Welcome to Introductory Econometrics.

Calendar Description:

Introductory Econometrics is a continuation of 2210 with focus on regression methods to study the relationship between two or more economic variables. Topics covered include ordinary least squares (OLS), hypothesis testing in linear regression models, choosing functional forms for regression, multicollinearity, serial correlation, heteroskedasticity, and practical implementation of regression models.

Pre-requisites: ECON 2210 (or equivalent) with a grade of C- or higher, and ECON 1402 (or equivalent) with a grade of C- or higher.

A grade of C+ or higher is required to qualify for ECON 3706, 3900, 3920, 4002, and 4706. DEF(ferred final grade) status at the end of this course precludes (continued) registration in any other course for which the former is a prerequisite. Students who believe they have taken a similar background course or courses from another university must provide appropriate documentation to the Department of Economics Undergraduate Administrator, Amanda Wright.

The course consists of lectures three hours a week and tutorials one and a half hours a week. During the tutorials the T.A. will briefly summarize the main points explained in the lectures, provide further examples or go through problem sets in the course textbook, and implement regression methods using STATA.

Tutorials will start from around the third week and students should attend weekly tutorials. (Please check cuLearn regularly for further information.)

Required Textbook: Available at the Carleton Bookstore


Course Outline

Topic I: Estimation and Hypothesis Testing for Regression

| Chapter 1: | An overview of regression analysis |
| Chapter 2: | Ordinary least squares |
| Chapter 3: | Learn to use regression analysis |
Chapter 4: The classical model
Chapter 5: Hypothesis testing

**Topic II: Model Specification**
- Chapter 6: Specification: Choosing the independent variables
- Chapter 7: Specification: Choosing a functional form

**Topic III: Diagnostics for Regression**
- Chapter 8: Multicollinearity
- Chapter 9: Serial correlation
- Chapter 10: Heteroskedasticity

**Topic IV: Practical Implementation**
- Chapter 11: Running your own regression project

**IMPORTANT NOTE:**
For verification and security purposes, I will not reply to emails originating from non-Carleton e-mail accounts, and which are not signed with a student’s name and student number. Notes, assignments, and changes to schedules will be made available on cuLearn. Please ensure that you check your cuLearn account for updates *at least twice a day* (once in the morning and in the evening).

Classroom teaching and learning activities, including lectures, discussions, presentations, etc., by both instructors and students, are copy protected and remain the intellectual property of their respective author(s). All course materials, including PowerPoint presentations, outlines, and other materials, are also protected by copyright and remain the intellectual property of their respective author(s).

Students registered in the course may take notes and make copies of course materials for their own educational use only. Students are not permitted to reproduce or distribute lecture notes and course materials publicly for commercial or non-commercial purposes without express written consent from the copyright holder(s).

**Practice Problems**
- There are tutorials one and one half hours per week. The TA will present more examples and/or illustrations using STATA.
- Students are encouraged to work through as many textbook problems as possible, as these are the best way to learn the course and prepare for the exams as well.

**Course Evaluation**

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<thead>
<tr>
<th>Evaluation Item</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Three 80 minute midterms worth 15% each</td>
<td>45%</td>
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<tr>
<td>One assignment</td>
<td>10%</td>
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<tr>
<td>Final Examination – 3 hours (to be set by the Registrar’s office)</td>
<td>45%</td>
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<td>100%</td>
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- The first midterm examination will be held after finishing Chapter 3.
- The second midterm examination will be held after finishing Chapter 5.
- The third midterm examination will be held after finishing Chapter 7.

****IMPORTANT EVALUATION CRITERION****
• Midterm examinations will be held in class and will last 80 minutes. I will post a reminder to cuLearn one week before each mid-term. **There will be no deferred midterms.** If you miss a midterm exam and provide a valid medical certificate or a verifiable compassionate reason within one week of the missed exam, the assigned weight (of 15%) will be added to your final exam. Note that I will ignore the last midterm, **which you attend and pass**, if the mark in the final is higher than that in this last midterm.

• A maximum of one missed midterm is permitted.

• A maximum weight of 60% will be given to the final examination in the event that a midterm is missed.

• All midterms are closed book examinations and students are not allowed to bring in any materials except non-programmable calculators and tables of statistical distributions.

• The final exam will be cumulative and cover the entirety of the course material.

**Three Midterm Examinations (45%)**

Practice questions and solutions are posted at least one week before each test/midterm, and reflect the type of questions you can expect. Study groups are useful to discuss solutions.

