PAI 722: Quantitative Analysis: Program Evaluation
Spring 2014
Section 2: T/Th 9:30 p.m. – 10:50 a.m., Maxwell 110

Instructor:  Leonard M. Lopoo, PhD
            Office: 428 Eggers Hall (located in the Center for Policy Research)
            Email:  lmlopo@maxwell.syr.edu
            Office hours: Monday 10-11 a.m., Thursdays from 11 a.m. – noon, and
            by appointment

Class materials are located on Blackboard: http://blackboard.syr.edu.

Teaching Assistant: Lincoln Groves
            Office: Maxwell 309A
            Office hours: Fridays from 12:00-1:30 p.m.
            On the Fridays when homework is due, Lincoln will conduct a homework review.
            On other Fridays, Lincoln is available to answer your questions.

Required text:
Boston: Addison-Wesley. (earlier versions are fine provided you read the correct
material)

It has been my experience that a single source is never enough to convey the necessary
information adequately. It is too expensive to purchase a variety of textbooks for this
class. However, it may be worthwhile spending some time in the library reading other
expositions on a particularly difficult topic. While you should feel free to sell your copy
of Moore, McCabe, and Craig back, it may serve as a useful reference for some of the
material in this class.

Required software: SPSS version 21.0. For those of you who do not have SPSS, copies
are located on the computers in the student clusters.

Prerequisites: PAI 721 – Introduction to Statistics

Course Objectives and Description:
This course builds on the material presented in PAI 721. Program evaluation is the
field of study designed to estimate the efficacy of a program, policy, or some other
intervention or “treatment.” This course aims to equip you with the statistical tools and
reasoning necessary to produce solid empirical investigations of a variety of
programs/policies as well as to read the evaluations of others critically.

Most classes will consist of lectures with examples. This is not a mathematical statistics
course. We will focus on “real world” applications, i.e., use examples similar to the ones
you may come across once you leave graduate school. The text has a variety of
outstanding examples for you to follow. In addition, I have assigned several articles to supplement the text.

Periodically, I will post notes/ outlines for each chapter in the course documents folder on the Blackboard website. You should bring these to class as they will contain terms and formulas that I want you to know as well as examples.

My goal in the lecture is to highlight and explain the material that I believe is important rather than walk through each section of the textbook. Students will also gain some insight into the material that I believe is most important with the problem sets. Students should not, however, interpret the absence of a topic from lectures or problem sets (a topic that is, however, mentioned in the assigned readings) as unimportant information.

**Homework**
I will assign seven (six will be graded) problem sets during the semester. The seventh problem set will have a point value equivalent to two assignments AND must be completed alone (no groups allowed for the final assignment). Assignments will be available at least one week before they are due. TENTATIVE DUE DATES are provided on the syllabus. Completed assignments should be signed in at the Center for Policy Research Front Desk (426 Eggers Hall) by noon on the date of the deadline. Homework that is late will not be accepted.

With the exception of the last assignment, students are allowed to work in small groups to discuss the problems and develop solutions together. HOWEVER, each student must write up the solutions that he/she submits independently. Failure to write-up your solutions independently will be considered a breach of the academic integrity policy.

I will post solutions to the problem sets in the “assignments” folder on Blackboard.

**Disability Statement**
If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS), [http://disabilityservices.syr.edu](http://disabilityservices.syr.edu), located in Room 309 of 804 University Avenue, or call (315) 443-4498 for an appointment to discuss your needs and the process for requesting accommodations. ODS is responsible for coordinating disability-related accommodations and will issue students with documented disabilities “Accommodation Authorization Letters,” as appropriate. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

**Academic Integrity Statement**
The Syracuse University Academic Integrity Policy holds students accountable for the integrity of the work they submit. Students should be familiar with the Policy and know that it is their responsibility to learn about instructor and general academic expectations with regard to proper citation of sources in written work. The policy also governs the integrity of work submitted in exams and assignments as well as the veracity of signatures on attendance sheets and other verifications of participation in class activities.
Serious sanctions can result from academic dishonesty of any sort. For more information and the complete policy, see the Academic Integrity Policy and Procedures (PDF).

**Religious Observance**

SU’s religious observances policy, found at http://supolicies.syr.edu/emp_ben/religious_observance.htm, recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holy days according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors before the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice/Student Services/Enrollment/My Religious Observances from the first day of class until the end of the second week of class.

Any student who plans to miss an assignment or exam due to a religious observance and has made the appropriate notifications should see me within the first two weeks of class to make arrangements for making up this missed work.

**Make Up Work**

Students are expected to complete all assignments by the deadline. Other than the exception for religious observance noted above, make-up homework assignments and exams will not be given under any circumstances. Students who fail to turn in an assignment before the deadline or take an exam will receive a grade of zero for that course requirement.

**Computing**

Many of the homework assignments will be done on the computer using SPSS. Please do not simply hand in output from the SPSS program. Instead, please paste the relevant results into a word processor adding text to explain your results.

**Grading**

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<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework</td>
<td>20%</td>
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<tr>
<td>Midterm</td>
<td>30%</td>
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<tr>
<td>Final Exam</td>
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Tentative Schedule
Students who need a review of the material covered in PAI 721 should read chapters 1 – 3 in Stock and Watson.

Topic I: An Introduction to Calculus
Derivatives: total and partial

Dates: January 14, 16

Topic II: Linear Regression with One Regressor
Assumptions of the model, inference, dummy variables, measures of fit, heteroscedasticity

Readings: Chapter 4; Chapter 5, skip section 5.5.
Dates: January 21, 23, 28
Assignment due: 12:00 p.m., January 31

Topic III: Linear Regression with Multiple Regressors
Omitted variable bias, multiple regression model, multicollinearity, inference, measures of fit

Readings: Chapter 6; Chapter 7 skip sections 7.2 through 7.4.
Dates: January 30, February 4, 6, 11, 13
Assignment due: 12:00 p.m., February 14

Topic IV: Nonlinear Regression Functions
Polynomial regression models, logarithms, interactions

Readings: Chapter 8
Dates: February 18, 20, 25, 27, March 4
No assignment due – problems and solutions posted.

Midterm Exam - March 6: Covers Topics I, II, III, and IV

Topic V: Bringing a Critical Eye to Multiple Regression
Internal validity, external validity, sample selection, simultaneity bias, omitted variable bias, misspecification, measurement error

Readings: Chapter 9, skip section 9.3
Dates: March 18, 20
Assignment due: 12:00 p.m., March 21
**Topic VI: Regression with Panel Data**
Difference models, fixed effects regression, time effects

Readings: Chapter 10, skip section 10.5


Dates: March 26, 28, April 2
Assignment due: 12:00 p.m., April 5

**Topic VII: Regression with Binary Outcomes**
LPM, Logit, Probit, Inference, MLE

Readings: Chapter 11, skip section 11.3


Dates: April 4, 9, 11
Assignment due: 12:00 p.m., April 12

**Topic VIII: Program Evaluation**
Randomized experiments, difference estimator, difference-in-differences model, quasi-experiments

Readings: Chapter 13, skip section 13.7


Dates: April 15, 17, 22, 24
Assignment due: 12:00 p.m., April 25

**Make-up day and/or review April 30**

*Final Exam – May 7, 2014 from 9:00 am until 12:00 pm in Maxwell 110.*