

**STAT 313**  
**Applied Experimental Design and Regression Models**  
**Fall 2025**

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**Instructor:** Dr. Charlotte Zilber Mann (she/her/hers)

**Sections:** 01 -- M/W, 8:10am-10:00am

02 -- M/W, 10:10am-12:00pm

**Email:** [czmann@calpoly.edu](mailto:czmann@calpoly.edu)

**Office Hours:** In Dr. C's office 25-201

Tue 9:30 – 11:00 am

Thu 9:00 – 10:00 am &  
2:00 – 3:00 pm

Reach out to me if you would like to meet on Zoom or discuss something privately

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*Course Description:*

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STAT 313 is a 4-unit second course in statistics. All students taking this course have successfully completed STAT 217 or STAT 218 or the equivalent. The course is a continued study of the statistical investigation process covering ANOVA, regression, interaction, confounding, association and chi-square methods.

*Learning Objectives:*

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- understand statistical concepts related to issues of relationships between variables, such as association, causation, confounding, and interaction
- develop deeper understanding of fundamental concepts of statistical inference such as confidence, significance and power
- perform descriptive and inferential analyses related to exploring relationships between a quantitative response variable and one or more categorical explanatory variables; a quantitative response variable and one or more quantitative explanatory variables; a quantitative response variable and a mixture of categorical and quantitative explanatory variables; and a categorical response variable with either a quantitative or categorical explanatory variable.
- identify which statistical procedure applies for addressing a research question
- design statistical studies (experiments and observational)
- use computer software to analyze data and select appropriate statistical models

I also hope that you will leave this classroom able to confidently interpret and suggest simple statistical investigations within your field. Therefore, I aim that by the end of the course you will be able to:

- Communicate statistical ideas effectively
  - Evaluate possible strengths and weaknesses of simple statistical arguments (such as those made in popular media)
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### *Course Materials:*

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**Course Webpage (Canvas):** The course will be completely contained in the Canvas page – any outside resources will be linked in the page.

- I expect that you will check the Canvas page **every day for updates**.
- I will send Canvas announcements to communicate with everyone in each section.

**Textbook: “ISI” *Intermediate Statistical Investigations***, N. Tintle, B. Chance, G. Cobb, A. Rossman, S. Roy, T. Swanson, J. VanderStoep (Wiley, 2020; 2e).

- I *highly* recommend that you **rent the e-book** as it is the cheapest option and includes videos additional resources for each chapter.
- We will rely on this text for course readings in addition to homework and practice problems.
- I recommend that you have the book accessible in class.

**Applets:** <https://www.isi-stats.com/isi2/applets.html>

- We will be using many of the online applets and datasets made available through the textbook website.
- **Please bring a device capable of running these applets (in a browser) to class every day such as a laptop or tablet. If you do not have such a device, please talk to me at the beginning of the course (within the first week).**

### **Statistical Software: R and R-Studio**

- We will be interacting with R and RStudio through [Posit Cloud](#) (Posit is the company that owns RStudio). You will join the [Stat 313 workspace](#), and then be able to access the course homework and in-class activities.
- You will be required to enroll in the [Cloud Student](#), which costs \$5 per month. The subscription plan gives you access to the STAT 313 workspace, 75-hours of

computing time each month, and collaborative editing. I will provide instructions on how to enroll in the first week.

## Discord

- For questions of general interest, such as course clarifications or conceptual questions, please use the Class Discord Server. Refer to the Discord Instructions on Canvas on how to set up this server.

