the end of an exam, to quickly reinforce mistakes.

**Punctuality.** I always arrive to the classroom ten minutes early in order to erase the board and write down: what happened last time, what will happen today, and a few facts reviewing relevant topics. Class begins on time when I ask, “Are there any questions?” Class always ends on time and never goes over time.

**Communication.** On the first day of a small class, I ask everyone to state their name verbally in succession, to establish open communication inside and outside the classroom. In a small class, emails are answered as quickly as possible throughout the term.

In a large calculus class, questions emailed to me are answered in batch form in a “digest” sent two days before the homework is due. This class “digest” streamlines communication for me, so a repeated question only requires a single response. Also, the digest is meant to incentivize students to answer their own questions and to prepare early for the homework, rather than saving their work for the last minute.

Since the lecture notes are publicly available, I can and do inform the teaching assistants of the exact point in the notes that I have reached after a lecture has occurred, facilitating our synchronization.

**Curriculum Development.** When appropriate, I have reworked the curriculum for some of the advanced undergraduate classes at UCLA. For example, in the class Game Theory 167, I chose an updated book, “Game Theory, Alive” by Peres and Karlin. The previously used book was a bit too elementary for a senior level class. The department has now decided to use this textbook in the future. I restructured the syllabus, making the proof of Brouwer’s Fixed Point Theorem a technical cornerstone of the course, incorporating some auction theory and discrete Fourier analysis, and even giving an optional section on quantum games and their relation to Bell’s inequality from quantum mechanics.

**Student Interaction.** I aim to be approachable, available, and helpful to my students. In class, I always use the Socratic method to keep students engaged and thinking. I enjoy the privilege of teaching students, and I look forward to sharing the beauty of mathematics with the next generation.

**Course Websites.** Publicly available course websites can be found at:

http://www.math.ucla.edu/~heilman/teaching.html

A sample of lecture notes appears in the hyperlinks below:

171 Stochastic Processes, 167 Game Theory, 164 Optimization
170A Probability Theory 1, 170B Probability Theory 2
131A Analysis 1, 131B Analysis 2, 115A Linear Algebra
31A Calculus 1, 32A Calculus 2, 32A Calculus 3 (part 1), 32B Calculus 3 (part 2)
### UCLA Instructor Ratings
(S denotes Spring, W denotes Winter, F denotes Fall)

<table>
<thead>
<tr>
<th>Course, Term</th>
<th>Median Effectiveness (out of 9)</th>
<th>Standard Deviation</th>
<th>Median Availability/Helpfulness (out of 9)</th>
<th>Standard Deviation</th>
<th>Number of Responses</th>
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### NYU Teaching Assistant Ratings
(S denotes Spring, F denotes Fall)

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Selected Comments. (171 Stochastic Processes, F16, UCLA):

“I’ve had Professor Heilman for three quarters now, and he’s been very helpful throughout the quarters. He’s always willing to answer even the simplest questions, both during lectures and office hours. The professor integrated theorems and general concepts well with real-life examples, making it easier to understand the course material overall.”

“One of the best teachers in math department.”

“Overall, quite an experience, and a valuable one at that! Thank you, Professor Heilman. You’re such an intelligent and knowledgeable individual. This class itself was just a handful, but I am thankful for the lessons that I have learned and the information that I have gained from it!”

“Professor Heilman is extremely clear in both his expectations for the students and his presentation of the material. Posting all of his lecture notes online makes it easy for students to follow the course. He is also very responsive over email to student questions and he always pauses in lecture to answer any questions students might have. I would take another class with him.”

Selected Comments. (164 Optimization, F16, UCLA):

“At times, this class had too much assignments and a bit too much rigor. However, as an instructor, professor Heilman is one of the best ones at UCLA.”

“Great. His class is so well-organized and he is really patient. His homework also contains
inspiring things and deep insight.”

“He is the one of the best instructor[s] in UCLA. He gave us the proper motivation at the beginning of each topic, offered appropriate homework problems which are relevant and interesting (sometimes challenging), and provided perfect difficulty of exams. He asks if anybody has a question after each definitions, properties, and proofs. He is really patient even when somebody didn’t understand what he explained and so he had to explain the same thing again and again. Most of all, he uploads his lecture notes on CCLE site, so we didn’t have to write down everything on the note but we could focus on the material more."

