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, conduct 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.nelsonbrain.com/course/MTPN2X3N3TRR. 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%)
Lab Exercises (10): 10%
Quiz (21): 10%
Mindtap Exercises (10): 8%
Lab Exam (1): 6%
Midterm Exams (3): 42% (three midterms, there is no final exam)
Assignments (24%): I have designed them for you to learn the material in depth and to prepare for the exams. The assignments will be a mix of problems based on econometric theory and applications. The final assignment also covers a short independent research project (additional details will be provided). 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.

Only the best three out of four assignments will count towards your grade, but all four assignments must be completed. The best three assignments are worth 8% of the overall grade 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 22nd; June 3rd; June 24th; July 29th. There may be some minor changes if necessary.

Note: it is your responsibility to submit assignments on time. No extensions will be granted on the assignment without formally documented illness (see policy on late assignments). For each day an assignment is submitted late, 2% of the maximum 8% will be deducted. Assignments have to be submitted by 4pm on the due date.

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 (8%): 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 8%. You need to complete at least 8 out of the 10 chapters Mindtap exercises (each chapter exercise includes several assignments), any additional exercised missed will result in a 1% reduction of the maximum score of 8%.

Quiz (10%): In each class, we are going to have a low weight quiz. Your answer includes two parts. You are going to answer a question by yourself at first, and then you take part in a group discussion. Finally, you will add another answer from the group discuss. Your group will be assigned in the class.

Labs (10%): Take place weekly in room BEC180. Lab exercises are designed to teach you econometric modelling in practice using the statistical programming language R. At the end of each lab you will be asked to hand in answers to a short set of questions. These will be marked on completion only, and not on correctness. No extensions will be granted on lab exercises. You need to attend (and submit your lab answers to) at least 10 out of the 11 labs, any additional lab missed, will result in a 1% reduction of lab grades per lab missed (out of the total 10%), no points are awarded if no labs are attended. For example, only attending 7 out of the 10 required labs results in a grade of 7% instead of the maximum 10%. The first lab takes place on Wednesday, May 8th in BEC 180.

Lab Exam (6%): The lab exam is scheduled for July 17th, 1:30pm – 3:30pm. It will cover all the lab exercises.

Midterms (42%): The midterm exams are scheduled for June 5th, June 26th and July 31st, 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. Each midterm exam is worth 14%.

Items permitted during exams:
- Non-programmable calculator without storage capacity (no Ti 89 etc.).
- Pen
- Water bottle

Any additional material will not be allowed on your desk during examinations. There will be additional office hours held by the TA prior to the midterm exams.

Note: All Material covered in lectures, labs, assignments, and relevant textbook chapters, may appear on the exam, thus attendance in lectures and labs is highly encouraged. Attendance highly correlates with final course grades.
All midterms are cumulative since the material presented in lectures and chapters builds on itself. Thus, the second and third midterms may include some material that was already covered by the earlier midterms.

**Grading Scale:**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>90-100</td>
</tr>
<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>
</tr>
<tr>
<td>F or N</td>
<td>0-49</td>
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</tbody>
</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.

All 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 those parts 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 a 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 the 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>Chapter 1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Statistics Review (Topics 1.1 &amp; 1.2)</td>
<td>Appendices A-C</td>
<td>2</td>
<td>Assignment 1; Victoria day</td>
</tr>
<tr>
<td>Univariate regression (Topic 2)</td>
<td>Chapter 2</td>
<td>3</td>
<td>Assignment 2; Midterm 1</td>
</tr>
<tr>
<td>Multivariate regression (Topic 3)</td>
<td>Chapter 3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Multivariate regression (Topic 3)</td>
<td>Chapter 3</td>
<td>5</td>
<td>Assignment 2; Midterm 1</td>
</tr>
<tr>
<td>Inference (Topic 4)</td>
<td>Chapter 4</td>
<td>6</td>
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</tr>
<tr>
<td>Asymptotic (Topic 5)</td>
<td>Chapter 5</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Further Issues (Topic 6)</td>
<td>Chapter 6</td>
<td>8</td>
<td>Assignment 3; Midterm 2</td>
</tr>
<tr>
<td>Further Issues (Topic 6)</td>
<td>Chapter 6</td>
<td>9</td>
<td>Canada Day; Reading break</td>
</tr>
<tr>
<td>Dummy Variables (Topic 7)</td>
<td>Chapter 7</td>
<td>10</td>
<td>Lab Exam</td>
</tr>
<tr>
<td>Heteroskedasticity (Topic 8)</td>
<td>Chapter 8</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Introduction to Time Series (Topic 9)</td>
<td>Chapter 10</td>
<td>12</td>
<td>Assignment 4; Midterm 3</td>
</tr>
<tr>
<td>Determining Causality under less than ideal conditions; How to be a better consumer of statistics (Topic 10)</td>
<td>See readings on the coursespace</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

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 the 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.