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## Course Activities / Assessments:

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### Formative:

- **Concept Quizzes:**
  - Canvas quizzes to check your understanding of the concepts that we covered in class.
  - Completed outside of class, typically due on Tuesdays and Thursdays at 11:59pm.
  - You will have 2 attempts, keeping your average score. You will have a time limit of 30 minutes for each attempt and must take 30 minutes between attempts.
  - There are no deadline extensions on concept quizzes but I will drop your lowest quiz score.
- **Homework & Miscellaneous Assignments:**
  - Most weeks, you will have a homework assignment that uses statistical software.
  - You are encouraged to work with another student on homework assignments, but you need to write up and submit your own responses. When you work with other students, write their name(s) as well at the top of your report. Reach out to me if you would like me to connect you with another student to work on homework.
  - There will be other miscellaneous assignments, including labs, reaction papers, surveys, in-class assignments, and participation in discussion boards.
  - There are no make-ups on missed in-class assignments.

**Evaluative:**

- **Data Analysis Projects:**
  - Students will complete two group projects, meant to **connect the statistical topics in class with a full data analysis.**
  - The projects will require you and your group to analyze data and summarize the results in a written report. More details will be provided when the projects are assigned.
  - Project 1 will be assigned in Week 3 and due at the end of Week 4.
  - Project 2 will be due during Finals Week.
- **Exams:** Mastery of the material will primarily be assessed with two exams (Weeks 5 and 10). The exams will be written exams taken **during class time.**
  - Exam I is tentatively planned for Wednesday 10/22 and Exam II for Wednesday 12/3.
  - **If you have any conflicts with exam times, contact me as soon as possible. Any conflicts must be addressed with me resolved at least 3 weeks before the exam time.**
  - The exams will be closed book and note, but you may bring one 8.5x11 sheet of handwritten notes.

**Note:** See the schedule on Canvas for all current assignment due dates and exam dates. This schedule may change based on how we get through material in class.

**Your grade in STAT 217 will be based on the following:**

Concept Quizzes	15%	Project 2	15%
Homework & Misc.	10%	Exam I	25%
Project 1	10%	Exam II	25%

**The Cal Poly grading scheme is as follows:**

	B+	87	C+	77	D+	67	
A	93	B	83	C	73	D	63
A-	90	B-	80	C-	70	D-	60

The final grade cutoffs for this course will not be higher than those listed above, but they may be lower. I will round your grade to the nearest **tenth** place. So, for example, if your final percentage is 89.95, it will round to 90.0. If your final percentage is 89.38, it will round to 89.4.

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## Course Policies

### Communication:

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- You can call me Professor, Professor/Prof. C. or Dr. C.
- Email:
  - Only email me with your @calpoly.edu email – I cannot respond to other email addresses
  - Start your email subject line with “[STAT 313]”
  - I will do my best to respond within 24 hours during the week
  - If you send me an email past 7pm or on the weekend, I will likely not respond until the morning of the next working day
- You should only email me about things that relate to you as an individual. Any other questions should be posted on the course Discord. **If you have a question – someone else in class does too!** I encourage you all to respond to each other. I will check the course Discord twice each weekday during working hours (8-5) to ensure that questions are being answered accurately.

### Office Hours:

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- Office hours are for **you!** During this time, I am available to talk about anything related to the course.
- Office hours are also helpful for me... This is my chance to get to know you all better and also get a good idea of what is most challenging and most interesting to you.
- See [this resource](#) for ways that students use office hours.
- One thing I will not do during office hours is tell you whether an answer to a problem is “correct” or not. We can talk through your thinking that led to your solution, but will leave the final assessment to once you have submitted an assignment.

### Late Work Policy:

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I cannot accept late submissions of Concept Quizzes (late submissions will receive a 0). But as a reminder, your two lowest Concept Quiz scores will be dropped.

Everyone will be given a “bank” of 6 deadline extensions (24 hours) which can be used on Homework and Miscellaneous Assignments at any point in the quarter.

- To use a deadline extensions, **you need to email me before the assignment deadline** to let me know you are using one.

- By using one extension, the deadline is extended by 24 hours.
- The only requirement is that you have emailed me any time before the deadline - I do not need to respond to you before the deadline.
- You can split your deadline extensions in any way. **But assignments turned in more than 4 days after the original deadline will not be graded.**
- If you do not email me before the assignment deadline (or you run out of late days), you will be docked 20% for each day that the assignment is late. (e.g. you can get a maximum of 80% on the assignment if it is submitted within 24 hours after the original due date and time.)

