Statistical Methods for Business and Economics Laboratory
STAT 17L – Sec 1
Dr. Subhra Saha
Summer 2024

Syllabus subject to change

First version: July 28, 2024, Last edit on: July 29, 2024

COURSE INFORMATION
This class provides students with an overview and basic training in statistical programs used in the economics major. The course will introduce you to basic data analysis workflow using the **statistical software STATA**. A workflow of data analysis is a process for managing all aspects of data analysis. Planning, documenting, and organizing your work; cleaning the data; creating, renaming, and verifying variables; creating summary statistics; creating graphs and archiving what you have done as a part of data analysis will all be focus of this course.

This class will be taught in a **remote synchronous manner on zoom**: **two hours per week (10:30 am – 12:30 pm) on Wednesdays** (**for 5 weeks**). The **zoom link** to the class **is available on the course page in Canvas**.

INSTRUCTOR INFORMATION
Instructor: Subhra Saha. Please address me as Dr. Saha, Professor Saha or Prof. Saha
A short bio: I teach a master's Level STATA for Economics department (since 2016) & use STATA for advising businesses (since 2017). In the past, this software was the basis of my Ph.D. work and research work which produced grants from prestigious institutions.
Office Hour: use the same zoom link for class (available in Canvas): **Wed 8:00 am – 10:00am**

Course Title (Name)	Days/Times	Location
Stat Method Econ Lab (Laboratory) – Section 1 (70476)	Wednesday 10:30AM - 12:30PM	Online Synchronous: Zoom Link available in Canvas

LEARNING OUTCOMES
1. Learn how to set up and use commands in STATA to produce appropriate graphical and numerical descriptive statistics for different type of data.
2. Be able to plan, document and organize data related work, including creating, renaming, cleaning, verifying and saving data.
3. Conduct regression models to analyze the underlying relationships between the variables through hypothesis testing and confidence intervals to aid decision making in a business and economics context using statistical software.

PREREQUISITES/COREQUISITES

Prerequisite(s): Score of 300 or higher on the mathematics placement examination (MPE), or AM 3 or AM 11A or MATH 3 or MATH 11A. MATH 19A strongly recommended. Concurrent enrollment in STAT 17 is required. See economics department to petition for exceptions to this concurrent enrollment restriction.

REQUIRED MATERIALS, TEXTBOOKS AND TECHNOLOGY

Laptop or Desktop Computer: You will need a computer for homework, in-class activities, and discussion sections. You will not be able to complete most of the work on a mobile device. Students who need a laptop can make use of the library's borrow program: https://library.ucsc.edu/services/computing/borrow-a-laptop.

STATA software (BE (formerly called STATA IC), SE or MP) version 12 or higher. All UCSC PC computer labs have STATA software installed (see https://its.ucsc.edu/computer-labs/software/pc.html and https://its.ucsc.edu/computer-labs/descriptions/all-labs-summary.html for more information). If not, you may wish to purchase your own version if you intend to pursue the study of Economics. Please purchase STATA software from Stata.com.

Technology: Personal computer with Zoom, Canvas, ALEKS, and Google Suite access. Zoom links will be posted in Canvas.

COMMUNICATION

All communications outside the classroom will be held via Canvas and email (preferred).

ASSIGNMENTS & ASSESSMENT

This lab will include **4 homework assignments (HWA)** (HWA: may include analytical labs (short answers, coding questions, show output of codes etc.) and multiple-choice questions), **all of these assignments will be for credit, none of them are optional**. There is no midterm exam, final exam or any end of term project.

HWA will be very similar to the analytical problems solved in class. Please note that if you miss a **HWA**, **there will not be any way to repeat it**. Please **do not email me after the hard deadline** and **ask me to give you an extension**. Emailed answers will not be accepted. This is unfair to students who submitted their work on time. Please start your work ahead of time and get it done before the hard deadline. **HWA** for module *i* is due **after** that module is nearly completed.

Submit **HWA** in Canvas individually.

MISSED HOMEWORK POLICY

- You can resubmit any number of times till the hard deadline.
- You cannot attach your work to the Comments section of Canvas Assignments and claim that it was submitted – look at the time stamp.
- You may not resubmit if we find you forgot to attach a piece of your work after the hard deadline.

- All homework answers (without DRC approval) submitted after the hard deadline but before the answers are posted will be penalized at least <u>20%.</u>
- All homework answers (without DRC approval) submitted after the solutions to that homework are posted, <u>will</u> <u>be penalized at least 75%.</u>
- By department and university policy I am not allowed to ask for or review any students' medical records. If you need accommodation for late homework submission, you need to contact DRC. Remember the homework questions are open for a while for you to answer. It is expected that you submit within the hard deadline. I will not have the time to make additional makeup homework assignments.