**Re-grading policy:** If you feel that there is a marking error in your work, you can always make an appeal. The procedure is as follows: 1) write one page detailing where you should deserve extra points - please remember to provide a good justification as well; 2) submit this page to the T.A. within **two weeks** after grades are announced on cuLearn. If you are still not happy with the T.A.’s decision, you can bring this page to me. **It is important to keep in mind that your grade may be more or less as a consequence of re-marking.**

**One Assignment (10%)**

This assignment requires you to use STATA to run regression projects. Please keep a copy of your assignment, as your graded assignment may not be available for pick-up prior to the final examination. I do encourage you all to use STATA as it is one of the most popular software packages for statistical analysis, which is currently being used in many governmental institutions and the private sector.

You can download Stata/SE 14.0 for Windows from the link below. Note that the university has a volume license for Stata, so you can download it to your computer for personal use as long as you study at Carleton.

https://carleton.ca/its/all-services/computers/site-licensed-software/stata/

To do regression analysis in STATA, please carefully follow the instructions in the video below. You will need Windows Media Player 2009 to play this MP4 media file.

https://www.dropbox.com/s/5tsddt8cd5g7hw9/Stata_Regression_Lecture_01.mp4?dl=0

It is very important to keep in mind that the assignment will be due **TWO WEEKS** after it is made available online. The assignment must be submitted within **15 minutes** of the beginning of the class on the due date. No late or deferred assignment will be accepted. If a student fails to submit the final assignment on time **without a verifiably good reason**, a mark of zero (with a weight of 10%) will be added to final grade.
Final Examination (45%)  
The final exam covers the entire course material, lasts 3 hours, and is scheduled by the Registrar’s Office to take place during the official final examination period. Failure to write the final examination results in a grade of DEF (provided you have met the conditions described in the Course Requirements below). In order to write a deferred final exam, students must contact the Registrar’s Office as soon as possible after the missed exam.

Course Requirements  
Students must fulfill all the requirements described in Course Evaluation above in order to achieve a passing grade (D- or higher). Failure to write one or more of the midterm examinations (without a documented compelling good reason) will result in a grade of F (‘Failure’). Failure to write the final examination when the student has achieved satisfactory performance during the term will result in a grade of DEF (‘Deferred Final Examination’). Application to write a deferred final examination must be made at the Registrar’s Office. See Academic Regulation 2.3 for the official meanings of these grades, and note that it stipulates that no course grades are final until approved by the Faculty Dean. Note also that course grades may be scaled upwards or downwards in a rank-preserving manner to better fit the relevant departmental distributional norm.

Course Standing  
Standing in a course is determined by the course instructor subject to the approval of the Faculty Dean. This means that grades submitted by the instructor may be subject to revision. No grades are final until they have been approved by the Dean.

Plagiarism  
Please be aware that plagiarism is serious offence at Carleton and should be recognized and avoided. For information on how to do so, please see “Pamment on Plagiarism and Paraphrasing” at www.carleton.ca/economics/courses/writingpreliminaries

For Students with Disabilities:  
Students with disabilities needing academic accommodations are required to contact a co-ordinator at the Paul Menton Centre to complete the necessary letters of accommodation. The student must then make an appointment to discuss their needs with the instructor at least two weeks prior to the first class or ITV test. This is to ensure sufficient time is available to make the necessary accommodation arrangements.

For Religious Observance:  
Students requesting academic accommodation on the basis of religious observance should make a formal, written request to their instructors for alternate dates and/or means of satisfying academic requirements. Such requests should be made during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist, but no later than two weeks before the compulsory academic event. Accommodation is to be worked out directly and on an individual basis between the student and the instructor(s) involved. Instructors will make accommodations in a way that avoids academic disadvantage to the student.

Students or instructors who have questions or want to confirm accommodation eligibility of a religious event or practice may refer to the Equity Services website for a list of holy days and
Carleton’s Academic Accommodation policies, or may contact an Equity Services Advisor (ext. 5622) in the Equity Services Department for assistance.

**For Pregnancy:**

Pregnant students requiring academic accommodations are encouraged to contact an Equity Advisor in Equity Services (ext. 5622) to complete a letter of accommodation. The student must then make an appointment to discuss her needs with the instructor at least two weeks prior to the first academic event in which it is anticipated the accommodation will be required.

If you have any problems and questions, please do not hesitate to ask me for assistance.