

Teaching Statement

My teaching philosophy is informed by my experiences as a student at the University of Chicago, University of Pennsylvania, and Boston University and in teaching at the graduate and undergraduate level. I am an assistant professor at Chapman University, where I teach courses in machine learning, business analytics, and development economics. Previously, I taught a course in Bayesian statistics and machine learning in the Political Science PhD program at MIT. In the spring of 2016, I taught courses in development economics and introductory microeconomics at Wellesley College.

Teaching quantitative courses is challenging, and teaching coding is all the more challenging. For my coding-intensive classes, I typically break the class time into two sections. During the first half, we learn the theoretical properties of one or two technical topics. Once most students have a basic understanding of the topic, I use live coding to explore the applications of the topic and encourage the students to code along with me. After the students know how to apply the topic, I give them a short, in-class lab assignment to test how they can apply the topic in a different context. These labs are submitted as part of the students' participation grade, and they further allow me to measure weekly progress according to learning outcomes. Finally, to measure students' conceptual understanding I utilize weekly, open ended written quizzes on very basics topics. These questions might be “explain cross-validation in non-technical language” or “why would we use Lasso regression over Ridge regression?” These questions are meant to approximate questions students might receive in an interview setting, but they further allow me to track whether students are retaining a conceptual understanding of the materials. The fact that these quizzes occur in-class, on paper, tests students' retention of materials unaided by any outside resources.

One of the highest priorities I have in teaching is creating an inclusive learning environment in which students of all abilities feel comfortable participating in the classroom discussion. Since participation engages students' minds and creates incentives to follow the class material closely, the last thing I want is for them to be

discouraged from contributing out of fear of being shamed by me or fellow classmates. I take extra care when responding to students' comments so that I don't unintentionally discourage them from contributing in the future.

Often the most challenging aspect with any course is managing heterogeneity in student abilities. This is usually the most challenging in an introductory course, where student abilities are more varied, and it can frequently be solved by being aware of cues when students appear to not be absorbing certain material. I aim to teach to the middle of the class in terms of abilities. For highly able students, I provide optional readings and assignments for those who want more depth. For students in the lower end of the distribution, I encourage them with additional learning strategies such as introductory videos, make myself available to them during office hours and additional times, and/or encourage them to make use of subject-specific tutoring services. I want my courses to be challenging, but I also want my students to feel like I am their coach—cheering them on and providing the resources and strategies they need to succeed.

In conclusion, it is a privilege to teach at any level, and I treat it as such. Teaching is a way to stay connected to the big questions in my discipline, and it's practice for condensing big ideas and seeing the big picture.

List of Courses Taught:

- Chapman University, MGSC 310: Statistical Models in Business Analytics (Introduction to Machine Learning)
 - Fall 2022 (x2) [\[Syllabus\]](#) [*Instructor rating: 4.6/5*]
 - Fall 2021 (x2) [\[Syllabus\]](#) [*Instructor rating: 4.1/5*]
 - Fall 2020 (x2) [\[Syllabus\]](#) [*Instructor rating: 4.27/5*]
 - Fall 2019 (x2) [*Instructor rating: 4.32/5*]
- Chapman University, BUS 696: Special Topics in Business (Machine Learning for Managers)
 - Spring 2023 [\[Syllabus\]](#) [*Instructor rating: 4.38/5*]
 - Fall 2021 [\[Syllabus\]](#) [*Instructor rating: 4.88/5*]

- Fall 2020 [\[Syllabus\]](#) [*Instructor rating: 4.49/5*]
- Fall 2019 [*Instructor rating: 3.49/5*]
- Chapman University, ECON 441: Development Economics
 - Fall 2018 [\[Syllabus\]](#) [*Instructor rating: 4.45/5*]
 - Spring 2018 [*Instructor rating: 3.81/5*]
- Chapman University, MGSC 207: Introduction to Business Analytics
 - Fall 2017 [\[Syllabus\]](#) [*Instructor rating: 4.21/5*]
- MIT, Quantitative Research Methods III (Political Science PhD quantitative sequence)
 - Fall 2017 [\[Syllabus\]](#)
- Wellesley College, Development Economics
 - Spring 2016 [\[Syllabus\]](#) [92.8% course recommend/strongly recommend/neutral]
- Wellesley College, Introductory Microeconomics
 - Spring 2016 (x2) [\[Syllabus\]](#) [95.2% course recommend/strongly recommend/neutral]
- World Bank, Introduction to Machine Learning
 - Winter 2019 [*Instructor rating: 6.23/7*]
 - Summer 2018 [*Instructor rating: 6.07/7*]
 - Summer 2017 [*Instructor rating: 6.64/7*]
 - Summer 2016
- Other Short Courses
 - Anahuac University, Mexico City, Introduction to Machine Learning, Winter 2020 [\[Syllabus\]](#)
 - Inter-American Development Bank, Introduction to Machine Learning, 2018
 - Central Bank of Belize, Introduction to Machine Learning, 2020, [\[link\]](#)
 - Statistical Institute of Belize, Introduction to Machine Learning, 2019
 - Introduction to Deep Learning, 2018, Arconic

Example Student Feedback

Hello and Thank you!

[REDACTED]
Tue 9/8/2020 3:46 PM

To: Hersh, Jonathan <hersh@chapman.edu>

Hello Professor Hersh,

I just wanted to reach out and say thank you for all the help you have given me during my career at Chapman.

I just got my first job at a company called Analytic Partners as a Marketing Science Analyst. I just moved out to Colorado and I am excited to start my career!

I do genuinely believe that my interest in analytics and statistical programming began in your class and I just wanted to say thank you again for guiding me on to this path that enabled me to find a job in an industry I enjoy.