“Professor Heilman writes excellent lecture notes and he is very easy to understand in class. I learned a lot from him this quarter and would recommend this class to anyone who wants to learn something interesting from a fully invested teacher.”

“This was a very difficult class with challenging material, but the lectures and the notes were very thorough and well-prepared.”

“my favorite professor in ucla”

Selected Comments. (170A Probability, S16, UCLA):

“Professor Heilman is the best professor I have ever encountered at UCLA. His lecture is fairly organized and clear. He explains things well and also he cares about his students. He is the best!!!”

“Extremely organized. Always referenced the lectures notes, which turn out to be more helpful than the book. Wish I had him for 170B. Will definitely sign up for his classes in the future. Thanks for everything.”

“Prof. Heilman is very organized and fair in his assignments and exams. His organization makes the class easy to follow and an overall pleasure.”

“This is the second time I’ve taken a class taught by Professor Heilman’s and like last time, his teaching style is splendid. The lectures are very straightforward and the material is clearly presented. I appreciate how he writes down everything on the board instead of just stating facts verbally. I would say that the best part of the class is that Professor Heilman strikes an excellent balance between theory and application his classes. In lecture (and especially in homeworks), there are questions that relate to pure theoretical proofs, which help my understanding of definitions and theorems, as well as applications, which extend on this understanding. I personally loved the questions like the hiring problem, card collection, and lottery problems. Combined, this really makes me feel like I know the material. Thanks for being an excellent instructor!”

Selected Comments. (167 Game Theory, S16, UCLA):

“I loved this course and I thought that it was taught very well. I really appreciated that all of the notes were posted at the beginning of the quarter and were very in depth and well organized. The exams and homeworks were challenging and interesting and I enjoyed doing them.”

“Very good professor. He is a really kindly professor and really cares about students’ study. Also his course is very enlightening to mathematical proofs.”

Selected Comments. (170A Probability, W16, UCLA):

“Heilman was a great professor to have for this course. He was probably the best math professor I’ve had at UCLA. His lectures were well prepared and he is a very clear lecturer. His exams were challenging, but fair. I will definitely try to take another class with him in the future.”

“Prof. Heilman is one of the best math professors in UCLA. He puts his notes online in advance, which proves to be very helpful in terms of previewing and reviewing materials. Prof. Heilman is also very helpful in office hours and very eager to help students. The course is very organized, and the pace is about right.”

“He is a great instructor. His lecture is very organized, rigorous, including helpful examples to understand complicated concepts. Whenever students ask, he answers immediately,
nicely. He keeps asking everybody understands or agree with some concepts or proofs or rules. He keeps motivate students and makes sure everybody understand the reason that why we discuss this topic. So I really recommend this course, and if he teaches another course I have to take, I definitely takes his one.”

“Very well done course”

Selected Comments. (167 Game Theory, W16, UCLA):

“A good professor, organized, responsive and punctual.”
“Absolutely great, highly recommend.”
“Profession Heilman is full of passion in teaching. I like his handouts very much. His class note is clear. His homework takes some time to do but really helps me to understand the course.”
“The course material was very fun and interesting!”

Selected Comments. (32A Calculus 3, F15, UCLA):

