

POLI891: Lab for Advanced Topics in Political Data Science

Instructor: Rob Williams

Department of Political Science

University of North Carolina at Chapel Hill

Fall 2018

Meetings: Thursday 3:30-4:45, Dey 307

Contact Information

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Office Hours

Monday, Wednesday 12:30-2:00

And by appointment

This lab is designed to help you learn how to apply the methods you will cover in POLI787 Advanced Topics in Political Data Science. While the lecture will focus more on the theoretical background and technical nuances of the models, this lab is intended to help you learn how to use them in your own research. As such, it is primarily focused on implementations of these models in R. We will be working with many different R packages throughout the semester, and by the end of the course you will be familiar with many of the cutting edge tools being used in Political Science and related fields.

In lab sessions you will work through an HTML file and create a notebook containing the code to carry out that week's analysis. Each lab also has an individual exercise component that you must complete after the lab session. Your completed notebook, typeset in R Markdown or \LaTeX , is due by 5pm the Monday following the lab session.

I will post answer keys after labs are due. Because each key will contain thoroughly commented code, I will not be grading your labs. You will receive a check for making a good faith effort at completing the assignment. If you still have questions after looking at the key, please come by my office hours and we can discuss anything you are not clear on.

Calendar with Topics.

Week	Date	Topic
Week 2	8/30	Multilevel Linear Models
Week 3	9/6	Multilevel Generalized Linear Models
Week 4	9/13	Multilevel Models for Correlated Data
Week 5	9/20	Multilevel Regression with Poststratification (MRP)
Week 6	9/27	Advanced R: Cluster & Parallel Computing
Week 7	10/4	Item Response Theory (IRT)
Week 8	10/11	Advanced R: Working with Strings
Week 9	10/18	Fall Break
Week 10	10/25	Structural Topic Models
Week 11	11/1	Advanced R: Performance and Optimization
Week 12	11/8	Advanced R: Webscraping (Rachel Porter)
Week 13	11/15	LASSO, Ridge, and Elastic Net Regularization
Week 14	11/21	Thanksgiving Break
Week 15	11/29	Latent Space Networks