

TEACHING STATEMENT

DANIEL FREUND

During my time at Cornell University I have gained teaching experience at various levels: as an instructor and as a grader in the School of Operations Research and Information Engineering, as a teaching assistant in the Department of Computer Science, and in various outreach activities organized by the Department of Mathematics. Some of my teaching experiences are highlighted below.

Engineering Applications of Operations Research. In my fourth year of graduate school I served as the instructor for *Engineering Applications of Operations Research* (ENGRI 1101). As a first introduction to optimization, the course focused on natural optimization problems such as matching, flow, and routing. Moreover, it also introduced students to linear/integer programming, practicing, in particular, the skill to model real-world operational problems in terms of well-defined objectives and constraints. In an effort to highlight the applicability of the methods covered, the course involved a project. Students were asked to suggest an optimization framework for an operational problem they have encountered on campus themselves. The students' suggestions included examples like the routing of snow plows and the matching of students to seminars. This was only the second iteration of the course that involved such a project and it was generally well-received by students.

Big Data Technologies. In my fourth year, I also served as an instructor for *Big Data Technologies*, a course that is part of Cornell's Financial Data Science Master's program. Within the program it gives students the technical skills to project-driven practica. The course introduced students to various technologies at their disposal to gather, manipulate, and analyze big data, including *MapReduce*, Jupyter, and Amazon Web Services, as well as basic machine learning techniques.

Teaching Assistant. In my first year of graduate school, I served as a teaching assistant for two courses offered by the Computer Science Department. The first course was the introductory programming course *Introduction to Computing using Python* (CS1110), the first exposure to programming for many Cornell students. The second course was a senior-level course called *Mathematical Foundations for the Information Age* (CS4850). It covers topics such as random graph models and high-dimensional data. Though much of the material was new to me, my teaching was well-received, earning me two graduate student teaching awards from the Department of Computer Science.

POTENTIAL COURSES.

My academic and industrial experience equips me to teach core MBA courses in operations management. In particular, I would be comfortable teaching a decision modeling or revenue management course. On the undergraduate and graduate level I would be happy to teach introductory courses on network analysis, (applications of) discrete optimization, transportation analytics, or stochastic modeling.

To further develop the curriculum, I would be interested in developing a data-driven optimization course that combines the methodology of ENGRI 1101 with a data-based project component. I believe such a course could benefit students at all levels.