Syllabus

INTRODUCTION TO ECONOMETRICS
Spring 2016

e/m 388

1. Overview

In this course we will develop the tools needed to build and test statistical models using economic data. We will begin with a foundation in the Ordinary Least Squares (OLS) method of estimation and extend this basic framework to a wide variety of techniques and applications, including macroeconometrics.

2. General Information

Instructor:	Dr. Mercy Laita Palamuleni
Office Location:	Beck 155
Office Hours:	MWF 9:00-10:00 a.m., and by appointment
Classroom	Beck 113, MTWF @ 10:30 a.m
Course Website	Moodle
Email:	mpalamul@gustavus.edu

Emailing is my preferred method of contact. Please feel free to send me an email if you have any questions or concerns about this class. I check my email very often. However, allow 24 hours for me to respond and if you do not get my response within 24 hours, please assume that I did not get your email. I suggest that you resend it.

Prerequisites	Take E/M-110, MCS-121; and E/M-125 or MCS-142
Required Text	1. R.Carter Hill, William E. Griffiths and Guay C. Lim, Principles of Econometrics, Foufth Edition, John Wiley & Sons, 2011. 2. Articles posted on moodle
textbook website:	http://principlesofeconometrics.com/
Publisher website:	http://he-cda.wiley.com/WileyCDA/HigherEdTitle/productCd-0471723606.html

Optional Supplement:	Using Excel 2007 for Principles of Econometrics (distributed by Briand).

3. **Course specific objectives**

Upon successful completion of this course students will be able to:

- Explain important statistical and econometric concepts.
- Apply basic simple and multiple linear regression, and Ordinary Least Squares (OLS) estimation procedure to real world problems.
- Generate and test hypotheses.
- Understand the nature of endogeneity.
- Explain basic assumptions of the OLS, test their validity in practical situations, and deal with their violations.
- Describe the features of different types of economic data, and command some basic tools and techniques of econometric analysis.
- Manage basic data, cross sectional and time series data.
- Use several statistical and econometric tools, techniques and statistical packages e.g excel and *Stata*.

4. Assessment

Attendance, Participation	10%
Assignments	15%
Mid-term	20%
Research Project	30%
Final exam: (On officially scheduled exam date and time)	25%
Total	100%

- ***Anticipated Grading Scale:***
  A: 93-100 A-: 90-92 B+: 87-89 B: 83-86 B-: 80-82 C+: 77-79 C: 73-76 C-: 70-72
  D+: 67-69 D: 63-66 D-: 60-62 F: 0-59

- ***Attendance, Participation and Quizzes (10%):*** Attend class and come prepared to do work. Learning is an active process. The grade structure is weighted heavily towards in-class activities. In-class assignments (quizzes) are designed to preview the types of questions you will see on the exams. You are responsible to take your own notes. It is in your best interest to come to class.

- ***Assignments/reading reviews (15% of your grade):*** **I will not accept any late work**, unless you have an excused absent and/or you have discussed with me in person the reason(s) for the extension, 24 hours prior to the due date.

- ***Research Project:*** Econometrics is an applied economics course, very practical. Throughout the semester you will be involved in a research process including presentation. I will let you give you updates when work is due.

- ***Exams (45% of your grade):*** Exams will be paper-based. Exams will consist of multiple choice questions and free response questions. The final exam will be "*comprehensive"* and will be given during the officially scheduled final exam period for this course.

- ***Make up exam:*** There will be no makeup-exams. Please consult with me in advance if you might be missing one/any of the exams.

- ***Grade Appeals*****:** Any requests for re-grading on a test must be submitted in writing within three days of when the test is returned. If you do not pick up your test when it is returned, you still must make any re-grading request within three days of when the test was returned. A re-grading request should include an argument for why you feel your answer was correct. I will re-grade the entire question when a request to re-grade part of a question is made

5. Other important information

- ***Academic Integrity:*** Violations of academic integrity will be taken extremely seriously. Students found cheating in the course (or helping others to cheat) will be penalized according to the school rules guidelines. Meanwhile, I strongly encourage you to collaborate with your classmates on problem sets.

