Econometrics (26:223:554:01)  

Spring 2011

Thursdays, 10:00 AM-12:50 P.M., 1 Washington Park 512, Newark

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This is the first of two required econometrics courses for Ph.D. students in Finance and  
Economics. The purpose of this course is to develop basic econometric estimation and  
hypothesis testing tools necessary to analyze and interpret the empirical relevance of financial  
and other economic data. This requires developing statistical methods for estimation of  
population parameters and testing hypotheses about them using a sample of data drawn from the  
population distribution, under various assumptions regarding the true population relationship  
between the observable economic variables. I will focus on the theoretical foundations of  
econometric analysis and strategies for applying these basic econometric methods in empirical  
finance and economics research. Topics covered include estimation and hypothesis testing using  
the classic general linear regression model, combining sample and nonsample information,  
dummy variables, random coefficients, multicollinearity, and the basics of large sample theory,  
nonspherical disturbances, panel data, systems of equations, time-series, and their application.  

The statistical methods covered in this course are a continuation and generalization of the  
material covered in Linear Statistical Models (26:960:577). The references listed below will  
serve as your background material for the topics covered. Students are encouraged to seek out  
whatever reference material facilitates their learning of each topic (this should be a given for you  
in all of your courses). For example, the topics in Griffiths, Hill, and Judge are also covered in  
Greene, but Greene presents a more concise and mathematical treatment. The Handbooks  
(chapters can be downloaded from the library) provide more detail and references for further  
research. Students will find Griffiths, Hill, and Judge very useful in furthering their intuitive  
understanding of building and interpreting econometric models, and especially helpful for those  
in need of developing their understanding and use of matrix algebra. Related empirical articles  
from the economics and finance literature will also be assigned, as well as selected material from  
the books listed as references below.

There are a number of very good econometric software packages available. SAS and STATA
Rutgers has site licenses and NLOGIT/LIMDEP are three such packages that are widely used. While no specific software package is required, the use of some computational software (or programming if you prefer) will be required to complete the requirements in this course.

**Course References**


*Handbook of Econometrics* Volumes I-VI, North-Holland, various years.


*These books should also be available in the library (some electronically).

**Anticipated Schedule:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
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<tbody>
<tr>
<td>Jan. 20</td>
<td>Introduction, Classical General Linear Regression Model</td>
</tr>
<tr>
<td>Jan. 27</td>
<td>Classical General Linear Regression Model continued, Inference &amp; Testing Hypotheses</td>
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<tr>
<td>Feb. 3</td>
<td>Combining Sample and Nonsample Information</td>
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<tr>
<td>Feb. 10</td>
<td>Dummy Variables and Varying Coefficients</td>
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<td>Feb. 17</td>
<td>Specification, Multicollinearity</td>
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<td>Feb. 24</td>
<td>Large Sample Theory</td>
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<td>March 3</td>
<td>Exam 1</td>
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<tr>
<td>March 10</td>
<td>Nonspherical Disturbances</td>
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<tr>
<td>March 24</td>
<td>Nonspherical Disturbances continued</td>
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March 31  Introduction to Panel Data Models
April 7    Introduction to Systems of Equations
April 14   Introduction to Time Series
April 21   Applications
April 28   Applications and Course Review
May 5      Final Exam

Other topics may be added as time permits.

**Evaluation of performance:** Students are responsible for all problems and problem sets assigned in class, which will be randomly collected. Quizzes, graded problems, and class participation will be 20% of your course grade, exam 1 comprises 30%, and the final exam is the other 50%.