ECON 345 A01  
Applied Econometrics  
CRN 30350  

Summer Session: Term 1 2019 05  

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Office Hours: Wednesday 5:30pm – 6:20pm  

Course Content  
The goal of the course is to teach you how to use a programming language to solve econometrics problems. This process will require you use mathematics and statistics to better understand how econometrics works in economic problems. You are going to evaluate economic theories and policies using data and econometric methods. We will focus largely on multiple regression techniques in cross-sectional data analysis, considering common issues and problems that arise in applied empirical social science research. You will use R—an econometrics software package—to analyze data, draw inferences, and compare alternative modeling approaches. At times, you will work with appropriate data sources, implement statistic computations, prepare graphs or tables, perform analyses, and interpret the results. Ultimately, you are going to learn to use computers to do econometric modeling and analysis.  

Prerequisites: One of ECON 103, ECON 103C, ECON 180; and ECON 104; and ECON 245 with a minimum grade of C+ or STAT 260 with a minimum grade of C+; and ECON 246 or STAT 261; one of ECON 225, ENGL 135/146/147 with a minimum grade of B+, ENGR 240; and one of MATH 100, MATH 102, MATH 109.  

Textbook  
The required textbook for this course is “Introductory Econometrics: A Modern Approach,” (Seventh Edition) by Wooldridge. It will be sold at the bookstore as a loose-leaf text (which saves you money), but you are welcome to buy it in bound form.  
Mindtap (required): The loose-leaf textbook is bundled with Mindtap, which provides additional notes and is required for the submission of online assignments. Students must register for the course on Mindtap at https://login.pearson.com/course/MTPN-2X3N-3TRR. Make sure to enter your name matching your UVic student ID. If you buy a bound copy of the textbook, make sure it is bundled with Mindtap.  
Lab Textbook (optional): Labs will be based on the statistical programming language R. The textbook “Using R for Introductory Econometrics” (Heiss, 2016) provides code to complete the exercises in Wooldridge and is freely available online at http://www.urfie.net/ The book is also available for purchase as hardcover if you prefer.  

Grading  
The final grade is determined as follows  
Assignments (4): 24% (four assignments submitted, the best three marks kept, each worth 8%).  
Labs (10): 10%  
Mindtap online Exercises: 10%  
Midterm Exams (2): 28%  
Final Exam: 28%  

Assignments: I have designed them for you to learn the material in depth and to prepare for the exams. They will be posted on CourseSpaces and should be submitted in the dedicated assignment drop-box in the Economics Department before their deadlines. You may discuss with other students how to solve the problems. However, you
must submit your own work, independently written up. There will be four assignments in the term. The assignment with the lowest score will be discarded in the computation of the final grade. The other three will count 8% each. Note: if caught copying other students’ answers, the assignment will receive a grade of 0, and it will be counted directly in the overall grade for the course. In addition, the standard procedures pertaining to Academic Integrity will also be initiated.

Assignments due dates: May 27th; June 11th; July 10th; July 29th. There may be some minor changes if necessary. Note: it is your responsibility to submit assignments on time.

Note: Assignments will require considerable effort and time, thus I encourage you to start early and to not leave work on the assignment until the last minute. They are best completed by continuous work alongside lectures.

Mindtap Exercises (10%): Mindtap exercises are designed to give you regular practice of the concepts learned in lectures. These must be completed on a weekly basis. Exercises are scored on correctness for a total grade of 10%. You need to complete at least 9 out of the 10 Mindtap exercises, any additional exercised missed will result in a 1% reduction of the maximum score of 10%.

Midterms: The midterm exams are scheduled for June 12th, and July 10th, 4:30pm-5:30pm. The midterm examinations will cover chapters of the textbook, all handouts, and all class discussions before the midterms (see course structure below). The midterm exam will be held during class time. It will consist of a series of multiple-choice, short-answer, and several longer multipart questions that will be similar in style and content to questions on assignments. The main criteria for assessment will be correct answers, with partial credit based on evidence of thinking and learning.

