

ECON 031
Introduction to Econometrics
Swarthmore College, Spring 2021

Professor Tao Wang

twang1@swarthmore.edu

Time: Tuesdays and Thursdays 8:00-9:15

[Class Zoom Link](#)

Office Hours: Tuesdays and Thursdays 9:20-10:00 & by appt.

[Office Hour Zoom Link](#)

Teaching Assistants:

Noah Criss, ncriss1@swarthmore.edu

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Clinic Hours: SU TH F 7-9pm; W 8-10pm

[Clinic Zoom Link](#)

Description: This course offers an introduction to the field of econometrics, with a focus on the fundamental principles and techniques of descriptive and inferential statistics. The course emphasizes economic applications of statistical methods, particularly simple and multiple regression models. The course recognizes the importance of the underlying modeling assumptions, and the challenges of empirically distinguishing correlation from causality.

Goals: Upon successful completion of the course, students are expected to be able to

- a. Understand basic statistical concepts and methods;
- b. Apply basic statistical methods to simple economic applications;
- c. Obtain data and conduct basic statistical analysis, using statistical software;
- d. Present and interpret data and statistical analysis;
- e. Critique simple statistical applications in economics.

Textbook: David Diez, Mine Cetinkaya-Rundel, & Christopher D Barr, 2019, [OpenIntro Statistics](#), 4th ed.

Software: *Stata* is the preferred statistical software package to use for the course, available from the College's [software server](#).

Some useful online resources for learning Stata:

- [Video tutorials on using Stata](#), StataCorp LP, USA
- [Stata Tutorial](#), Germán Rodríguez, Princeton University, USA
- [Resources to help you learn and use Stata](#), UCLA Academic Technology Services, USA

All written assignments are expected to be typed. You may use any word processing software of your choice, such as Microsoft Word or LaTeX.

Stata Resource on Campus: Ella Foster-Molina (mfoster1@swarthmore.edu) runs the [Social Sciences Quantitative Lab](#) at the College, working with the departments of Economics, Sociology & Anthropology, and Political Science. She offers multiple Stata workshops and is available through her own office hours and appointments as a resource for your Stata needs.

Introduction to Stata Workshops: Ella will be teaching three Stata workshops throughout the semester. You are required to attend all three of them.

Grading: Readings 15%
Quizzes 15%

Problem Sets 20%
Team Projects 20%

Final Exam 30%

Teams

You will be assigned to study groups, or teams, of four to five students. Efforts will be made to create diverse teams based on factors including gender, race, class year, and prior experience with economic and statistics, while also considering your location (on/off-campus and time zone). Please complete the questionnaire on Moodle to help facilitate team assignment. Throughout the semester, your team will work together on quizzes, problem sets and presentations. It is important for you to be an accountable member of your team. We will have periodic self and peer evaluations of your contribution to your team.

Reading Assignments

One of our innovation this semester involves using the Perusall platform for a “social reading” experience. You will be assigned chapters from the textbooks and sometimes additional readings or videos before we cover the topics in class. You will be asked to annotate the readings as you go through them and interact with your classmates with questions and comments. While this allows you to explore with and learn from each other, it also helps me identify points of interest and/or difficulty that we can focus more on in class discussion. Your work will be auto-graded by the platform. You can review this short description of [how Perusall works](#) as well as [a set of example annotations with associated quality scores and an explanation for each score](#). These grades will be used as a reference for your grade for the reading assignments for the course. Don’t sweat on the specific grades though. We will weigh them so that you are rewarded for good performance as well as improvement over time.

Quizzes.

Short quizzes are used to check your understanding of the reading material as well as the class discussion. We will adopt a “two-step” quiz model, implemented using Learning Catalytics. You will complete the quiz before class; then during the class period, you will work with others in your team on the same quiz questions again. Your grades will be based on your team’s work in addition to your individual answers. ~~There will also be two longer quizzes in lieu of midterm exams.~~

Problem sets.

Problem sets will be assigned during the semester. Late submissions will be accepted with penalty provided solutions have not been posted. You are highly encouraged to collaborate with your teammates as well as other classmates on the assignments. However, each must submit her/his own completed work reflecting their own intellectual effort. Solutions will be posted on Moodle. Problem sets will be graded by the TAs on a 5 points scale. ~~Each week, a team will be asked to discuss their work on a selected problem on a problem set.~~

Team Projects.

There will be two team projects for the course. The first will be a presentation on statistical data or analysis of current interest to aid classroom discussion. It could be a chart on a newspaper or a report on an interesting econometric study. Some good sources include “[The](#)

[Upshot](#)” at *The New York Times*, “[Graphic Detail](#)” at *The Economist*, “[FT Data](#)” at *Financial Times*. A good presentation will make connections to the concepts and methods covered in the course, preferably in the recent weeks.

For the second project, you are asked to conduct a simple econometric study. Throughout the semester, you will be asked to identify a topic, develop a hypothesis or a research questions, obtain data, carry out econometric analysis and present your finding. You are encouraged to use data in your first presentation. You may also try to replicate a study done by others.

Final Exam.

The final exam will take place during the finals period. [Exam schedule](#) will be posted by the Registrar once it is determined. The final is cumulative.

Participation.

There is not an explicit grade for participation. However, considerations will be given for cases on the margin of two letter grades when final course grades are assigned. Students are expected to contribute positively to the course in a variety of ways, including but not limited to:

- asking and answering questions on Perusall and in class;
- engaging in discussion, problem solving and other breakout room activities;
- offering comments and suggestions to improve the course;
- additionally, your active participation is expected in all team activities.

A passing grade for the course cannot be achieved without satisfactory and timely completion of all course requirements.

Grading complaints: If you find any mistake in grading of your problem sets or exams, please submit a written request to the professor within one week of grades posted.

Catching mistakes: Students can earn extra credit by catching mistakes or typos in the lectures, the text book and other course materials. The first to notify the instructor of a mistake will get two tenth of a percentage point toward the final grade, up to a maximum of two percentage points.

Academic Integrity: As a faculty member, I am strongly committed to upholding the college’s academic policies, including those on [academic misconduct](#).

Accommodation:

If you believe you need accommodations for a disability or a chronic medical condition, please contact Student Disability Services via email at studentdisabilityservices@swarthmore.edu to arrange an appointment to discuss your needs. As appropriate, the office will issue students with documented disabilities or

medical conditions a formal Accommodations Letter. Since accommodations require early planning and are not retroactive, please contact Student Disability Services as soon as possible. For details about the accommodations process, [visit the Student Disability Services website](#). You are also welcome to contact me privately to discuss your academic needs. However, all disability-related accommodations must be arranged, in advance, through Student Disability Services.

Tentative Schedule

Date	Topics	OpenIntro Chapters	Stata Lab
2/11	Introduction		
2/16 & 2/18	Summarizing Data	1, 2	Stata Lab I (2/17-23)
2/23 & 2/25	Probability	3	
3/2 & 3/4	Random Variables	3, 4	
3/9 & 3/11	Sampling Distribution	1, 5	Stata Lab II (3/17-23)
3/16	Estimation	5	
3/18 & 3/23	Hypothesis Testing	6, 7	
	Spring Break		
3/30	Catch-up		
4/1 & 4/6	Simple Regression	8	Stata Lab III (4/14-20)
4/8, 4/13 & 4/15	Multiple Regression	9	
4/20 & 4/22	Regression Diagnostics	supplemental readings	
4/27, 4/29 & 5/2	Team Presentations		
5/4	Catch-up, review		

This syllabus is subject to changes. For the latest version, please visit the course's Moodle page.