

**Economics 398-1**  
Senior Honors Thesis  
Winter 2019

**Instructor**

Professor Lori Beaman

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*Lectures:* Tuesdays 4-5:30pm

*Office hours:* by appointment to be scheduled on Thursdays 3-5pm. Sign up [here!](#)

**Teaching Assistant**

Riccardo Marchingiglio

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Riccardo will be available to help you answer your various econometric questions. Please note that you should not expect Riccardo to do your empirical work (e.g., massaging data, running regressions, or presenting or interpreting results). Also, the earlier you ask a technical question, the more likely we can help you find the answer; it's much better to tackle things in March than in May, when you will need many hours to write.

**Prerequisites and Invitations to the Honors Program**

The Director of Undergraduate Studies (currently Professor Mark Witte), acting on behalf of the Department, invites students to the Honors Program. The selection criteria are:

1. An overall GPA of 3.5 or higher.
2. Completion by the end of the junior year of all core courses in economics: Economics 201, 202, 281, 310-1, 310-2, 311.
3. A GPA in economics courses of 3.5 or higher, and no grade below a B in the following courses: Statistics 210; Economics 281, 310-1, 310-2, 311.
4. Completion by the end of the junior year of at least two of the six 300-level field courses required for the economics major, and when combined with the registration for the fall quarter of the senior year to have taken at least four of the six required field courses.

Students who fall somewhat short of these criteria but are highly motivated to write a senior thesis may apply for an invitation to the Director of Undergraduate Studies. *It is important to be aware that this two-course sequence, ECON 398-1,2, does not count as two 300-level field courses or in any way toward the completion of the economics major requirements.* For a complete description of the honors program, please refer to <http://www.econ.northwestern.edu/undergraduate/degree/honors.html>.

**Senior Honors Seminar Description**

ECON 398-1,2 is a two-quarter sequence during which a faculty organizer guides roughly a dozen of the top economics majors as they conduct independent research projects, each advised by a faculty expert in the subject. The primary goal of the seminar is to help students successfully accomplish the numerous steps of writing a thesis, which takes several months of consistent work. The seminar meets regularly to bring all of the student researchers and the faculty organizer together in what might be thought of as a research support group. The weekly meetings typically consist of a short lecture on a particular research step (e.g., how to find relevant journal articles, read an academic paper, identify a gap in the literature, find relevant data, link economic theory to an empirical model, or how to present

econometric results) and a discussion by the seminar participants on current concerns. Students make regular presentations to report on their progress and get feedback from their peers.

### Steps in Writing an Honors Thesis

1. Deciding on a suitable topic
  - Identifying an area of interest – *What interested me from my elective courses? Is it feasible to venture into a totally new field?*
  - Identifying relevant journal articles
  - Conducting a literature review – *How do I read academic articles critically? Why is it generally inefficient to read journal articles from start to finish?*
  - Identifying one or more gaps in the literature – *What questions are new, interesting, and doable in the time I have? What does it mean to “stand on the shoulders of giants”? Why didn’t someone else already answer this question?*
  - Formulating an economic hypothesis – *How are the interesting variables related? What is a falsifiable hypothesis?*
2. Outlining theoretical foundations
  - Identifying a causal relationship – *How does X affect Y (above and beyond correlation)?*
  - Going back to core economic theory – *What ECON 310/311/3XX models describe the relationship between X and Y? How can I formally express the economic problem I want to analyze?*
  - Adapting existing theory – *How might we extend existing theory to write down a theoretical model of the following form?*
    - Interesting dependent variable  $Y = f$  [ interesting independent variable(s)  $X$ ; control variable(s)  $Z$  ]
3. Finding a faculty adviser
  - Identifying local experts – *Now that I have a well-developed idea and a model of the form  $Y=f[X;Z]$  in mind, which NU professors (in ECON, Kellogg, SESP, etc.) might be best prepared to advise me?*
  - Approaching potential advisers – *How can I ask someone to advise me? What steps can I take to increase the chances that a faculty member will agree to advise me? Can you help me find an appropriate adviser?*
4. Obtaining and massaging required data
  - Operationalizing a theoretical hypothesis – *What real-world variables can I use to measure the X, Y and Z in my model,  $Y = f[X, Z]$ ? E.g., what are the best indicators of a developed nation?*
  - Finding real-world data – *How do I actually track down and obtain the data I will need? Are my data free or must I buy them (perhaps through a research grant or a complimentary student subscription)?*
  - Manipulating data – *How do I put the data into a usable form using Excel or STATA? Do I need to write a short macro?*
5. Doing econometric work
  - Running regressions – *How do I run OLS regressions in STATA or another program?*
  - Running the correct regressions – *Oops! If a simple OLS regression won’t work thanks to problems of endogeneity (which may lead to biased/inconsistent estimation results), how do I use instrumental variables or another approach to improve the econometrics?*
  - Reporting and interpreting the results – *How do I communicate my statistical findings? How are econometric results usually presented in journal articles?*
6. Writing up the thesis
  - Abstract – *How do I succinctly summarize my thesis in a paragraph?*