Final exam: The final exam is scheduled by the University. The final exam will be cumulative, but with a greater weight placed on material discussed after Chapter 6. Like the midterm examinations, the final examination will consist of a series of multiple-choice, short-answer, and several longer multi-part questions that will be similar in style and content to the questions on the assignments. The main criteria for assessment will be correct answers with partial credit based on evidence of thinking and learning.

Grading Scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
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<tbody>
<tr>
<td>A+</td>
<td>90-100</td>
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<tr>
<td>A</td>
<td>85-89</td>
</tr>
<tr>
<td>A-</td>
<td>80-84</td>
</tr>
<tr>
<td>B+</td>
<td>77-79</td>
</tr>
<tr>
<td>B</td>
<td>73-76</td>
</tr>
<tr>
<td>B-</td>
<td>70-72</td>
</tr>
<tr>
<td>C+</td>
<td>65-69</td>
</tr>
<tr>
<td>C</td>
<td>60-64</td>
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<tr>
<td>D</td>
<td>50-59</td>
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<tr>
<td>F or N</td>
<td>0-49</td>
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</table>

Students should review the University’s more detailed summary of grading.

Course Policies
This course adheres to the Undergraduate Course Policies of the Department of Economics that deal with the following issues:

- Academic concessions
- Academic integrity (plagiarism and cheating)
- Attendance
- Grading
- Inclusivity and diversity
- Late adds
- Late assignments
- Repeating courses
- Review of an assigned grade
- Students with a disability
- Term assignments and debarment from examinations
- Travel plans
- Waitlists
The following policies are explicitly included because of their importance.

**Examinations**

Attendance at all scheduled examinations is mandatory. Consideration for missed examinations will be given only on the basis of documented illness, accident or family affliction, and for no other reasons. In the event of a missed final examination, students are advised to follow the procedures outlined in the University Calendar.

If you do not take the final exam or do not pass the final exam, you will fail this course. All other assignments and midterm exams are critical parts of your final grade. If you do not hand in your assignments or do not take midterm exams, you will get 0 for that part of your final grade.

Students are advised not to make work or travel plans until after the examination timetable has been finalized. Students who wish to finalize their travel plans at an earlier date should book flights that depart after the end of the examination period. There will be no special accommodation if travel plans conflict with the examination.

**Waitlist Policies**

- Instructors have no discretion to admit waitlisted students or raise the cap on the course.
- Students on the waitlist should discuss with the instructor how to ensure they are not behind with coursework in the event they are admitted.
- Registered students who do not show up in the first seven calendar days from the start of the course may be dropped from the course.
- Registered students who decide not to take the course are responsible for dropping the course, and are urged to do so promptly out of courtesy toward waitlisted students.
- Waitlist offers cease after the last date for adding courses irrespective of published waitlists.

**Academic Integrity**

Academic integrity requires commitment to the values of honesty, trust, fairness, respect, and responsibility. Students are expected to observe the same standards of scholarly integrity as their academic and professional counterparts. A student who is found to have engaged in unethical academic behaviour, including the practices described in the Policy on Academic Integrity in the University Calendar, is subject to penalty by the University.

Review What is Plagiarism for the definition of plagiarism. Note: Submitted work may be checked using plagiarism detection software.

**University Policy on Human Rights, Equity and Fairness**

The University is committed to promoting, providing and protecting a positive, supportive and safe learning and working environment for all its members.

See General University Policies

**Accessibility & Health Resources**

**Centre for Accessible Learning**

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, you are free to approach me; however, you must register with the Centre for Accessible Learning (CAL) for formal arrangements to be made. The CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

**Health Services** - University Health Services (UHS) provides a full service primary health clinic for students, and coordinates healthy student and campus initiatives.

**Counselling Services** - Counselling Services can help you make the most of your university experience. They offer free professional, confidential, inclusive support to currently registered UVic students.
Elders’ Voices - The Office of Indigenous Academic and Community Engagement (IACE) has the privilege of assembling a group of Elders from local communities to guide students, staff, faculty and administration in Indigenous ways of knowing and being.

CourseSpaces
CourseSpaces is used extensively for the course. All students are expected to be fully functional with the system. The lecture notes will be posted in CourseSpaces. Please note that the lecture notes online are only outlines of the actual lectures. All announcements will be posted in CourseSpaces. Students are advised to check it frequently.