GRADING POLICY

All HWA will be graded on a 0-25-point scale. All homework assignments count for the final score and letter grade. Round the final score to the next integer. **Extra Credit:** Syllabus Acknowledgement Quiz

The final course score will be on a 0-100-point scale; course grades will then be assigned as follows:

Score	Letter Grade	Score	Letter Grade
x >= 96	A+	70 <= x < 74.99	C+
93 <= x < 95.99	A	65 <= x < 69.99	C
90 <= x < 92.99	A-	60 <= x < 64.99	C-
85 <= x < 89.99	B+	50 <= x < 59.99	D
80 <= x < 84.99	B	x < 50	F
75 <= x < 79.99	B-	x >= 65 / x < 65	P/NP

Grades Timeline
- Typically, the grading will be done in a few days to a week after the hard deadline
- Please ask the grade questions right after the grading is done
- **Grades will be posted on the system on Wednesday Sept 3, 2024. I cannot modify any grades after that.**

HWA Grading, Grade Appeal Policy:
- HWAs are submitted and graded in canvas. They will be graded and returned with some feedback. You should compare the answers of the HWAs in Canvas to your own work. You need to know how to look up comments in Canvas (How do I view assignment comments from my instruct... - Instructure Community (canvaslms.com)). If you have grading questions about a HWA, then please email me within **two days of grading** that HWA.

Grade Cutoffs
When the time for final grades comes, I often receive emails from students who believe they are close to the cutoff for a higher letter grade and want to be rounded up. It is unfair to round your grade when those of others are not. Since I cannot honor these requests and my reasons are given here, I may not respond to such emails. **Note:** While A grades are desired by all, not everyone is going to get an A.

Getting a B or better is often considered to be a good grade in Econ by recruiters. Often the difference between a higher grade and your score is small – if you make sure that you have gone to the TA sections you will perhaps be in a better position to make the higher grade.

STUDENT HOURS FOR CLASS

This is a 2-unit lab course. It will require 4 hour of readings/videos per week, 2 hour of in-person lecture, 3 hour of lab work at home including working on HWA & reading your STAT 7 text book.

INSTRUCTOR FEEDBACK

The readers will provide direct comments and feedback on student assignments.

STUDENT FEEDBACK

At the end of the quarter, you will be asked to complete a Student Experience of Teaching survey for this course. SETs provide an opportunity for you to give valuable feedback on your learning that is honest and constructive. This anonymous feedback will help me consider modifications to the course that will help future students learn more effectively.

COURSE SCHEDULE

Lab: Module	Reading and Activities
Class Meeting#1 Module 1	Introduction to workflow management in data analysis - Directories, folders, paths, scripts, files - Raw inputs, intermediate files, and outputs - Naming conventions Focus on getting the correct version of stata See if stata is installed Installing STATA Filepath & how to find filepath for windows and Mac computers
Class Meeting#1 Module 1	Introduction to Stata - What is Stata - Opening Stata and review of its windows and menus - Command prompt - Stata command syntax Filepath & how to find filepath for windows and Mac computers - Creating and saving do files - Stata help command - Current Working directories (creating & changing) - Opening a .dta file from STATA memory versus hard drive - Data viewer and data browser - Saving data

	- Stata documentation (help command)
Module 1 **Class Meeting#1**	Opening, importing, and exporting data - Do files & opening a log file & close a log file Opening a .dta file - Importing a file in a different Format - Excel - csv - text - what to do with difficult to open text files - Data viewer and data browser - Exporting data
Module 2 **Class Meeting#2**	- commenting in STATA - basic operators & logical operators & if statements - display - count - browse, String and numeric variables, viewing data with list command - Describe - Codebook - Inspect - Tabulate - Summarize - generate variable
Module 2 **Class Meeting#2**	Variables management - sort variables; by & bysort - egen - setting observations - dropping and renaming variables - replacing values - Indicator and categorical variables (i.race) - Labels - Missing Values, Set variables
Module 2 **Class Meeting#3**	Descriptive statistics (mean, standard deviation, variance, sum, tab, collapse, correlate, covariance) Basic Graphing table command, tabstat command How do you copy descriptive stats from STATA? Data and variable type (Cross Sections) basic graph
Module 3	Completing from Week 6 Data and variable types (time series & Panel)

Class Meeting#4	- identifying with various formatting - lagged and forward variables; _n (the index variable) Graphs/visualization - Scatter - Line - Histogram - Bars - Boxplot - Combining graphs - Using the "right" graph type for each data type (xtline for panel etc.) - Saving graphs
Module 4 **Class Meeting#4**	Introduction to loops - Macros - Loops - Equivalence between different loops
Module 4 **Class Meeting#5**	Dataset management (with simple regressions – if time permits) - Append - Merge dataset - Reshape - Remove observations
Module 4 **Class Meeting#5**	Output and displaying results (with simple and multiple regressions) Estout, outreg2 First Teach Regression and post estimation commands

