SYLLABUS
Niagara University
College of Business Administration, Department of Economics & Finance

Semester: Spring 2017
Course Number and Section: 440
Course Title: Applied Econometrics
Credit Hours: 3
Classroom: BISG 150
Meeting Times: Wednesday 6-8:45pm

Instructor Information:
Name: Randy Cragun
Office Hours: M 1-2pm, T 2:30-4:30pm, W 1:30-4:30pm
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This Course uses Canvas On-Line Software: Yes

Required Texts: *Mastering 'Metrics: The Path from Cause to Effect*, Joshua D. Angrist & Jörn-Steffen Pischke, ISBN-10: 130527010X, ISBN-13: 9780691152844 (e-book options are also available and work very well: ISBN-13: 9781400852383).

What is a p-value anyway? 34 Stories to Help You Actually Understand Statistics, Andrew J. Vickers, 2010, Pearson, ISBN-13: 978-0321629302.

Other Required Materials: You need to go to https://www.ipums.org/ and sign up for accounts in both the IPUMS-USA and IPUMS-CPS sites. Do this as soon as possible so that you do not have to beg your classmates for data for homework assignments because your account has not yet been approved (which sometimes takes over a week, in my experience). If they reject your account request, please tell me immediately.

Go to https://www.datacamp.com/courses/free-introduction-to-r and complete the "Introduction to R" course. If you do not do this, you will have a great deal of trouble this semester, as I will not spend time teaching R in great detail. Do not just rush through it; pay attention to what you are doing and why it works the way it does.

Prerequisites: There are no formal prerequisites for this course. However, every course builds on some knowledge. This course requires *knowledge of basic calculus and statistics*. If you do not know what covariance means, what a sampling distribution is, or how to find the derivative of a quadratic function, then this course will be difficult for you. You essentially need to be able to get an A on the undergraduate business stats II exam.

You must have *basic computing skills*. For instance, you will need to be able to find the path to a file (e.g. "/home/username/WeirdFiles/PleaseDoNotOpenThisFolder/data.R" or "C:/Users/username/WeirdFiles/PleaseDoNotOpenThisFolder/data.R") on your computer or extract compressed files. If you cannot do this, look it up. I am not very knowledgeable about Mac operating systems, so do not expect much help from me when you cannot find where you put your files.

This course will also require you to be confident in *searching for answers online*. Learning R has high fixed costs, so I only know what I need to, and the answers to your questions may not always come most easily from me.

University Mission Statement:
Niagara University educates its students and enriches their lives through programs in the liberal arts and through career preparation, informed by the Catholic and Vincentian traditions.

College of Business Mission Statement:
Guided by Catholic and Vincentian traditions, we prepare current and future business professionals to learn, serve, and lead with integrity and live an exemplary life.

College of Business Learning Outcomes:
ï Students will demonstrate effective presentation skills.
ï Students will demonstrate effective writing skills.
ï Students will demonstrate analytical skills.
ï Students will develop valuable employment skills through internships, and community service.

Departmental Mission Statement:
Guided by the College of Business Administration mission, the undergraduate program creates and disseminates knowledge, fosters rich learning experiences, empowers student achievement, and inspires professional engagement in the global society.

Student Learning Outcomes
1. Graduates will have effective written communication skills

2. Graduates will have effective oral communication skills
3. Graduates will be able to evaluate and understand ethical issues in business decisions
4. Graduates will demonstrate the ability to analyze information and apply critical thinking skills
5. Graduates will be proficient in using the appropriate technology and information resources for their field
6. Graduates will demonstrate knowledge of the field in their concentration or major

Course Description:

The objective of this course is to prepare students for empirical work in economics. Specifically, topics covered will include basic data analysis, regression analysis, testing, and forecasting. Students are provided the opportunity to use economic data to test economic theories. We will utilize computer software in all facets of our approach. This is believed to be a more applied course. Ultimately knowing the limits of software packages and what theories mean for empirical analysis will be stressed.

