BUSI 520
Python for Business Research
Kerry Back
Fall 2022

Schedule

Wednesdays 11:00-2:00
Room 218, McNair Hall
Aug 24 – Oct 5 (No class on Sept 21)

Instructor

Kerry Back
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Course Description

This course provides an introduction to the python programming language and to the libraries that are most useful for business research. By the end of the course, students will be able to program in python, will be familiar with several different IDEs, and will have enough knowledge of relevant libraries to undertake various types of business research.

Deliverables

Each student will perform a replication in python of the key parts of a paper in his or her area of research. The replication should demonstrate command of several different components of research; for example, data handling, econometrics, and visualization. The replications are due by December 1.

Course Schedule by Week

(1) Python basics, numpy, pandas, WRDS
(2) Visualization - matplotlib, seaborn, and plotly
(3) Regression - fixed effects, clustered standard errors, robust standard errors, rolling window regressions, Fama-MacBeth
(4) Machine Learning I - robust regression, data transformations, dimensionality reduction, cross validation, pipelines
(5) Machine Learning II - random forests, boosted forests, neural networks
(6) Scientific programming - linear algebra, optimization, solvers, simulation, differential equations

Some Useful References

- Python for Data Analysis, Wes McKinney, Companion Notebooks
- Python Data Science Handbook, Jake VanderPlas
- Hands-On Machine Learning with Scikit-Learn & TensorFlow, Aurélien Géron, Companion Notebooks
- Introduction to Python for Econometrics, Statistics and Numerical Analysis, Kevin Sheppard
- linearmodels 4.2.7, Kevin Sheppard
- Quantitative Economics with Python, Thomas Sargent
- Python Programming and Numerical Methods: A Guide for Scientists and Engineers, Qingkai Kong, Timmy Siauw, and Alexandre Bayen