I cannot accept late submissions of Concept Quizzes (late submissions will receive a 0). But as a reminder, your lowest Concept Quiz score will be dropped.

A note on this policy: my priority is for all of you to engage with and understand the course materials. The best way to achieve this is to complete all assignments and receive feedback on your work. At the same time, I understand that things happen outside of our control and that you are balancing many responsibilities.

### *Expectations:*

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#### **For Students, I expect:**

- You will **ask lots of questions.**
- **If you find yourself struggling or feel that you are falling behind, please reach out to me as soon as possible so that we can develop a plan for your success together.**
- You will take advantage of the resources that I provide and to seek out additional resources if you find that you are struggling with the material. You do not need to seek out additional resources all on your own – we can figure out what additional resources you may need.
- You will be doing your best to engage with what we are all doing together during class. This means that you are using technology (i.e. laptops/tablets/phones) for class activities and not in ways that distract you.
- You will approach the course with academic integrity.
- You will come to class on time and work on class material with your peers.
- Everyone can learn the material in this course.

## For Me:

- I am responsible for ensuring that all students feel welcome and valued in the classroom.
- I am responsible for providing the resources necessary so that all students in the course can achieve the learning objectives.
- I am responsible for providing prompt and clear feedback on your coursework.
- **I welcome and appreciate any actionable feedback** regarding how the class is meeting your learning needs. We can discuss ways to adjust the course to ensure it is supporting your learning and do more of anything that is working well!

## *Academic Integrity:*

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**Our academic community is at its best when we treat each other with fairness, honesty, respect, and trust. Unfortunately, sometimes students slip up and do something that gives themselves (or someone else) an unfair advantage over other students. Such actions will not be tolerated in this class.**

It is most likely that a student will slip up if they are feeling overwhelmed or unsure of how to approach a problem that they are stuck on. **So let's be proactive to prevent those situations!!** If you feel helpless in an assignment or in studying, post on the discussion board, come to office hours, or email me! I am working hard to provide all of the resources you need to succeed.

However, the college doesn't really care if you break the rules on purpose or by accident. If I suspect you have done something that violates academic integrity on any graded elements of the course (included those graded for completion), you will receive an email to tell you about my suspicion and how the situation will be handled. **Typically, students earn a 0 for the assignment on which academic misconduct is found.** University policy dictates that we *must* report every instance of suspected academic dishonesty to the [Office of Student Rights and Responsibilities](#), no matter how small.

It is important to me that you know exactly what constitutes academic dishonestly and cheating, so please review the [Cal Poly Academic Integrity Policy](#). I will also try to clarify my expectations below:

When completing homework, in-class activities, and the project I expect that you:

- Will not use ChatGPT or other generative AI tools (LLMs)
- **Will indicate everyone who you worked with** and will not copy a classmates answer if you are expected to submit your own work (such as with homework).

During exams you may not:

- Communicate with others

I also want to more directly address the use of generative AI tools — software that creates new text, images, computer code, audio, video, and other content — which have become widely available. **You may not use generative AI tools such as ChatGPT, Google Gemini or others to complete assignments in this course.** Using AI will be considered a violation of academic integrity in this course. This is for a couple of reasons from my perspective:

1. The primary reason is that I have not determined a good way to see AI supporting your learning in this course in a way that would not be considered plagiarism. I want you to engage with challenging problem solving and present work that is your own thinking.
2. I find YOU so much more interesting than AI! I would so much rather see and read what you are thinking than something you may think looks more “clean” from AI.
3. Work created by AI tools may not be considered original work and instead, considered automated plagiarism. It is derived from previously created texts from other sources that the models were trained on, yet doesn't cite sources. Thus, there is a high risk that you can unintentionally plagiarize other sources from the web.

