Course Format:

The course will take place **July 1-August 1, 2024** with two to three 90-minute sessions a week for a total of 12 classes. The course is a flipped classroom. Lecture videos will be posted on Canvas and students are expected to watch them prior to class. During class, students will work in groups through coding exercises. Each class will cover one module, and students only need to attend and work through at least six out of the twelve modules. The class will take place at 10:30 AM to 12:00 PM EST both in person (Littauer M-15) and on Zoom.

Course Enrollment:

This course is open to all PhD students in Economics-adjacent programs. Depending on enrollment numbers, *priority will be given to G1s and G2s in Economics and Business Economics.*

Course Topics:

We will work through the following modules over 12 classes:

1. Software Engineering and Version Control (July 1)
2. Data Wrangling in Python (July 3)
3. Introduction to Unix & The Command Line (July 8)
4. Nonlinear-Equation Solving & Numerical Optimization (July 10)
5. Derivative-Free & Constrained Optimization (July 15)
6. Numerical Differentiation & Integration (July 17)
7. Parallelization & Big Data (July 19)
8. Numerical Simulation (July 22)
9. Introduction to Algorithms & Combinatorial Optimization (July 24)
10. Dynamic Programming (July 26)
11. Machine Learning Methods (July 29)
12. Reinforcement Learning & Bandit Problems (July 31)