

STAT 501: Statistical Science

Basic Course Information

Course Name	Statistical Science
Course Number	STAT 501
Semester	Fall 2026
Credits	1
Prerequisites/Co-requisites	Graduate standing in Statistics or instructor permission.
Course Format	In-Person
Meeting Times	Wednesdays 11:00–11:50am
Location	Weber 223H

Instructor Information

Instructor Name	Prof. Ben Shaby
Email	bshaby@colostate.edu
Office Location	211 Statistics Building

Communication Policy: Please communicate through Canvas or email and include the course number in the subject line. I will do my best to respond to your emails within two business days.

Course Description & Objectives

STAT 501 is the required orientation seminar for incoming graduate students in the Department of Statistics. The course serves three interconnected purposes: introducing students to the breadth of statistical research at CSU, building the professional skills needed for a successful graduate career, and providing a foundation in the responsible conduct of research (RCR). Through faculty presentations, guest speakers, and structured discussion of realistic research integrity scenarios, students will develop both a sense of the field and the ethical commitments expected of professional statisticians.

Responsible Conduct of Research Component

One to two class sessions will be dedicated to responsible conduct of research, using video case studies produced by the Office of Research Integrity (ORI) at the U.S. Department of Health and Human Services. These videos present realistic scenarios involving authorship, data integrity,

mentorship, grant writing, and plagiarism, and are used as the basis for in-class discussion. The ORI videos are available at <https://ori.hhs.gov/integrity-scientific-research-videos>.

Upon completion of this course, students will be able to:

- Describe the scope of research in statistical science and identify areas of potential interest for graduate study and careers.
- Summarize the research programs of Statistics Department faculty and explain how those programs connect to broader scientific and applied questions.
- Identify and explain the core principles of responsible conduct of research, including data integrity, proper attribution, authorship, mentorship, and the ethical obligations of researchers working within institutions.
- Analyze realistic research integrity scenarios—covering authorship disputes, data falsification, conflicts of interest, pressure to deviate from protocols, and plagiarism—and articulate appropriate responses consistent with professional and institutional standards.
- Distinguish between permissible and impermissible research practices in the context of grant applications, data collection and reporting, and collaboration.
- Recognize the potential consequences of research misconduct for individuals, research teams, and the broader scientific community.
- Produce professionally formatted technical documents using LaTeX.
- Engage constructively with peers and faculty as a member of the graduate research community.

Course Materials

Textbook / Course Readings

There is no required textbook. Materials including ORI video links, reading assignments, and assignment prompts will be posted on Canvas.

Materials & Equipment

Students will need access to Canvas and a working LaTeX installation (e.g., Overleaf or a local TeX distribution) for written assignments.

Course Policies

Attendance

- Attendance is mandatory. The seminar format depends on the presence and participation of all students.
- A student who misses more than one session without a documented excuse will receive an Unsatisfactory grade for the course, regardless of assignment completion.
- If you must miss a class, notify the instructor in advance.

Assignments

- Homework will consist of one or more short documents prepared in LaTeX, with topics and due dates to be announced on Canvas.
- At least one assignment will require a written reflection on the RCR video case studies viewed in class.
- Assignments must represent your own work. You may discuss ideas with classmates, but submitted writing must be your own.
- Late work will not be accepted without prior arrangement with the instructor.

Grading Policy

Grades for this course are Satisfactory (S) or Unsatisfactory (U). To receive a Satisfactory grade, a student must attend all class sessions (no more than one unexcused absence) and complete all assignments.

Component	Requirement for Satisfactory
Attendance	Present for all sessions (at most one unexcused absence).
Assignments	All LaTeX assignments submitted and completed.

Course Schedule

All sessions meet Wednesdays 11:00–11:50am in Weber 223H. One to two sessions will be devoted to responsible conduct of research; the remaining sessions will feature faculty and guest presentations. The week of November 25 is omitted (Thanksgiving recess).

Date	Presenter	Topic
Aug. 26		
Sept. 2		
Sept. 9		
Sept. 16		
Sept. 23		
Sept. 30		
Oct. 7		
Oct. 14		
Oct. 21		
Oct. 28		

Date	Presenter	Topic
Nov. 4		
Nov. 11		
Nov. 18		
Nov. 25	Thanksgiving Recess — No Class	
Dec. 2		
Dec. 9		

AI Policy

Students may use AI tools to support learning in this course, but such use must be disclosed. AI may not be used to draft or complete submitted assignments unless explicitly permitted for a specific task. If you use AI for any permitted purpose, you must include an Author's Statement describing the tool used, your prompts, how you used the output, and how you verified its accuracy. Unauthorized or undisclosed use of AI constitutes an academic integrity violation.

Statement About Instructor's Use of AI in the Course

AI may be used during course preparation to support editing, organization, and the development of instructional materials. AI will not be used to evaluate student work.

Student Resources

Students, please review the following resources from CSU:

- [Academic Integrity – Student Resources](#)
- [Navigating AI: Your Trail Map to Success at CSU](#) (TILT Academic Integrity)
- [What AI tools are approved for use with CSU sensitive data?](#)
- [CSU-GPT](#) gives every student, faculty, and staff member a safe way to explore generative AI inside CSU's secure Microsoft Azure environment.
- [ORI Integrity in Scientific Research Videos](#) — six case-study videos covering authorship, mentorship, data falsification, research protocols, and plagiarism.

CSU Standard Policies

All standard policies for CSU courses are available in [the Passport to Canvas course](#). You can view these policies, which will be updated in real time if university policy changes, by logging into [the Passport to Canvas course](#) with your NetID.