I can't thank you enough for your class as it was the starting point for my own personal interest in R which led me to do actual analytics and modeling for the Office of Prospect Research here at Chapman.

I hope you are doing well and staying safe in these crazy times.

Best,

--
[REDACTED]

Figure 1: Example Undergraduate Student #1

Letter of rec

[REDACTED]
Tue 12/18/2018 12:32 PM

To: Hersh, Jonathan <hersh@chapman.edu>

Hi Professor Hersh,

First of all, I wanted to formally thank you for such an amazing semester. I learned so much and it was definitely my favorite class this semester, and one of my favorites since I've been at Chapman. I've always known I wanted to pursue law, but have gone back and forth from possible concentrations for the past couple of years, and your class has reminded me that the real reason I wanted to do this in the first place wasn't the money or trying to work for a top 10 firm, but to help those who don't have the capacity to help themselves. I'm not sure where I'll be, or what I'll be doing a year from now, but I really hope to find a way to incorporate economic research/development and policy into whatever it is. Thank you so much for your guidance and continued support. I really do appreciate it. If you ever need a TA or research assistant, you know where to contact me!

Figure 2: Example Undergraduate Student #2

Thank you for a great semester!

[REDACTED]
Mon 1/10/2022 4:18 PM

To: Hersh, Jonathan <hersh@chapman.edu>

Hi Professor,

Happy New Year! Hope this message finds you safe and well. Just wanted to say thank you so much for a great semester. This was definitely one of my more difficult classes this semester, but it was also one of my favorites. I really appreciated everything we've learned when it came to the final project. It was one thing to do problem sets and apply what we've learned, but it was another thing to research what we were interested and apply those concepts to real world applications.

I also wanted to let you know I also recently just accepted a software engineering internship offer from Facebook (Meta) for the summer and I am extremely excited! I hope to utilize the skills I learned from the class.

Figure 3: Example Undergraduate Student #3

Prof. Jonathan Hersh: Student Recommendation

My name is [REDACTED] and I recently graduated from Chapman with a business major and an analytics minor. I took MGSC 310 with Professor Hersh: Statistical Models in Business Analytics.

I found Prof. Hersh to be an excellent professor for three reasons: his passion for his research, his grading system, and his derivation of reasoning behind several of the concepts we were learning.

Prof. Hersh emphasized he was both a professor who taught and a professor who researched; in teaching our class, he would cite his research. For example, Prof. Hersh talked about using satellite imagery to investigate certain demographics. I assume this relates to his 2020 paper in Information Technology for Development, "Open Data for Algorithms: Mapping Poverty in Belize Using Open Satellite Derived Features and Machine Learning."

I remember several instances in which Prof. Hersh derived mathematics behind a function or a snippet of code which explained what we were doing. The derivation wasn't on any exams: instead, the professor sought to provide a knowledge base on which to build.

In assigning our final project--which had great flexibility--Prof. Hersh invited several former students of his to speak to the class. Students could observe parallels between what we were working on, Prof. Hersh's research, and professional pursuits. With respect to the final project, Prof. Hersh also encouraged us to leave our comfort zone. We should investigate what we are interested in, rather than creating a project in pursuit of an academic grade.

Overall, I would highly recommend Prof. Hersh for whatever appointment he is seeking.

Figure 4: Example Undergraduate Student #4

Re: Check Up

[REDACTED]
Thu 12/10/2020 10:15 AM

To: Hersh, Jonathan <hersh@chapman.edu>

Hi Prof. Hersh,

Sorry for the late reply, I meant to send something reply earlier but school has been crazy hectic lately so I sincerely apologize.

I just wanted to say thank you for everything that you have done for us. You really show the devotion to us as students and I want to show my appreciation as much as I can. Having a teacher who actually cares about their students progression, understanding and career is so considerate and kickass as a person, to be frank lol.

Absolutely, it's no problem at all! :)

[REDACTED] and I have been meaning to send you something to send our show of thanks via a gift basket at the time but [REDACTED] and I would be more than happy to go out for drinks/food when the pandemic gets better.

I hope to see you soon Professor.

Thank you again and stay safe! I will keep in touch with you in the future!

Sincerely,

[REDACTED]
Sent from my iPhone

Figure 5: Example MBA Student #1

Thank you

Bouchard, Norma <nbouchard@chapman.edu>

Mon 1/17/2022 9:10 PM

To: Hersh, Jonathan <hersh@chapman.edu>

Dear Prof. Hersh:

In mid-November, my office (with the assistance of the IETL office, the VP office of Undergraduate Education, the Office of FA, and the team at IS&T) asked students to nominate a faculty member who made a difference in their lives for their dedication and effort during the ongoing covid-19 pandemic. I and my office would like to thank you for the work you've done for Chapman and our students over the last year. Your students thank you as well as you can see from the comments below.

Congratulations and thank you for all you do!

--Norma

Prof Hersh - Thank you for packing so much value into Data Analytics. From the theory to the coding I have learned a ton and had fun along the way.



Figure 6: Example MBA Student #2



scott cunningham @causalinf · Jan 23

Replying to @DogmaticPrior

Been going through these slides and they're super clear and beautifully created. You have a real talent

2 2

Khoa Vu and 1 other Retweeted



scott cunningham @causalinf · Jan 23

@DogmaticPrior provides the public good with detailed notes on a Machine Learning course from the Poverty Global Practice at the World Bank in 2017. Thanks Jonathan!

Jonathan Hersh @DogmaticPrior
Replying to @causalinf @danilofreire
Enjoy! jonathan-hersh.com/machinelearnin...

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Figure 7: Example Peer Assessment of Teaching Materials