AFRE 991: Advanced Data Analytics and Frontier Methods for Applied Economists

Tuesdays and Thursdays | **10:20 - 11:40am** | **Berkey Hall 214**

Week	Tuesday	Thursday	Topics	Final Project	Assessments
1	August 26 Class 1 Lecture	August 28 Class 2 Lecture	Course Introduction R Basics		
2	September 2 Class 3 Lecture	September 4 Class 4 Lecture	Version Control with GitHub R Markdown		
3	September 9 Class 5 Lecture	September 11 Class 6 Lecture	Data Wrangling Joining Data		Assignment 1 Due Friday, September 12
4	September 16 Class 7 Lecture	September 18 Class 8 Lecture	Data Tidying with *tidyr* Data Cleaning		
5	September 23 Class 9 Lecture	September 25 Class 10 Lecture	Data Cleaning, Continued		Assignment 2 Due Friday, September 26
6	September 30 Class 11 Lecture	October 2 Class 12 Lecture	Data Visualization		
7	October 7 Class 13 Lecture	October 9 Class 14 Lecture	Data Acquisition Scraping Static Websites Scraping Dynamic Websites	Prospectus Due Friday, October 10	Assignment 3 Due Friday, October 10
8	October 14 Class 15 Lecture	October 16 Class 16 Lecture	Function Writing Vectorization and Paralellization		Assignment 4 Due Friday, October 31
9	October 21 No Class - Fall Break	October 23 Class 17 Lecture	Data Acquisition through APIs Intro to Programming Iteration		
10	October 28 Class 18 Lecture	October 30 Class 19 Lecture	Function Writing Vectorization and Paralellization Intro to Regression		Assignment 4 Due Friday, October 31
11	November 4 Class 20 Lecture	November 6 Class 21 Lecture	Fast Fixed Effects and IV Regression Tables and Figures from Regression Output Causal Inference Methods in R		
12	November 11 Class 22 Lecture	November 13 Class 23 Lecture	Synthetic Control Methods in R Introduction to Spatial Data Vector Data in R		Assignment 5 Due Friday, November 14
13	November 18 Class 24 Lecture	November 20 Class 25 Lecture	Raster Data in R Joining Raster and Vector Data Spatial Regression Methods		
14	November 25 Class 26 Lecture	November 27 No Class - Holiday	Intro to Machine Learning and Classification Model Selection and Regularization Regression Trees and Forest-Based Methods	Replication Package Due Sunday, November 30	
15	December 2 Class 27 Lecture	December 4 Class 28 Lecture	Machine Learning for Causal Treatment Effects		Assignment 6 Due Monday, December 8
16	Final Presentations - Timing TBD				