

## **ARE 198 Applied Economics Research Workshop**

### **Facilitators:**

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**Meeting Times:** We will meet every Tuesday and Thursday, 2:00–3:30 p.m., in the ARE Main Conference Room (SSH 2102). As the workshop progresses, we will schedule additional meeting times where facilitators will be available to answer individual questions and help you make progress on your research projects. All meetings will be fully in-person. **You will need to bring a laptop to all meetings.**<sup>1</sup>

**Overview:** The objective of the workshop is to introduce you to the process of undertaking an early-stage research project in applied economics through hands-on experience. By the end of this workshop, you will be able to formulate an exploratory research question, analyze data to investigate your question using R, and report your results. The research project will be related to a current challenge facing California communities and will use data sets and broad topics provided by the facilitators. You will go through the steps of developing and revising a research question, cleaning and exploring data, and analyzing and presenting results. To complete the project, you will use techniques from the prerequisite course, ARE 106, and code in the open-source programming language R.

**Research Project:** Early into the workshop, you will gain access to and familiarity with three data sets relevant to agriculture in California and elsewhere: Hass Avocado data, Cannabis wholesale and retail price data, and tomato processing data. You will then work in groups to develop and answer a research question that uses one of these data sets. You may use descriptive or regression analysis to answer your question. A research report and poster draft will be due on September 13.

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<sup>1</sup>If you do not have access to a laptop, please contact one of the facilitators as soon as possible.

### **What Can You Expect of the Facilitators?**

We will encourage you to learn from your active participation and hands-on experiences as you complete every step of your research project. We will be available to assist you as needed. This will include answering questions about the data sets, providing feedback on tentative research questions, equipping you with coding skills in R, helping you refine your results, and guiding you through writing and presentation best practices. We will lead the workshop meetings, which will feature a combination of short lectures and additional time allotted to work on assignments.

### **What Will the Facilitators Expect of You?**

You are expected to attend our two regular weekly meetings and are highly encouraged to attend any additional student hours scheduled as the workshop progresses. You are also expected to work independently and in groups outside these meeting times and complete all take-home and in-class assignments. Your participation in your groups should be active and respectful at all times. By the end of the workshop, your group will have to submit a short research report that describes your project findings using a combination of text, tables, and figures. On the last week of the workshop, you will also present your results during a practice poster session to prepare for another poster session in the Fall Quarter where you will have the chance to present your research to outside guests.

### **Suggested Materials:**

Harford, Tim. *The Data Detective: Ten Easy Rules to Make Sense of Statistics*.

Wickham, Hadley and Grolemund, Garrett. *R for Data Science (R4DS)*.

There will be a copy of *The Data Detective* available for on-site use at the ARE Library.

*R4DS* is available online for free [here](#).

Table 1: Tentative Weekly Schedule

Week #	Workshop Goals	Deliverables
Week 0	Please download R in your laptops (if you haven't already). Use this video <a href="https://www.youtube.com/watch?v=YrEe2TLr3MI">https://www.youtube.com/watch?v=YrEe2TLr3MI</a> as a guide if you have any troubles downloading/accessing R.	Please fill out the survey available on Canvas (under Quiz tab) before the first day of workshop (August 6, 2024). <b>Website:</b> <a href="https://canvas.ucdavis.edu/courses/935638">https://canvas.ucdavis.edu/courses/935638</a> .
Week 1 (Aug 6-Aug 12)	Introductions, Getting to know your datasets, What is Research. What are different types of data.	Assignment 1, Student Groups
Week 2 (Aug 13-Aug 19)	Downloading R and Understanding R interface. Data management, Dataframes, tidy verse and gg plots on R.	Assignment 2, Brainstorming for potential research questions.
Week 3 (Aug 20 - Aug 26)	Exploratory analysis using the data sets. Data cleaning and visualization using R.	Assignment 3, Finalize the research question and your dataset
Week 4 (Aug 27 - Sep 2)	Data Analysis. Differences in means. Causation and correlation. Setting up your Hypotheses.	Assignment 4, Prepare for replication project
Week 5 (Sep 3 - Sept 9)	Regression analysis using R, Ordinary Least Squares	Assignment 5, In-class replication project
Week 6 (Sep 10 - Sep 13)	Independent group work on research projects	Finalizing research report and in-class poster presentation

**Accessibility:** Students needing accommodations can contact facilitators privately to discuss their specific needs and circumstances. In addition, students are asked to contact the Student Disability Center (SDC, (530) 752-3184, [sdc@ucdavis.edu](mailto:sdc@ucdavis.edu)) as soon as possible to ensure that accommodations can be implemented in a timely fashion. All accommodations must have prior approval from the SDC, and medical or other documentation might be requested.

**Academic Conduct:** Honor and academic integrity are expected from you in this course. Please review the Code of Academic Conduct, which assigns specific responsibilities to faculty, administration, and students. Familiarize yourself with your responsibilities and adhere to the rules clearly laid out here. Uploading course materials to Chegg, Course Hero, or any other website, violates U.S. copyright law and is considered academic misconduct. These websites are also not

authorized resources and cannot be accessed to aid in the completion of assignments. Violations will result in zeros for each assignment in which they are used, along with a Support and Judicial Affairs referral. Attempts to evade detection while committing a violation will result in an automatic F for the course.

**Principles of Community:** UC Davis is a diverse community comprised of individuals having many perspectives and identities. We come from a multitude of backgrounds and experiences, with distinct needs and goals. We recognize that to create an inclusive and intellectually vibrant community, we must understand and value both our individual differences and our common ground. The UC Davis Principles of Community is an aspirational statement that embodies this commitment, and reflects the ideals we seek to uphold.

### **Student Resources:**

- Comprehensive resource guide related to academic support, health and wellness, career and internships and campus community.  
<https://ebeler.faculty.ucdavis.edu/resources/faq-student-resources>.
- African American/Black, Hispanic/Latine, Native American/Alaskan Native (AHN), and other populations who are currently underrepresented among students, faculty, and staff can benefit from participating in the DIRECT Program. This is also a great program to connect with your peers in the major, and with Ph.D. students from the ARE department. You can get involved in extracurricular programs and activities and build valuable mentee-mentor relationships:  
<https://direct.ucdavis.edu/>
- Office of Student Support: <https://ossja.ucdavis.edu/>
- Academic Assistance and Tutoring: <https://tutoring.ucdavis.edu/>
- Student Counseling Services: <https://shcs.ucdavis.edu/services/counseling-services>.  
In immediate crisis, text “RELATE” to 741741 to reach a trained crisis counselor.
- Self-care tips: <https://eachaggiematters.ucdavis.edu/i-want-practice-self-care>
- Office of Diversity, Equity and Inclusion: <https://diversity.ucdavis.edu/>
- AB540 & Undocumented Student Center: [https://linktr.ee/UCD\\_AB540\\_USC](https://linktr.ee/UCD_AB540_USC)