

**STAT 217**  
**Introduction to Statistical Concepts and Methods**  
**Fall 2024**

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

**Sections:** 04 -- M/T/Th/F, 8:10-9:00am

06 -- M/T/Th/F, 9:10-10:00am

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

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

Mon 10:30 – 11:30

Wed 2:30 – 3:30

Thu 12:00 – 1:00

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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This course will give an overview of some of the most common statistical frameworks and techniques, providing you with knowledge and skills that can be applied across many fields. This course will emphasize an understanding of statistical principles and their uses. We will address issues in data collection, including sampling and experimental design, graphical and numerical techniques for exploring and modeling data, and statistical inference. The concepts covered will improve your statistical literacy, a skill that is crucial to be an engaged and active consumer of information.

*Learning Objectives:*

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- Design a data collection scheme based on simple random sampling or simple experimental designs
- Summarize data using graphical and numerical techniques
- Construct and interpret confidence intervals for one sample and two sample differences between means and between proportions
- Conduct one-sample and two-sample tests of significance for means and proportions

- Calculate and interpret measures of association and perform Chi-square test for independence
- Use simple linear and multiple regressions to describe relationships between variables
- Perform analysis of variance tests for completely randomized designs.

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
- Identify the appropriate statistical summary or test to address a research question (of those that we cover in the course, listed above)
- Evaluate possible strengths and weaknesses of simple statistical arguments (such as those made in popular media)

### *Flipped Classroom:*

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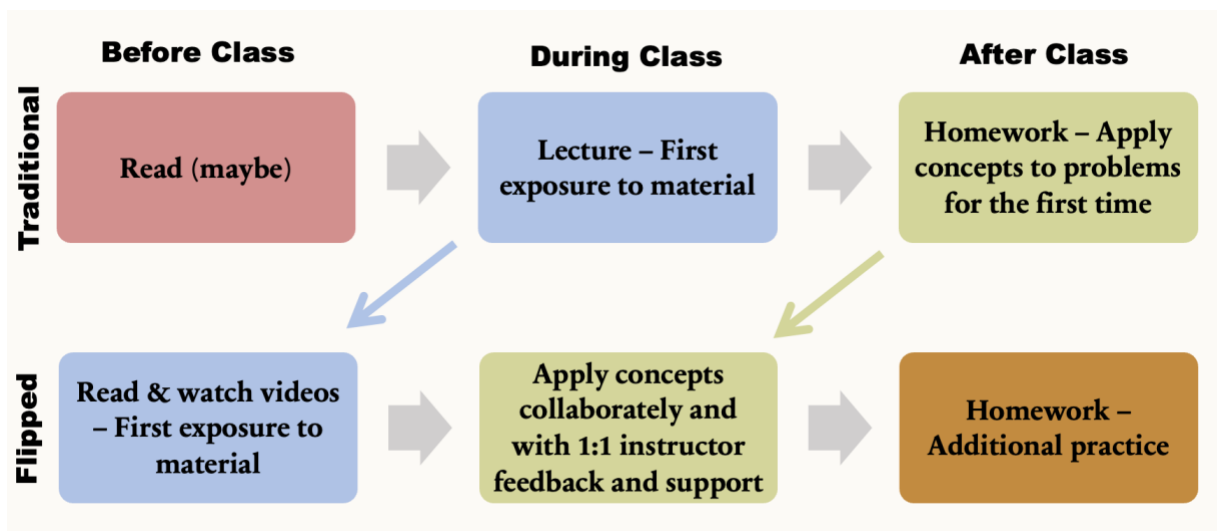
This syllabus and all of the course materials are modified from Professor S. ([Maddie Schroth](#)'s) materials. We will benefit from her wonderful work on this course!

This is not a class where you only come each day, listen, watch, and take notes. The emphasis in this class will be to **learn by doing**.

You will spend class time working in groups through activities and discussions to deepen and apply your understanding of statistical concepts that you will first be exposed to through readings and videos before class.

See the Canvas Syllabus for more details on the flipped classroom. If you are more curious about perceptions vs actualities of the Learn By Doing approach with activities check out this [article](#) and this [website](#).

The next page shows how I think about the benefits and differences between a traditional lecture format, and a flipped classroom:




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#### Course Materials:

**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” *Introduction to Statistical Investigations*, N. Tintle, B. Chance, G. Cobb, A. Rossman, S. Roy, T. Swanson, J. VanderStoep (Wiley, 2020; 2e).

- We will rely on this text for course readings in addition to homework and practice problems.
- I recommend that you rent the e-book as it is the cheapest option.
- I recommend that you bring the book (or just the appropriate sections) to class.