Course Experience Survey (CES)
I value your feedback on this course. Towards the end of term you will have the opportunity to complete a confidential course experience survey (CES) regarding your learning experience. The survey is vital to providing feedback to me regarding the course and my teaching, as well as to help the department improve the overall program for students in the future.

When it is time for you to complete the survey, you will receive an email inviting you to do so. If you do not receive an email invitation, you can go directly to the CES log-in. You will use your UVic NetLink ID to access the survey, which can be completed on your laptop, tablet or mobile device. I will remind you nearer the time, but please be thinking about this important activity, especially the following three questions, during the course.

- What strengths did your instructor demonstrate that helped you learn in this course?
- Please provide specific suggestions as to how the instructor could have helped you learn more effectively.
- Please provide specific suggestions as to how this course could be improved.

Repeating Courses
Be aware of the policy regarding the repeating of courses; see University Calendar.

In order to request permission to attempt this course for the third time, you must follow the instructions provided under the Repeating Courses policy on the Economics website. Failure to obtain permission will result in deregistration from the course.

Course Schedule

<table>
<thead>
<tr>
<th>Topic</th>
<th>Chapter</th>
<th>Week</th>
<th>Due Dates and Exam Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Introduction (Topic 0)</td>
<td>Appendices A-C</td>
<td>1</td>
<td></td>
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<tr>
<td>Statistics Review (Topics 1.1 &amp; 1.2)</td>
<td>Appendices A-C</td>
<td>2</td>
<td></td>
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<tr>
<td>Introduction to Econometrics</td>
<td>Chapter 1</td>
<td>3</td>
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<tr>
<td>Univariate regression (Topic 2)</td>
<td>Chapter 2</td>
<td>4</td>
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<tr>
<td>Multivariate regression (Topic 3)</td>
<td>Chapter 3</td>
<td>5</td>
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<tr>
<td>Inference (Topic 4)</td>
<td>Chapter 4</td>
<td>6</td>
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<tr>
<td>Asymptotic (Topic 5)</td>
<td>Chapter 5</td>
<td>7</td>
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<tr>
<td>Further Issues (Topic 6)</td>
<td>Chapter 6</td>
<td>8</td>
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<tr>
<td>Dummy Variables (Topic 7)</td>
<td>Chapter 7</td>
<td>9</td>
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<tr>
<td>Heteroskedasticity (Topic 8)</td>
<td>Chapter 8</td>
<td>10</td>
<td></td>
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<tr>
<td>Introduction to Time Series (Topic 9)</td>
<td>Chapter 10</td>
<td>11</td>
<td></td>
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<tr>
<td>Determining Causality under less than ideal conditions; How to be</td>
<td>See readings on the website</td>
<td>12</td>
<td></td>
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Learning Outcomes
Upon participating in this course, you will learn valuable skills that are appreciated by prospective employers,
1. identify causal inference problems in economics research/different scenarios, explain causation and correlation between economic variables.
2. apply regression analyses of empirical data and investigate whether the classical assumptions for regression analysis are satisfied using statistical testing.
3. Use R to do econometrics analysis given data and research questions, assess results from an economist’s perspective, and interpret the results in ordinary language.

E-mail correspondence
Emails should be limited to critical matters, such as inability to attend class, an exam, or prolonged illness, and should include the course name and number in the subject line. Questions on course material should be asked during office hours or in class. The standard format for writing a letter must be used. This means it should begin with a salutation (e.g. Dear….), include full sentences and it must conclude with a signature that includes your full name and V# . Text message lingo should not be used.

Electronic devices
During exams, only non-programmable calculators are permitted. All other electronic devices must be turned off and stored out of view.
You are encouraged to install econometric software on your personal computers. R (https://cran.rproject.org/) and RStudio (https://www.rstudio.com/) are freely available online, the lab will cover the use of the software. You are also encouraged to bring your own laptops with R and RStudio installed to the labs.
You could log in https://login.rstudio.cloud to use RStudio or https://uvic.syzygy.ca (UVic VPN needed) or https://cybera.syzygy.ca/ to use R in Jupyter notebook.