Econometrics
440.606.53
Spring, 2015
1717 Mass. Ave, Room 208

Instructor:
Craig A. Bond, Ph.D.
cbond7@jhu.edu
Alternative Email: cbond@rand.org

Class Time:
Wednesdays, 6:00 – 8:45PM
Jan. 28 – May 6 (14 class sessions)

In-Person Office Hours:
Wednesdays 5:30-6PM
Location: Classroom

Online Office Hours:
Sunday evenings 5PM-6PM by appointment (email me by noon Sunday if interested; if there are no emails, I won’t be on) via Adobe Connect: https://connect.johnshopkins.edu/bond, or by appointment.

Textbook:

Stata:
Available in computer labs or via personal license.
www.stata.com/order/new/edu/gradplans/direct-ship-pricing/
“Small Stata 13” is fine for our purposes.

Course Website:
https://blackboard.jhu.edu/ (log in using JHU Enterprise Authentication)

Catalog Course Description:
This course focuses on the application of statistical methods to the testing and estimation of economic relationships. After developing the theoretical constructs of classical least squares, common problems encountered when applying this approach, including serial correlation, heteroscedasticity, and multicollinearity, are discussed. Techniques for dealing with these problems are then examined. Models with lagged variables are considered, as is estimation with instrumental variables and two-stage least squares. Prerequisites: 440.605 Statistics.
Grading:
Problem Sets: 30%
Midterm and Final Exams: 50%
Paper/Research Report: 20%

*Exams will be weighted as the higher of: (.25*midterm+.25*final, .10*midterm+.40*final). Any student who earns a 100% score on the final exam will automatically earn an “A” in the class.*

Problem Sets:
Problem sets will be assigned roughly every other week throughout the semester. These assignments will involve a mix of analytic questions similar to exam questions, and problems using provided data and the Stata econometric analysis software package. Students may work together and turn in one assignment for a maximum of three individuals. Problem sets are due at the beginning of class in paper form on the due date. Late assignments (turned in electronically) will be assessed a 25 point penalty per day late. Complete problem sets will earn 50% credit; one or two questions worth the remaining 50% of each problem set will be graded at random. Full problem set keys will be posted to the class website shortly after the due date. Use of these keys is the best way to study for the exams.

Exams:
Exams will be administered during class, with the midterm offered on March 25 (study during Spring Break!) and the final exam offered on May 06. Any student with a potential conflict should notify the professor immediately. Exams are cumulative. Relevant formulas will be provided, and calculators (including those on your phone) are allowed.

Paper/Research Report:
Students are expected to complete a 3-5 page paper/research report that identifies an econometric research question, uses data to estimate one or more econometric models, performs relevant inference, and interprets the corresponding results. The paper/research report is due on May 06 in paper form (the last day of class). Failure to complete the paper by this date will result in zero credit for this assignment.

Grading Recourse:
If a student believes there to be an error in grading, the student shall attach a typewritten explanation/argument to the assignment in question explaining his/her position. The professor will then re-evaluate the disputed question in light of the explanation provided.
Schedule (Subject to Revision):

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Readings</th>
<th>Assignment</th>
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<tbody>
<tr>
<td>1</td>
<td>28-Jan</td>
<td>Review of Probability Theory and Inference</td>
<td>App. A-C</td>
<td>HW #1 posted</td>
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<td>2</td>
<td>04-Feb</td>
<td>The Simple Linear Regression Model: Estimators, Interpretation, and Goodness of Fit</td>
<td>Ch. 2.1-2.3</td>
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<td>3</td>
<td>11-Feb</td>
<td>Statistical Properties of Estimators and Hypothesis Testing</td>
<td>Ch 2.5, 4.1, 4.2, 4.4</td>
<td>HW #1 Due; HW#2 Posted</td>
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<td>4</td>
<td>18-Feb</td>
<td>Interval Estimation, Prediction, Functional Forms, and Scaling</td>
<td>Ch 2.4, 4.4</td>
<td></td>
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<td>5</td>
<td>25-Feb</td>
<td>Multiple Linear Regression Model NO FORMAL CLASS OR OFFICE HOURS THIS WEEK Powerpoint lecture posted on class website Understanding of this material is mandatory</td>
<td>Ch 3</td>
<td>HW #3 posted</td>
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<td>6</td>
<td>04-Mar</td>
<td>Inference and Restricted Least Squares</td>
<td>Ch 4</td>
<td>HW #2 Due</td>
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<td>7</td>
<td>11-Mar</td>
<td>Asymptotics and Other Issues</td>
<td>Ch 5</td>
<td>HW #3 Due (Keep a copy)</td>
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<td>8</td>
<td>18-Mar</td>
<td>Spring Break - No Class</td>
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<td>9</td>
<td>25-Mar</td>
<td>MIDTERM EXAM</td>
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<td>10</td>
<td>01-Apr</td>
<td>Indicator (Dummy) Variables NO FORMAL CLASS OR OFFICE HOURS THIS WEEK Powerpoint Lecture posted on class website Understanding of this material is mandatory</td>
<td>Ch 6.2, 7</td>
<td>HW #4 Posted</td>
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<tr>
<td>11</td>
<td>08-Apr</td>
<td>Heteroskedasticity and Model Specification</td>
<td>Ch 8,9</td>
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<td>12</td>
<td>15-Apr</td>
<td>Introduction to Panel Data and Policy Analysis</td>
<td>Ch 13, 14</td>
<td>HW #4 Due HW #5 Posted</td>
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<td>13</td>
<td>22-Apr</td>
<td>Endogeneity and Instrumental Variables</td>
<td>Ch 15</td>
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<td>14</td>
<td>29-Apr</td>
<td>Time Series Techniques</td>
<td>Ch 10.1-10.3, 11.1-11.2,12.1-12.3</td>
<td>HW #5 Due (Keep a copy)</td>
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<td>15</td>
<td>06-May</td>
<td>FINAL EXAM</td>
<td></td>
<td>Paper Due</td>
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University policy regarding academic integrity will be strictly enforced. See [http://advanced.jhu.edu/current-students/policies-2/notice-on-plagiarism-2/](http://advanced.jhu.edu/current-students/policies-2/notice-on-plagiarism-2/) for more details.

The Johns Hopkins University is committed to providing reasonable and appropriate accommodations to students with disabilities. Students in Advanced Academic Programs (AAP) who are in need of accommodations should visit [http://advanced.jhu.edu/current-students/current-students-resources/disability-accommodations/](http://advanced.jhu.edu/current-students/current-students-resources/disability-accommodations/) for the appropriate steps and documentation needed. Requesting accommodations before the semester is preferable, but not required. The student should submit the Request for Accommodation Form prior to the beginning of each semester(s)he is registered to ensure that accommodations continue for that semester. Depending on the accommodation, there may be a time delay before accommodations can be implemented.