MAJOR GRADED ASSIGNMENTS

Assignment:	Soft Deadline by Sunday 11:59 PM	Hard Deadline by Thurs PM
HWA1 (M1)	Sun Aug 4	Thu Aug 8
HWA2 (M2)	Sun Aug 11	Thu Aug 15
HWA3 (M3)	Sun Aug 18	Thu Aug 22
HWA4 (M4)	Sun Aug 25	Thu Aug 29

Syllabus Acknowledgement Quiz (Extra credit)	Sun Aug 4	Sun Aug 4

ACADEMIC INTEGRITY

All members of the UCSC community benefit from an environment of trust, honesty, fairness, respect, and responsibility. You are expected to present your own work and acknowledge the work of others in order to preserve the integrity of scholarship.

Academic integrity includes:
- Following exam rules
- Using only permitted materials during an exam
- Viewing exam materials only when permitted by your instructor
- Keeping what you know about an exam to yourself
- Incorporating proper citation of all sources of information
- Submitting your own original work

Academic misconduct includes, but is not limited to, the following:
- Disclosing exam content during or after you have taken an exam
- Accessing exam materials without permission
- Copying/purchasing any material from another student, or from another source, that is submitted for grading as your own
- Plagiarism, including use of Internet material without proper citation
- Using cell phones or other electronics to obtain outside information during an exam without explicit permission from the instructor
- Submitting your own work in one class that was completed for another class (self-plagiarism) without prior permission from the instructor.
- Violations of the Academic Integrity policy can result in dismissal from the university and a permanent notation on a student's transcript. For the full policy and disciplinary procedures on academic dishonesty, students and instructors should refer to the Academic Misconduct page at the Division of Undergraduate Education.

GENERATIVE AI

- It can be tempting to lean on AI in ways that do not align with UCSC's academic integrity expectations and could harm both your learning process and your future career. Misusing AI tools, or any other resource, can be a violation of UCSC's Academic Integrity Policy. Misuse may result in serious academic and disciplinary consequences — just as with other forms of plagiarizing and cheating.

ACCESSIBILITY

UC Santa Cruz is committed to creating an academic environment that supports its diverse student body. If you qualify for classroom accommodations because of a disability, please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) http://drc.ucsc.edu/ to me as soon as possible, preferably within the **first two week of classes**; **through a new system called Accommodate (ucsc.edu).** I encourage all students who

may benefit from learning more about DRC services to contact the DRC by phone at 831-459-2089 or by email at drc@ucsc.edu.

STUDENT HEALTH ISSUES
I am required by the department protocol **NOT to ask for or receive any health-related paperwork (such as a doctor's note)**. Students are **requested to contact DRC to get health related accommodations**. Unless **DRC approves accommodations (through Accommodate website), I cannot give you accommodations. DRC accommodations cannot be given retroactively.**

INTELLECTUAL PROPERTY

The materials in this course are the intellectual property of their creators. As a student, you have access to many of the materials in the course for the purpose of learning, engaging with your peers in the course, completing assignments, and so on. You have a moral and legal obligation to respect the rights of others by only using course materials for purposes associated with the course. For instance, you are not permitted to share, upload, stream, sell, republish, share the login information for, or otherwise disseminate any of the course materials, such as: video and audio files, assignment prompts, slides, notes, syllabus, simulations, datasets, discussion threads. Conversely, any materials created solely by you (for example, your videos, essays, images, audio files, annotations, notes) are your intellectual property and you may use them as you wish.

RELIGIOUS ACCOMMODATION

UC Santa Cruz welcomes diversity of religious beliefs and practices, recognizing the contributions differing experiences and viewpoints can bring to the community. There may be times when an academic requirement conflicts with religious observances and practices. If that happens, students may request reasonable accommodation for religious practices. The instructor will review the situation in an effort to provide a reasonable accommodation without penalty. You should first discuss the conflict and your requested accommodation with your instructor early in the term. You or your instructor may also seek assistance from the Dean of Students office.

ALL-GENDER RESTROOMS

UC Santa Cruz is committed to the well-being of all students and cares about all students feeling safe and welcome, regardless of their gender identity, expression, and/or embodiment. The Lionel Cantú Queer Center has worked with students and campus staff to create more safe and accessible restrooms for transgender and genderqueer students, staff, faculty, alumni, and UCSC visitors. A complete list of all-gender restrooms on campus was compiled and is maintained by the Cantú Queer Center.