**Videos:** This course will use a flipped-classroom format. Therefore, you will be expected to engage with the material before coming to class through reading the textbook and watching short video lectures.

- There are two main sources of video lectures: 1. From the textbook authors [here](#) and 2. From Prof. S. at Cal Poly.
- I will post the appropriate links to Prof S.’s videos on each week Canvas.
- Everyone learns in different ways – I will leave it up to you which videos you find most helpful.

**Applets:** <https://www.isi-stats.com/isi2nd/ISlapplets2021.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:

- At the end of the course, I will include some low-stakes opportunities to explore using the statistical software R and R-Studio.

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### Course Activities / Assessments:

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#### Formative:

- **Reading Readiness Quizzes:** These are intended to prepare you for activities in class by checking your reading comprehension on the topics that will be covered in class that day. Readiness quizzes take the form of Canvas quizzes to be completed outside of class and will be due before class begins (see schedule on Canvas). **You will have 3 attempts, keeping your average score and I will drop your two lowest quizzes.**
- **In-Class Activities (Handouts):** Handouts will be completed during class with your group (assigned by me), but everyone will be expected to submit their own copy on Canvas. The handouts for the previous week will typically be due on Mondays by 11:59pm and will be graded for completion. See the course schedule on Canvas for due dates.
  - Note: this is essentially your "participation" grade for the course. There are many ways to engage with and participate in a course, so I prefer to not include a subjective participation grade.
  - This group work will also include giving feedback to your groupmates on their collaboration skills. Peer review will only be graded for completion. I will consolidate and communicate your feedback to each other.
  - A major element of engaging with in-class activities with your group is actually **coming to class!** I understand that things will come up, and that you may not be able to attend every class. **However, if you have more than 2 unexcused absences over the quarter, I will subtract 5% from your in-class activities grade for every additional class that you miss.** This will not include missing class for religious holidays or illness, please just let me know if you will be missing class for a holiday or if you are too ill to come to class.

- **Homework:** We will have approximately 8 homework assignments, due on Fridays at the beginning of class time. Homework will aim to extend the work that you do in class. You are encouraged to work with another student on homework assignments, but you need to write up your own responses. When you work with other students, you should 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. **Your lowest homework score will be dropped.**

#### **Evaluative:**

- **Project:** Students will complete a group project, meant to **connect the statistical topics in class with the real world and your own interests in your disciplines.** The project will culminate in a report and presentation in the last days of class. There will be three “Checkpoints” throughout the course to help keep everyone on track to do an interesting and solid project! Details will be posted on Canvas by week 3.
- **Midterm Exams (Exam I and Exam II):** Mastery of the material will primarily be assessed with two midterm exams (Weeks 4 and 8) and a comprehensive final exam. The midterm exams will be written exams taken during class time.
  - The midterm exams are tentatively scheduled for Tuesday 10/15 and Thursday 11/14.
  - **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.
  - Midterm exams will be worth a total of 30% of your grade, which will be distributed between the two exams based on what is best for your grade -- either 10% on Exam I and 20% on Exam II or the reverse.
- **Final Exam:** You will take a comprehensive final exam during the assigned time by the University:

Section 04    Mon 12/9 7:10-10:00am

Section 06    Wed 12/11 7:10-10:00am

- **If you have any conflicts with the final exam time, contact me as soon as possible. Any conflicts must be addressed with me resolved by the end of WEEK 4.**

**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:**

Reading Quizzes	5%	Midterm Exams	30% total
In-class Activities (Handouts)	10%	Final Exam	20%
Homework	25%	Project	10%

**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.

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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 217 - S04]”** (inputting the correct section)
  - 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 Canvas discussion board. **If you have a question – someone else in class does too!** I encourage you all to respond to each other. I will check the Canvas discussion board twice each weekday during working hours (8-6) 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 Readiness Quizzes due to the structure of the class (late submissions will receive a 0). But as a reminder, your two lowest Readiness Quiz scores will be dropped.

Everyone will be given a **“bank” of 4 late days** which can be used on **Homework, Handouts, and Project Checkpoints** at any point in the quarter. You can use all of your late days on one assignment or split them up in any way.

- To use your late days, **you need to email me before the assignment deadline.**
- **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.)
- For Project Checkpoints, which are group assignments, **everyone in the group** must use their late days.

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 are 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 dishonesty 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 AI
- **Will indicate everyone who you worked with** and will not copy a classmate's 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. 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.

### *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 Guides](#)[Links to an external site..](#)

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

- [Canvas Student Guide](#)[Links to an external site.](#) (Screenshot tutorials)
- [Canvas Video Guide](#) [Links to an external site.](#) (short, targeted videos)
- [Canvas Mobile App and Guides](#)[Links 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. McMahon: 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.