



ECON 494-A1/ECON 594-A1  
Economic Data Analysis  
Fall 2022

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**Class Room:** T B-109

**Class Time:** T & Th 2:00PM - 3:20pm, 1. Sep to 8. Dec 2022

**Course Website:**

- <https://eclass.srv.ualberta.ca/course/view.php?id=76360>

**Instructors:**

<b>Instructor</b>	<b>Email</b>	<b>Office</b>	<b>Office Hours</b>
Xingfei Liu	xingfei@ualberta.ca	Tory 7-22	M 1:00-2:00pm
Max Sties	sties@ualberta.ca	Tory 9-06	MW 2:00-4:00pm
Jiatong Zhong	jzhong5@ualberta.ca	Tory 7-23	Th 10:00am-12:00pm

**Course Description:**

Quality data analysis has become increasingly important in virtually all modern industries. University graduates with strong data analytical skills are more competitive and better prepared for fast moving labor markets. This course is intended to give students an understanding of computer programming for the statistical analysis of data in economics. Focus will be on three most powerful and popular statistical languages: SAS, R, and Python. Topics will include but not limited to: collecting data from large scale surveys and the internet; cleaning and preparing data sets; exploring data with graphics and summaries; understanding data structures; using loops; writing functions. This course is designed to appeal to students from a broad range of academic background and interests. The course will provide essential analytical tool kits to prepare students with practical data training experience.

**Prerequisites and Restrictions:**

The prerequisites for this course are ECON 109, ECON 281, and ECON 399 (or equivalent). Prerequisites will be enforced. Registration in the course will be cancelled if a student has not taken (and passed) the prerequisite (or equivalent.)

**Textbook:**

There is no required textbook for this course. Each instructor may recommend optional readings.

## Evaluation:

There will not be any midterm or final exams in this course. Instead, each module will have a number of assignments. Your final score will be an average of your score from each module. Each module is worth  $\frac{1}{3}$  of your final score.

- The SAS module is made up of 2 assignments 60% and a take home exam 40%
- The R module is made up of 4 assignments each 25%
- The Python module is made up of 3 assignments each 33%

Letter grades are based on a combination of absolute achievement and relative performance in a class.

## Course Outline:

### I. SAS (Instructor: Xingfei Liu) *Sept 1 - Sept 28*

- SAS basics
- Working with datasets using SAS
- Descriptive statistics (surveys might be involved)
- Regression analysis (surveys might be involved)
- Working with Survey data and more modeling

### II. R (Instructor: Max Sties) *October 3 - October 28*

- Introduction to R
- Control structures
- Reading and Working with Macro data
- Data Visualization
- Data Management and Pipes
- Big Data and Parallel Computing

### III. Python (Instructor: Jiatong Zhong) *October 31 - December 12*

- Introduction to Python
- Data management and visualization using NumPy, SciPy, Pandas & Matplotlib
- Panel data regressions.
- Introduction to web-scraping with beautiful soup.

### IV. Last week of the semester *December 5 - December 8*

- Independent work on the final SAS assignment.

## Course Policies:

- **General**

- Course materials are uploaded on the course website. It is your responsibility to keep up with the new uploads.

- **Assignments**

- Although you are encouraged to discuss and study together, you are expected to work independently. **Offering** and **accepting** solutions from others is an act of plagiarism, which is a serious offense and all involved parties will be penalized according to the University's Code of Student Behaviour (<https://www.ualberta.ca/current-students/academic-resources/academic-integrity>)
- Discussion amongst students is encouraged, but when in doubt, direct your questions to the instructor.

- **Attendance and Absences**

- Attendance is expected but will not be taken. However, neither office hours nor lecture notes are substitutes for lectures. I strongly recommend showing up to classes.
- Students are responsible for all missed work, regardless of the reason for absence. It is also the absentee's responsibility to get all missing notes or materials.

## University Notices:

- **Course Outlines:**

Policy about course outlines can be found in the Evaluation Procedures and Grading System section of the University Calendar.

- **Academic Integrity:**

The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (online at [www.governance.ualberta.ca](http://www.governance.ualberta.ca)) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University. <http://www.ualberta.ca/current-students/academic-resources/academic-integrity>

- **Recording of Lectures:**

Audio or video recording, digital or otherwise, of lectures, labs, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructor or as part of an approved accommodation plan. Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the content author(s).

- **Territorial Statement:**

The University of Alberta acknowledges that we are located on Treaty 6 territory, and respects the histories, languages, and cultures of the First Nations, Métis, Inuit, and all First Peoples of Canada, whose presence continues to enrich our vibrant community.

- **Learning and working environment:**

The Faculty of Arts is committed to ensuring that all students, faculty and staff are able to work and study in an environment that is safe and free from discrimination and harassment. It does not tolerate behaviour that undermines that environment.

- **Sexual Violence Policy:**

It is the policy of the University of Alberta that sexual violence committed by any member of the University community is prohibited and constitutes misconduct. Resources and more information can be found at <https://www.ualberta.ca/campus-life/sexual-violence>

### **External Resources Available to Students:**

- Student Accessibility Services: If you have a condition that may require some classroom or exam modifications, please contact [Accessibility Resources](#) to obtain a determination as to what accommodations should be made.
- Academic Success Centre: The [Academic Success Centre](#) offers a variety of learning resources, including a variety of workshops in learning effective study and exam strategies.
- Centre for Writers: The [Centre for Writers](#) offers free one-on-one writing coaching to all students. Students can request consultation for a writing project at any stage of development.