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**PSC 205**  
**Data Analysis II**

Spring 2020  
Tues/Thurs 11:05-12:20, Gavett 208

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**Prof. Curtis S. Signorino**  
303 Harkness Hall  
Office Hours: Wed 1:30-3:30pm  
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**COURSE DESCRIPTION:** This course builds on PSC 200, Data Analysis I, taking the linear regression model as its starting point. We will explore various statistical techniques for analyzing a world of data that is relevant to political science in particular, and to the social sciences more broadly. In addition to the linear regression model, we will examine models for binary data, durations, counts, censoring and truncation, self-selection, discrete choice, and strategic choice, among others. These models will be applied to topics such as international conflict, civil war onset, parliamentary cabinet survival, international sanctions, campaign contributions, and voting. Students will be taught how to (1) frame research hypotheses, (2) analyze data using the appropriate statistical model, and (3) interpret and present their results. Statistical analysis will be conducted using R.

**Course Meeting and Credits.** This course follows the College credit hour policy for four-credit courses. We will meet twice a week (Tues & Thurs) for 1.5 hour sessions. There is no separate designated day for labs. Rather, the normal Tues/Thurs sessions will be a mix of lecture and computer labs. During the labs, students will receive computer instruction, analyze data, discuss past homework problems, and start on new homework problems. The remaining credit hour is fulfilled through independent reading and completion of the homeworks.

**PREREQUISITES:** Students should have taken a course (such as PSC 200, ECO 230, STT 211, STT 212, STT 213, or STT 214) that introduces them to probability, hypothesis tests, confidence intervals, and linear regression. Familiarity with R, calculus, or matrix algebra is not required.

**GRADING:** Course grades will be based on a series of homeworks (65%), a final exam (30%), and class participation/attendance (5%).

Unless otherwise noted, homeworks will generally be due at the start of class, one week after they are handed out. Students must deliver their homework in hardcopy. Late assignments will be penalized one half-grade (e.g., B to B-) for each day they are late. Homeworks more than seven days late will receive a grade of zero. Finally, while you are encouraged to study together and to learn the software together, all assignments are to be completed individually.

**READINGS:** Students are responsible for keeping up with the reading each week. Whenever possible, I will post to Blackboard pdf's of any readings or lecture notes. Texts used for this course will include





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◁ LASSO, neural nets, parallel computing in R, estimating games

Final Exam (TBD: Finals Week)

## OTHER IMPORTANT ITEMS

**Course Organization.** The course organization may be adjusted/optimized during the semester according to the pace of learning and the priority of topics. Students are responsible for attending lectures and maintaining an awareness of any changes to the course materials, homework requirements, or exam dates.

**Student Disability Accommodation.** I am happy to work with any student who requires an accommodation due to a disability. MCID 3i0student who requires an