PRINCIPLES OF COMMUNITY

The University of California, Santa Cruz expressly prohibits students from engaging in conduct constituting unlawful discrimination, harassment or bias... More here. I am committed to providing an atmosphere for learning that respects diversity and supports inclusivity. We need to work together to build this community of learning. I ask all members of this class to:
- be open to and interested in the views of others

- consider the possibility that your views may change over the course of the term
- be aware that this course asks you to reconsider some "common sense" notions you may hold
- honor the unique life experiences of your colleagues
- appreciate the opportunity that we have to learn from each other
- listen to each other's opinions and communicate in a respectful manner
- keep confidential discussions that the community has of a personal (or professional) nature
- ground your comments in the texts we are studying. Refer frequently to the texts and make them the focus of your questions, comments, and arguments. This is the single most effective way to ensure respectful discussion and to create a space where we are all learning together.

TITLE IX/CARE ADVISORY

UC Santa Cruz is committed to providing a safe learning environment that is free of all forms of gender discrimination and sexual harassment, which are explicitly prohibited under Title IX. If you have experienced any form of sexual harassment, sexual assault, domestic violence, dating violence, or stalking, know that you are not alone. The Title IX Office, the Campus Advocacy, Resources & Education (CARE) office, and Counseling & Psychological Services (CAPS) are all resources that you can rely on for support.

Please be aware that if you tell me about a situation involving Title IX misconduct, I am required to share this information with the Title IX Coordinator. This reporting responsibility also applies to course TAs and tutors (as well to all UCSC employees who are not designated as "confidential" employees, which is a special designation granted to counselors and CARE advocates). Although I have to make that notification, you will control how your case will be handled, including whether or not you wish to pursue a formal complaint. The goal is to make sure that you are aware of the range of options available to you and that you have access to the resources you need.

Confidential resources are available through CARE. Confidentiality means CARE advocates will not share any information with Title IX, the police, parents, or anyone else without explicit permission. CARE advocates are trained to support you in understanding your rights and options, accessing health and counseling services, providing academic and housing accommodations, helping with legal protective orders, and more. You can contact CARE at (831) 502-2273 or care@ucsc.edu.

In addition to CARE, these resources are available to you:
- If you need help figuring out what resources you or someone else might need, visit the Sexual Violence Prevention & Response (SAFE) website, which provides information and resources for different situations.
- Counseling & Psychological Services (CAPS) can provide confidential counseling support. Call them at (831) 459-2628.
- You can also report gender discrimination and sexual harassment and violence directly to the University's Title IX Office, by calling (831) 459-2462 or by using their online reporting tool.

- Reports to law enforcement can be made to the UC Police Department, (831) 459-2231 ext. 1.
- For emergencies, call 911.

REPORT AN INCIDENT OF HATE OR BIAS

The University of California, Santa Cruz is committed to maintaining an objective, civil, diverse and supportive community, free of coercion, bias, hate, intimidation, dehumanization or exploitation. The Hate/Bias Response Team is a group of administrators who support and guide students seeking assistance in determining how to handle a bias incident involving another student, a staff member, or a faculty member. To report an incident of hate or bias, please use the following form: Hate/Bias Report Form.

STUDENT SERVICES

Counseling and Psychological Services

Many students at UCSC face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional wellbeing. The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome all students and embrace a philosophy respectful of clients' cultural and religious backgrounds, and sensitive to differences in race, ability, gender identity and sexual orientation.

Student Success and Engagement Hub

The Division of Student Success provides campus-wide coordination and leadership for student success programs and activities across departments, divisions, the colleges, and administrative units.

Tutoring and Learning Support

At Learning Support Services (LSS), undergraduate students build a strong foundation for success and cultivate a sense of belonging in our Community of Learners. LSS partners with faculty and staff to advance educational equity by designing inclusive learning environments in Modified Supplemental Instruction, Small Group Tutoring, and Writing Support. When students fully engage in our programs, they gain transformative experiences that empower them at the university and beyond.

Slug Support Program

College can be a challenging time for students and during times of stress it is not always easy to find the help you need. Slug Support can give help with everything from basic needs (housing, food, or financial insecurity) to getting the technology you need during remote instruction. To get started with SLUG Support, please contact the Dean of Students Office at 831-459-4446 or you may send us an email at deanofstudents@ucsc.edu.

Slug Help/Technology

The ITS Support Center is your single point of contact for all issues, problems or questions related to technology services and computing at UC Santa Cruz. To get technological help, simply email help@ucsc.edu.

On-Campus Emergency Contacts
Slug Help/[Emergency Services](#). For all other help and support, including the health center and emergency services, start [here](#). Always dial 9-1-1 in the case of an emergency.