**You have the tools you need to be successful in this course without giving yourself (or someone else) an unfair advantage.** Thank you in advance for being part of an academic community that is built on honesty, integrity, and respect.

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### Course Resources

*How to Succeed:*

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- Come to class and ask questions
- Talk to each other & work together
- Come to office hours and ask questions
- Read the book
- Do practice problems & consolidate your notes
- Reach out!!

*Student Needs:*

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- My priority is your success in this course. I understand that things happen unexpectedly and obtaining official accommodations can be slow.

- If you feel that *any* circumstances or factors beyond your control may affect your presence and work in this class, **please reach out to me** and we will work to accommodate your needs. You do not need to share personal information with me when you reach out, unless you would like to.

#### *Students with Disabilities:*

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This course was developed with accessibility in mind; however, if you require accommodations or assistance of any kind, or cannot access materials in the course, or complete an assignment due to a disability, please contact me as soon as you can, so I can assist you promptly. I want to support your success. If you wish to request disability-related accommodations for this or any other course, please contact the [Disability Resource Center](#). It's important to do this with as much advanced notice as possible, so you have full access to your course materials and activities in a timely manner.

If you have accommodations with the DRC, please also email me to confirm that everything went through on my end.

#### *Accessibility:*

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I have taken numerous steps to ensure that all of the materials presented in this course are accessible to all participants, regardless of physical or learning disabilities. I know that everyone is unique and I may have unintentionally overlooked something that limits access to some materials or activities. Please let me know if you cannot access any content. If you find you need additional accommodations to complete the required course work, please contact me as soon as possible! You can also contact the [Disability Resource Center](#), Building 124, Room 119, at (805) 756-1395. Here is a link to the [Cal Poly Accessibility Policy](#) and the [Accessibility within Canvas statement](#). [Links to an external site.](#)

[SensusAccess](#) is a self-service, alternate media solution made available by Kennedy Library to automatically convert files into a range of alternate media including audio books (MP3 and DAISY), e-books (EPUB, EPUB3 and Mobi) and digital Braille. The service can also be used to convert inaccessible files such as image-only PDF files, JPG pictures and Microsoft PowerPoint presentations into more accessible and less tricky formats. This service is available at no charge for all Cal Poly students, faculty, staff and alumni. You can find a link to SensusAccess on every PolyLearn course on the left side menu.

#### *University Resources:*

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##### *Technical Assistance*

For technical questions, such as the suitability of your home computer for the course, installing plug-ins, problems with your password, etc., contact the CalPoly Help Desk at phone: 805-756-7000 or email: [servicedesk@calpoly.edu](mailto:servicedesk@calpoly.edu)

### *Canvas Help*

For a full list of Canvas support resources, please click on the "Help" button at the bottom left of your screen at the bottom of the global navigation menu. Here you will find a link to [Cal Poly's Canvas Support site](#). You can also contact the Cal Poly LMS Office at (805) 756-7485 or email [canvassupport@calpoly.edu](mailto:canvassupport@calpoly.edu). The LMS Office is located in the Kennedy Library, room 319. You can also check out the [Canvas Student GuidesLinks to an external site..](#)

Canvas also has a plethora of tutorials, also available via the "Help" menu, to help answer your questions!

- [Canvas Student GuideLinks to an external site.](#) (Screenshot tutorials)
- [Canvas Video Guide Links to an external site.](#)(short, targeted videos)
- [Canvas Mobile App and GuidesLinks to an external site.](#) (for phone and tablets)

### *Basic Needs*

Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to contact the Cal Poly Assistant Dean of Students, Joy Pedersen: Phone: 805-756-6749; Email: [jmpeders@calpoly.edu](mailto:jmpeders@calpoly.edu) or the Dean of Students, Kathleen N. McMahan: Phone: 805-756-0327; Email: [deanofstudents@calpoly.edu](mailto:deanofstudents@calpoly.edu). [Cal Poly Hunger Program](#)