Course Learning Outcomes:
Students will:
1. Be able to identify poor scientific and statistical reasoning in real-world examples
2. Be able to perform the practical steps of estimating econometric models
3. Know when various models and estimation methods would be appropriate and be able to build models to test a wide array of questions (see the outline of topics for the specific classes of models and estimation strategies)
4. Know the weaknesses of models and estimation methods
5. Be able to identify patterns in economic data
6. Be able to "clean" data sets and identify potential problems in data
7. Be able to communicate statistical analysis and results clearly
8. Be able to translate descriptions of methods from academic papers into reproducible steps
9. Know where to look for various kinds of data
10. Be able to identify what kinds of data would help answer a question
11. Understand the scientific method, experimental design, and the ways that econometricians attempt to mimic optimal experimental designs with observational data

Assessment Measures:

Requirement	Weight	Course	CBA	Department
Lecture	10	1-7, 9-11	1-3	2-6
Research presentation	10	1, 3-8, 10-11	1, 3	2-6
Problem Sets	70	1-7, 9-11	1-3	1,3-6
In-class contributions	10	1-7, 9-11	1-3	All

Attendance Policy:

Attendance is mandatory. Missing more than two class periods will result in a reduction in your

grade. Every class missed after the first three will reduce your grade by half of one letter grade (e.g. a low B would become a C, but a high B would become a C only after the fifth absence). Being significantly late or leaving early counts as half an absence (note what this does to the marginal benefit of coming late versus not coming—economics is everywhere). There may be student presentations on some days, and missing on those days will count as two absences.

Verifying your attendance is your responsibility. At the beginning of every class meeting, the class should give me one piece of paper with the names of everyone present. I will compare the number of names on that list to the number of people in the class that day and only accept it if those numbers match. If they do not match, then I will throw out the paper, so do not write down the name of your absent friend. I found that this method worked in the past and removes any incentive to cheat. If you are concerned about it, please let me know. You should keep track of your own absences rather than asking me how many you have.

You will be required to participate in class discussions. See the grading policies for details.

Grading Policies and Procedures:

Your grade will be based mainly on problem sets. There will be a group presentation of a peer-reviewed academic paper. You will also be required to teach the class about one of the topics we cover during the semester. The following table illustrates the distribution of percents of your grade that would be assigned to each item.

Problem Sets	Presentation of Research	Course Content Lecture	In-class contributions
70%	10%	10%	10%

You can expect that 80% on an assignment or project represents the minimum for an A, 70% is approximately the minimum for a B, and 50% is approximately the minimum for a C. Pluses and minuses will be assigned on a case-by-case basis. Although it is possible for every student to earn an A, it is unlikely. Typically most students earn a B in the class. A grades are not given for effort or attendance; they signify *exceptional* competence with the material. By definition most people are not exceptional. Even if you are used to getting A grades in every class, that does not mean that you will earn an A in this class.

Problem sets:
Most of the work will come from the texts. No late work will be accepted. **You must bring a copy of your homework to class** in addition to turning it in online.

Research presentations at UB
The State University of New York at Buffalo department of economics hosts research presentations throughout the semester. You can get extra credit in this course by attending any of those presentations and writing short response papers. I can give you an idea of what will be acceptable if you are interested. I highly recommend doing this.

Group presentation of extant research:

You should form groups of 3 members. You will select a refereed journal article to present in class. I will provide a list of acceptable articles, but you may also find one and check with me if it is acceptable. You will need to get approval for your article choice even if it is from the list so that every group is presenting a different article. Thus you should try to choose early to get the one you want. You should plan on at least 10 minutes of material discussing their research design, research question, data utilized, summarizing and presenting the results. You can have a maximum of 40 minutes (including set-up, break-down, and questions). The group should be prepared to field questions from the audience. I will give an example presentation during the semester.

Course content lecture
You are responsible for teaching the class about one of the topics we cover this semester. You will work in a group of 3 to explain the idea. I will assign topics and dates. If you have a particular group with whom you want to work, let me know early in the semester. You must meet with me to discuss the topic beforehand so that your teaching is effective.