“Awesome teacher”
“Professor Heilman was a great teacher. This was the perfect first math class that I could have had at UCLA”
“Great teacher who tries to help all his students succeed. Open to questions and is helpful in lecture and the note taking process. Two thumbs up.”
“I really loved this class, and Professor Heilman’s style of teaching. He covers all the necessary material while also introducing ideas of more advanced topics and encourages creative ways of thinking. After this class, myself and a few other friends feel inspired to continue into more advanced math classes as a possible minor or double major.”
“Heilman explains everything very well. He exceeds my expectations in how thoroughly he explains every small detail of mathematical properties. I appreciate how Heilman refuses to put arbitrary facts on the board without proving that they are reasonable and true. Heilman takes the time to ensure that everyone’s questions are answered, and is always willing to repeat an explanation if needed. He makes the class interesting with his enthusiastic personality and clearly puts effort into preparing for his lectures each day. He comes off as someone who is extremely knowledgeable in his field of study. I also appreciate how he publishes his lecture notes to the whole class, and takes the time to create his own homework assignments; he saved me money on the textbook too.”
“Heilman was great, he really gave his students a deep and thorough understanding of the course material. His personality was awesome, and he always made lectures entertaining with his quirky and witty humor. More than anything, he made the course material interesting and me made me excited to learn more about the subject.”
“I believe that Professor Heilman is an extremely clear and engaging professor who puts in a lot of time to ensure the success of his students. I found the course to be an effective balance of both challenging and very informational. I do believe that I learned a lot from this class and am well prepared for the next phase in the 32 series. Thank you Professor Heilman, I really do appreciate all of your time and work!”
“He’s honestly a boss, in the hippest of regards. I enjoy his approach towards the subject and his ability to make the class laugh. He is very fair in what he expects and he is always willing to find time to meet with students outside of class. I may not being acing the class but that is not because of his teaching.”
“Awesome sense of humor!”

Selected Comments. (31A Calculus 1, F15, UCLA):

“Funny and interactive”
“Excellent. Heilman is a wonderful professor! If you kept up with all the required materials and readings, did all the homework and paid attention in class, the examinations were doable. Thank you for being my professor”
“Professor teaches really well. Wish I could take another class with him.”
Selected Comments. (115A Linear Algebra, S15, UCLA):

“Professor Heilman is a pretty good Lecturer! He prepares well for this class, and his examination is fair too!”
“The best professor I have ever seen!!!!!!.”

Selected Comments. (31B Calculus 2, S15, UCLA):

“Professor Heilman is [a] nice professor who is effective, helpful and considerate.”
“Professor Heilman is the best math professor I’ve had here. He cares much more about students than any other math instructor I’ve encountered so far. He met with me at a time other than his many office hours, which all sadly conflict with my other classes. He has also been very accommodating and helpful with my dealing with a death in the family. Please keep him, and give him tenure track!! He is a great teacher, extremely smart, nice, available, and for all I know probably produces great research for the university, too.”
“Professor has a good sense of humor.”
“This professor did a good job of presenting the material in class. I also appreciate the notes he posted online and how fast they always had tests graded.”
“Great teaching method, really helped explain the concepts and gave great examples.”

Selected Comments. (32B Calculus 3, W15, UCLA):

“A wonderful teacher that goes through the examples and theorems very thoroughly. 10/10 would take again.”
“Clear at explaining concepts and provided many examples which were helpful for understanding the information. The notes of the entire class that were posted were also very helpful.”
“Dr. Heilman was very clear during lectures, and was always willing to provide outside help. He encouraged us to attend office hours, and even sent out a weekly “digest”—a compilation of student questions that he had received during the week. I found this extremely helpful. Thanks for a great quarter in math!”
“Heilman is very effective during lecture, very reasonable during grading, and funny as well. I think he did an excellent job.”
“I like how the homework isn’t from the textbook, so there are very little ways to cheat on the homework and ensuring that the students learn the actual course material. I also like how everything is online.”
“Professor Heilman is an excellent professor. He provides thorough explanations of concepts and provides many useful examples of problems. The solutions he provides for exams and homework is extremely helpful in helping students learn from their mistakes. He seems to genuinely care that his students learn the material and succeed in the course.”
“Professor Heilman is by far the most organized and reasonable Professor I have had yet. He is always perfectly on schedule, and provides an abundance of resources for students outside of class time. He definitely goes the extra mile and it really helps with getting through the course.”
“The assignments are great, as they really test understanding of the course material.”

Selected Comments. (131B Analysis 2, W15, UCLA):

“Keep this man. He is a great professor, bright, and cares about his students. We need more teachers like this at UCLA.”
“Clear instruction, reasonable exams and homework, approachable, and overall very good teacher. I enjoyed taking this class.”
“Efficient, helpful, organized. Great course.”

Selected Comments. (115A Linear Algebra, F14, UCLA):

“Instructor was very approachable and willing to help students. Exams were fair.”

Selected Comments. (121 Calculus 1, F12, NYU):
“An amazing TA very professional. I was VERY IMPRESSED.”
“I love Steven; he’s so polite and approachable when it comes to asking problems/difficulties.”