### Cal Poly Food Pantry:

- Monday - Friday: 8:00AM - 4:30PM  
Wednesday: 9:00AM - 4:30PM
- The Pantry is located in the Lower Level of the Health Center at the [PULSE office](#).
- (805)-756-6181

### *Student Support Services*

There are many things that can affect student's lives including their mental and physical well-being, and sense of belonging, which can directly impact academic success. Many students are not fully aware of campus resources available to them, including academic

resources, and resources for unmet personal needs. Below you will find a comprehensive list of Student Support Services at Cal Poly. I encourage each of you to explore the services that will best meet your needs:

- [Student Diversity and Belonging](#): A collaborative coalition of campus community centers serving an active role in creating culturally-rich environments at Cal Poly and in San Luis Obispo.
- [Academic Advising](#): This is a comprehensive list of Cal Poly advising centers, including college specific advising, Career Services, Athletics Advising, International Center, and more.
- [Black Academic Excellence Center](#): BAEC is committed to supporting the advancement and excellence of Black students and Black student groups within the Cal Poly community.
- [Cal Poly Basic Needs](#): Programs and resources for students to help cover basic needs including food, shelter and clothing.
- [Cal Poly Cares](#): Support and resources for students with unexpected and urgent unmet needs including but not limited to: tuition payments, academic supplies, medical expenses, emergency housing, commencement regalia and other temporary hardships.
- [Cal Poly Roadmap for Students](#): This resource provides comprehensive information and updates for the current and upcoming quarters.
- [Cal Poly Virtual Learning](#): This website will help you prepare yourself for virtual learning and access critical services and programs that can help you succeed.
- [Cal Poly Canvas Support](#): Support resources for students needing help with Canvas
- [Career Services](#): Career Services offers resources and services to current students, alumni, and faculty/staff.
- [Center for Military-Connected Students](#): Formerly the Veterans Success Center, Cal Poly's military-friendly campus offers an enthusiastic and supportive community for all veterans, service members and our large group of military dependent students.
- [Counseling Services](#): Services supporting student mental health while responding to the current global pandemic. Offers remote services by phone and HIPAA-compliant Zoom
- [Disability Resource Center](#): Resources and support for students with disabilities

- [Dream Center](#): Resource center providing safe inclusive space and support for undocumented students
- [Food Pantry](#): Ensures all students have access to nutritious meals every day
- [Gender Equity Center](#): Resource center providing support for womxn-identifying students, faculty and staff
- [Multicultural Center](#): Resource and support center for underrepresented students
- [Mustangs for Recovery](#): Mustangs for Recovery is a program of Campus Health & Wellbeing that uses a peer-to-peer model to provide a safe and supportive environment for students in recovery or struggling with addiction to substances and addictive behaviors. We also support students who have been directly or indirectly impacted by the substance abuse of friends or loved ones.
- [Mustang Success Center](#): First year advising center for new freshmen in all majors
- [Pride Center](#): Resource and support center for LGBTQ+ students
- [Safer](#): Safer offers holistic services to the entire campus community regarding gender- & power-based violence. Our Advocacy Staff supports survivors of violence (and their loved ones) directly, by offering confidential crisis support and advocacy, which includes crisis intervention, accompaniments, referrals, and more.
- [Student Care Resources](#): A list of critical care resources that can also be found on the [Cal Poly Basic Needs](#) website. Please use these resources to help you be well and stay successful as you transition to virtual learning this spring.
- [Student Academic Services](#): Resource center supporting new students in their transition to the university environment; assists in the development of academic and personal skills, thus promoting academic success towards graduation for a diverse student population.
- [Tutoring Resources and Supplemental Workshops](#): Provides services and support for students in STEM and World Language courses, as well as study skills and research skills.
- [Writing and Learning Center](#): The Writing and Learning Center supports academic achievement by offering peer-to-peer learning opportunities in a welcoming environment.