- Introduction – *How do I convince a layperson to read my technical thesis while setting the stage by succinctly providing necessary background information?*
- Literature review – *How do I summarize our current understanding of this topic?*
- Theoretical foundations – *How do I present the economic theory behind my hypothesis?*
- Data – *How do I describe my choice of data, its source, my efforts to massage it, etc.?*
- Empirical analysis – *How do I outline my econometric work, present my results, and interpret them for the reader?*
- Conclusion – *What did I learn from my work, how does it contribute to our understanding of this topic, and what new research questions does it inspire?*
- References – *What sources (articles, books, interviews, etc.) did I use to write this thesis?*
- Waiting – *What should I do while two faculty members read my thesis to determine whether it is of sufficient quality to warrant departmental honors?*

For previous honors theses, visit <https://sites.google.com/site/economicshonorsnorthwestern/>

### **Evaluation of Honors Theses and Course Grades**

Two faculty members will read your thesis and determine whether it is of sufficient quality to warrant departmental honors. The faculty organizer will identify the second reader, who will usually be another economist with some expertise in your area. Each reader writes a recommendation letter based on the quality of your thesis. The Economics Department's Honors Committee then reviews all of these letters, determines which theses will be awarded honors, determines which theses will be awarded special departmental prizes, and makes its recommendations to the Weinberg College of Arts and Sciences. Finally, in late May WCAS makes a formal decision about honors for each thesis writer. Notice that much has to happen after you submit your thesis, which is why the submission deadline is set for early May; i.e., it will take a week or two for the readers to read your thesis and write their letters, and another week or two for the various committees to meet, so we don't have a lot of wiggle room with due dates.

Note on grading: You will receive a K grade at the end of 398-1. After you complete the thesis in May, this K grade will be changed to a normal grade and you will also get a grade for Econ 398-2.

### **Timeline:**

Final thesis is due spring quarter, May 10<sup>th</sup>.

### **Assignments**

#### **1. Due January 15:**

- Choose 2 academic papers you like (from journals listed) and break it down in the following way:
  - Clearly state the research question/hypothesis of the paper
  - Generate what the outline looks like for the paper
  - List the key 1-2 tables and copy / paste them into a document. Or 1-2 key propositions in theory paper.
- Please submit this thesis proposal via Canvas at least 1 hour before class.

## 2. Due Friday, January 25:

- Submit a thesis proposal that includes the following:
  - Topic and hypothesis you will be investigating including a description of the economic pathway described in point 2 *above*
  - The name of the faculty member that agreed to advise your thesis
  - A very brief literature review that outlines how your research differs from earlier studies, with references
  - A statement on which data set you will be using, including a verification that the variables you need are actually contained in your data source.
- Please submit this thesis proposal via Canvas.

## 3. Due Tuesday, February 26:

- Each student will give a presentation of their thesis, as it currently stands
- We will spend 2 class meetings for these presentations, and I will randomly assign students to a week, so plan on being prepared by Feb 26 even if you will not present until March 5.

## 4. Due March 21: very rough draft of thesis

- If some analysis is not yet undertaken, describe the type of table you intend to include in that part of the paper.

## Topics

January 8	Course overview Econometrics Review
January 15	Writing as an Economist Determining the right regression for a research question
January 22	Stata overview Formulating a specific research question from a general topic
January 29	Empirical project in class in small groups
February 5	Differences-in-differences Intuition on choosing control variables
February 12	Instrumental variables
February 19	Regression Discontinuity
February 26	Student presentations
March 5	Student presentations