Teaching Statement

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I am passionate about teaching. I am particularly excited about incorporating modern tools into the economics and finance curriculum. I have a special interest in teaching topics in data science and computation, especially using the Python and R ecosystems. Below I describe the teaching experiences that I have had during my Ph.D., some of my interests for future classes that I might teach, my philosophy behind my approach, and my plans for promoting a safe, diverse, and inclusive learning environment.

Teaching Experience:

During my time at UChicago, I worked many times as a TA and also twice had the opportunity to independently teach an elective course based on a curriculum I developed myself. I was a TA for 13 courses across the undergraduate economics program, the MA program in financial mathematics, and the MBA program at the Booth School of Business.

- Computational Methods in Economics: I was given the opportunity to build the syllabus and course material for this advanced undergraduate class from scratch. This course introduced the basic programming and computational techniques necessary for solving and estimating economic models. It covered topics in numerical methods (such as optimization, function approximation, and Monte Carlo techniques), topics in econometrics, and various topics in data exploration, visualization, and estimation. I placed emphasis on developing effective programming and research practices. The course was structured through a series of applications in such topics as real business cycles, empirical industrial organization, and asset pricing. I taught the course in Python and students learned version control with Git and Github.
    - Links: Syllabus and course material on GitHub, Course Evaluations
    - I received high reviews for this class and was given a department award for outstanding teaching.
    - Lectures were all interactive and done with live-coding. See an example here:
        - Structural Industrial Organization: Replicate Bresnahan and Reiss (1991) and HW
        - HW Analyzing Wage Growth Puzzle During the Great Recession
- MA in Financial Mathematics and MBA Courses: Much of my teaching experience came while working as a TA for classes in the masters program in financial mathematics at UChicago.
    - TA for "Portfolio Theory and Risk Management", "Multivariate Data Analysis via Matrix Decomposition", and "Topics in Economics" in the MA program
    - Data analysis in R and Python: My teaching in these classes involved leading data analysis projects in R and Python, applied to finance and economics
    - In the MBA program, I was a TA for "Portfolio Management" and "Introductory Finance"
- Undergraduate REU in Data Science and Econometrics: I also served as a lecturer several times for a Research Experience for Undergraduates (REU) at the University of Chicago. I taught several topics in scientific computing and econometrics, as well as training in the PyData and RStats ecosystems.
- Distributed Memory Parallel Computing with MPI: During my undergraduate study, I taught a week of courses in a summer training program for other undergraduates on how to use MPI for parallel computing on the school's supercomputing cluster.
    - I wrote a short text and developed other material for this class myself. Although some of the material is now outdated, it is available online here: Parallel Programming with MPI and Python

Teaching Interests:
I am genuinely interested in teaching, and will make myself available to teach what is needed. However, since my research lies at the intersection of macroeconomics and finance, I am most interested in teaching courses related to these topics.

- Macroeconomics and Finance: I am particularly interested in teaching undergraduate macroeconomics (intermediate and advanced), computational methods in economics (undergraduate), or asset pricing (undergraduate intro or graduate level).
- MA and MBA Courses: Since I have worked as a TA for many MA and MBA finance courses, I would also feel comfortable teaching professional courses geared towards portfolio management, quantitative methods in finance, or introductory finance for professional students.
- Data Science: I have significant experience with programming, software development, and computational methods in economics and finance. I would be excited to teach data science and scientific computing with Python or R. I also feel strongly that it is important to teach software development tools, such as version control with Git and GitHub.

Teaching Philosophy:
I believe that teaching is most successful when it is goal-oriented. To help students fully engage with the content, students must have a clear understanding of the material's relevance, including its academic importance, usefulness to their future careers, and application to the real world. To this end, I summarize my teaching approach into three main principles.

1. Get students' hands on the data early. A priority in my teaching is to introduce students to real-world data as soon as possible. In my experience, students in economics are not introduced to projects involving economic data until very late in their academic careers. Early engagement with the data helps students to understand how the content that they learn is more than armchair philosophizing. In my teaching, I create early and frequent opportunities for students to have first-hand experiences with the raw data of economics. This not only helps to motivate the material, but also encourages and enables students to begin experimenting individually. Furthermore, even if the class is designed to cover theory, this approach emphasizes that idea that theory must be grounded in data and good empirics must be tied to theory.
2. Support resume-building. While building a course, a useful question to ask is "Can my students use something from this material to put on their resume?" If a course involves learning some commonly sought-after skill, like Python programming, answering this question is easy. However, this course-building heuristic can be applied more broadly. In the case of an undergraduate class, I might include several small projects that involve downloading and analyzing data. If I am successful, this student should feel like they could use that course project as a talking-point for future interviews, for example. For MBA students or other professional students, I might build the course around case studies. For PhD students, this might involve centering a lecture around understanding or replicating a set of papers. In each case, the point is to design a goal-oriented course that leaves the student with easily identifiable skills and experiences.
3. Build confidence and ambition. Early "wins" help to engage students from the beginning and allow them to see the potential end stage of their development as a result of the course. As an example, in my computational economics course I started the first week with a few exercises in which I helped students build beautiful and impressive data visualizations in Python. I accomplished this by providing plenty of pre-built code. This helped to get the students very excited about the material in the class. Furthermore,

this allowed them to build up their confidence early in the course and develop ambition by gaining a vision of the things that they will be able to do by the end of the course.

Diversity and Inclusion:
I will always strive to foster an environment in which all students feel safe and welcome. I am committed to promoting awareness and inclusivity. On a practical level, this includes engaging individually with all students, thoughtfulness in presentation of sensitive course material, and awareness of the diversity of backgrounds. This also entails making sure that all students can and feel comfortable participating in class (e.g., asking questions in class, reaching out to the instructor or the TA, etc.). I am committed to making this an ongoing process as I continue to learn and to improve in my personal and professional life.