In-class contributions:
It is essential in this course that you can use the ideas we cover. In most cases we will use class time to review ideas *that you have already learned through your reading assignments*. If you do not do your reading assignments, you will be lost or simply get a bad grade. You should always keep track of the main ideas from the reading, write them down, and bring those notes to class. You will turn in one copy of the main points before class and keep another with you during class to aid in discussion. If you do not understand the reading, look at it again. If you still do not understand, look at it again. If you still do not understand after that, come to class and ask questions. To contribute in class, you need to know more than just the main points, however, so do not just skim the first line of each paragraph or copy some "main points" box at the end of the chapter. With statistics, you need to be able to explain when you would do something, exactly what you would do, why, and what sort of problems there could be. For instance, the following shows an example of what I might write down if I were studying instrumental variables estimators:

IV
- Method for estimating the effect of something that is not randomly assigned based on the idea that this independent variable is partially caused by something else (the instrument) that is observable and *is* randomly assigned.
- Example: treatment assignment is an instrument for treatment receipt.
- Two stages: regress independent variable on instrument, and then regress dependent variable on fitted values of independent variable.
- Can check if instrument affects main independent variable with the first stage regression (relevance assumption).
- Cannot check if IV is randomly assigned (independence assumption). Belief about this relies on the judgment of the people evaluating the study.
- Statistical properties: consistent but biased estimator.

College of Business Citation Guidelines and Plagiarism Reminder

Niagara University business students are asked to use the APA citation style. We recommend the Cornell University guide which can be accessed at:
http://www.library.cornell.edu/resrch/citmanage/apa

We encourage you to use the "specific parts of a source" format found in the Cornell guide which includes author, year and page number in parentheses, i.e. (Smith, 2005, p. 42).

At the end of the Cornell APA style guide are formats for web sites, blogs, etc.

Please note that the APA style also requires a bibliography "Reference list" at the end of the paper in addition to internal parenthetical references.

Academic Integrity Reminder: These are the most common plagiarism problems seen at Niagara University among students referred to the Academic Integrity Board.   *Please strive to maintain the highest academic standards.*

- Submitting a paper or portion of a paper written by another student—in your own class, another class, or another school.

- Submitting a paper which has large blocks of non-cited text copied directly from written or on-line sources.

University Statement on Academic Integrity:
Academic honesty – being honest and truthful in academic settings, especially in the communication and presentation of ideas – is required to experience and fulfill the mission of Niagara University. Academic dishonesty – being untruthful, deceptive, or dishonest in academic settings in any way – subverts the university mission, harms faculty and students, damages the reputation of the university, and diminishes public confidence in higher education.

All members of the university community share the responsibility for creating conditions that support academic integrity. Students must abstain from any violations of academic integrity and set examples for each other by assuming full responsibility for their academic and personal development, including informing themselves about and following the university's academic integrity policy.

Violations of academic integrity include but are not limited to the following categories: cheating; plagiarism; fabrication; falsification or sabotage of research data; destruction or misuse of the university's academic resources, alteration or falsification of academic records; academic misconduct; complicity; and copyright violation. This policy applies to all courses, program requirements, and learning contexts in which academic credit is offered, including experiential and service-learning courses, study abroad programs, internships, student teaching and the like. Please refer to the undergraduate catalogue for Niagara University's policy on academic integrity or access the policy online, www.niagara.edu/academicintegrity.

Additional note from the instructor: I take academic integrity seriously. Every semester I have some students violate these standards, and they almost always are students who simply do not know how to produce their own ideas and give credit to others for theirs. It is your responsibility know academic ethical standards. For instance, rewording an article from *The Economist* (putting it "in your own words") without attribution is still plagiarism.

Inclusivity, Diversity & Support for Students at Niagara University

Niagara University supports a learning environment that fosters inclusiveness where diversity is respected and valued. It is expected that students in this class will respect differences and develop an understanding of how other people's perspectives, behaviors, and worldviews may be different from their own.

Students are always encouraged to meet with faculty as early as possible in the semester to discuss their needs or concerns. Students may also seek additional assistance from a variety of resources available on campus such as academic support, counseling services, disability services, etc. For more information on these resources, please visit http://mynu.niagara.edu/services

Course schedule:

The schedule of topics will almost certainly change.

	Topic
Jan 18	R, review, goals, and data
Jan 25	Experimental design, the scientific method, and the hard problem of econometrics
Feb 1	Sampling distributions and data representations
Feb 8	Treatment effects
Feb 15	Cross-section linear regression model
Feb 22	Estimating the model
Mar 1	Inference
Mar 15	Multiple regression
Mar 22	Models with dummy variable regressors
Mar 29	
Apr 5	Difference-in-differences
Apr 12	Instrumental variables
Apr 19	Qualitative dependent variables
Apr 26	
May 3 6:10-8pm	No final exam, but we will still meet at this time for presentations