ECON 4475 – Econometrics and Analytics (Special Topics in Economics)

INSTRUCTORS: Adrian Austin and William J. Smith

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OFFICE: Room 1315 and 1303 RCOB

OFFICE HOURS by appointment

TEXT: Introductory Econometrics for Undergraduates by Kacapyr, Introductory Econometrics by Ramanathan along with selected readings, videos, and tutorials to be posted via CourseDen.

COURSE DESCRIPTION: The course emphasis is on applications of econometrics and techniques in business analytics. Topics include methods of presenting data, numerical measures and correlation, probability theory and probability distributions, sampling distributions, estimation, hypothesis testing, linear/non-linear regression, limited dependent variables, simultaneous equations/instrumental variables, models of duration, and the use of these models in decision making processes. This course will be held in a computer lab and SAS.

With the use of computers in businesses, firms are now able to accumulate business data on the scale of terabytes and petabytes. These data can contain anything from credit card transactions or movie downloads, providing businesses with unprecedented insight into a person’s behavior in the marketplace. The growing ability to collect data, however, has not always translated into better decisions by those businesses that collect it. The goal of this class is to provide a foundation for analyzing data for the purpose of making decisions for business, as well as other data-informed fields of study.

PREREQUISITES: Survey of Calculus (strongly suggested), Introduction to Business Statistics (Econ 3402), Business Statistics and Quantitative Methods (Econ 3406), and Economic Forecasting (Econ 3460) and a 3.0 minimum GPA.

SAS DAY: SAS Day is in event used to highlight the real-world uses and applications of SAS in the business world. This is an opportunity for you to present your research to the public and network with potential employers. You are expected to attend some (if not all) of the events. This year’s SAS Day is TUESDAY March 12, 2013. Although your papers need not be complete, your presentations/posters should be. This is to be considered a SCHOOL-SPONSORED EVENT. BUSINESS DRESS ATTIRE REQUIRED!!!

TENNATIVE COURSE OUTLINE:

Module 1: Economic Questions and Data [Outline for end-of-course projects presented]
Lab 1: (intro to SAS: Reading in data, file formats, & data cleaning)
Lil’Project 1: Data Instructions (links to be added)

Module 2: Introduction to Econometrics
Lab 2: (intro to SAS: Descriptive statistics, re-coding, & spotting data problems)
Lil’Project 2: Data Instructions (links to be added)

Module 3: Review Linear Multiple Regression
Lab 3: (SAS: Menu-driven regressions, Proc Reg, & interpreting regression output)
Lil’Project 3: Data Instructions (links to be added)

Project Proposal: One class period dedicated to helping students organize thoughts, data, and materials for end-of-course project/presentation

Module 4: Linear Regression Violations and Fixes (Non-linearity)
Lab 4: (SAS: re-scaling, linearization, logs, squares & cross products)
Lil’Project 4: Data Instructions (links to be added)

IN-CLASS MIDTERM
Module 5: Linear Regression Violations and Fixes (Non-constant Variance)
Lab 5: (SAS: Correcting errors and inference)
Lil'Project 5: Data Instructions (links to be added)

Module 6: Linear Regression Violations and Fixes (Non-normality and Non-indep. errors)
Lab 6: (SAS: Introduction to other non-OLS estimation techniques)
Lil'Project 6: Data Instructions (links to be added)

Module 7: Regression with a Limited (Binary) Dependent Variable
Lab 7: (SAS: Proc Probit, Proc Logistic)
Lil'Project 7: Data Instructions (links to be added)

Module 8: Instrumental Variables Regression (endogeneity)
Lab 8: (SAS: Supply/Demand estimation, Proc Syslin, model restrictions, identification, & other examples of simultaneous systems)
Lil'Project 8: Data Instructions (links to be added)

If we have time: TBD
Module 9: Duration Models
Module 10: Introduction to Time Series Regression and Forecasting
Optional Proj: Writing simple macros in SAS

Module 11: Student Research & Presentations

IN-CLASS FINAL

GRADE COMPOSITION

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<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>IN-CLASS EXAMS</td>
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<tr>
<td>Lil' Projects</td>
<td>20%</td>
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<td>PAPER/PPROJECT/POSTORS/PRES.</td>
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Affirmative Action: University of West Georgia adheres to affirmative action policies to promote diversity and equal opportunity for all faculty and students.

Americans with Disabilities Act: If you are a student who is disabled as defined under the Americans with Disabilities Act and requires assistance or support services, please seek assistance through the Center for Disability Services. A CDS Counselor will coordinate those services. See [http://www.westga.edu/~dserve/](http://www.westga.edu/~dserve/)

Equal Opportunity: No person shall, on the grounds of race, color, sex, religion, creed, national origin, age, or disability, be excluded from employment or participation in, be denied the benefits of, or otherwise be subjected to discrimination under any program or activity conducted by UWG.

Disclaimer: The instructor reserves the right to change this syllabus at any time during the semester. Any changes will be announced in class and by email. The ***Preliminary*** Class Schedule outlined below is PRELIMINARY; however, every effort will be made to adhere to the schedule. Any changes will be announced and emailed to the class.