Econ 300 Spring 2020 Midterm2 Study Guide*
Although Midterm 2 is not cumulative, you need to know regression basics that are needed to understand the below topics. Below is a study guide of the main concepts you need to know for the exam. You also need to review Quizzes, and Problem Sets.

*The aim of this study guide is to help you study for the midterm, anything said in class can be in the exam, even if not listed below.

Regression extensions
- Know the difference between R-square and adjusted R-square.
- Know the F-test and how to interpret the results of the F-test
- Know how to do hypothesis testing using multiple regression.
- Know the criteria used to categorize good controls, bad controls and useless controls
- Know the dummy variable trap and how to fix it
- Know how to interpret level-level/log-level/level-log/log-log regressions
- Understand the difference between percentage and percentage point
- Understand when interaction terms are needed.
- Know how to interpret interaction terms
- Know how to test whether interaction terms are significant
- Understand when non-linear terms are needed
- Understand how to address non-linearity in the regression and how to test it

Linear probability model
- Know how to interpret regression output with a binary dependent variable
- Know advantages and disadvantages of the linear probability model

External validity and internal validity
- Know the criteria to assess studies (external validity, OVB, Wrong functional form, error-in-variable bias, sample selection bias, simultaneous causality bias)
- Know ways to overcome potential threats
- Need to be able to critique a study/ regression model

Randomized control trial
- Understand what randomized control trial is and why it eliminates selection bias
- How to read balance table and result table of RCT
- Be able to perform statistical inference for the balance table and result table
- Understand the attrition problem in RCT
- Understand limitations of randomized control trial