- ***Academic Accommodations:*** Anyone with any condition such as a physical or learning disability, who needs an accommodation or assistance in this course should make an appointment to speak with me as soon as possible (preferably

before the first exam). You will need also proper documentation from appropriate college department.

- If you have a learning disability you may seek to speak with the Disability services Coordinator, for confidential discussion of your needs and appropriate plans. Please contact the Disability services as early as possible at: https://gustavus.edu/advising/disability/

- Support for English Language Learners and Multicultural students available via the college's ELP support. The ELL Support person can provide you with a letter that explains and supports academic accommodation including and not limited to Additional time on tests, or even use of electronic dictionaries. ELL and multicularal students can also seek help from peer tutors or from the writing center.

Miscellaneous

- Cell phones must be turned off at the beginning of class. Text messaging is not allowed during the class.
- Understand that as your instructor I am here to assist you. Everyone has gotten behind before, if you get behind in my class, don't be nervous about telling me so. I will help you catch up and it's my job as your instructor to help you, so don't make my job easy - - come to me for help.

A Brief Course Outline (Topics from Chapter 1-12 HLG)

Economic Questions and Data

Linear Regression with One Regressor

Regression with a Single Regressor:

Hypothesis Tests and Confidence Intervals

Linear Regression with Multiple Regressors

Hypothesis Tests and Confidence Intervals in Multiple Regressions

Nonlinear Regression Functions

Assessing Studies Based on Multiple Regression

Conducting a Regression Study Using Economic Data

Research Project

The purpose of this research project is to provide you with a practical experience in conducting an empirical analysis of economic data in a subject area that you have particular interest. This project is divided into 5 phases/steps.

Phase 1: Select a topic. (TBA) Describe your proposed topic by addressing the questions detailed below.

The first step in formulating an econometric model is to select a topic of interest and to consider more specifically the scope of the model and the specific questions or hypotheses you will investigate. In particular, in your write-up for Phase 1, you need to specifically identify and discuss:

1. What question(s) will the model be addressing (i.e., what is the objective of the study)?

2. Why is the question important?

3. How is your model going to answer the question, and what are the hypotheses that your model will test?

4. How is your model related to existing work?

Phase 2: Collect/find data. (TBA) You will need to address the following, related to the data that you have identified for use in your project:

1. What are the sources of data – identify these with enough detail so that they can be found by someone not involved in your project.

2. Discuss the variables you plan to use and how they relate to the concepts they measure.

3. Provide a listing of the data and summary /descriptive statistics for the data to be used in the model (e.g., number of observations, mean, and standard deviation, minimum and maximum).

4. Discuss any known or potential limitations to your data.

Phase 3: Data Analysis. (TBA) Once the model or models have been developed and the relevant data collected, the next step is to apply the econometric techniques that you have learned in class to estimate the model. You can use STATA or Excel for estimation. Your write-up for Phase 3 should include:

1. Presentation of Results – usually done with a table(s).

2. Discussion of Results –

    a. Explicit statement of the model(s)/equation(s) being estimated.

    b. Statement of whether the results refute or support the hypotheses.

    c. Statement of whether the results are statistically significant.

    d. Interpretation of the magnitude of the coefficients, and calculation of economic values such as elasticities, etc., if appropriate.

    e. Comment on functional form.

    f. Other?

Phase 4: Report write up. (TBA) Most papers describing an empirical study have four sections: Introduction, Data, Empirical Results, and Conclusions. Phases 1 – 3 have created the information you will need for the first three sections of your final report. You will also need to write a Conclusions section.

The Conclusions section should:

1. Summarize the results.

2. Discuss the implications of the research.

3. Identify limitations of the research.

4. Suggest future research.

5. Other?

Phase 5: Presentation to Peers. (TBA)