



EDF 6407
Statistical Analysis for Educational Research I
84689 201
Fall 2026

Instructor Name

Yi-Hsin Chen

University Course Description

Theory and application of statistical procedures to problems in education: (1) descriptive statistics, (2) Probability-sampling distributions, (3) Inferential statistics-interval estimation, tests of significance (z, t, F-one way ANOVA). Coordinated use of computer included.

Course Requisites

Prerequisite(s):

Corequisite(s):

Course Format

This is a completely online course. Teaching materials, such as presentations (or handouts), weekly assignments, or project outlines, for class will be available online for download on Mondays. Students should check Canvas periodically, as an announcement will be posted once these materials have been uploaded. Please check “**Online Course Policies**” for more detailed information regarding course administration.

Student Learning Outcomes

Students who successfully complete all course requirements will be able to:

- a. Define basic statistical concepts.
- b. Read and translate statistical notation.
- c. Select, calculate, and interpret descriptive statistics, given sets of data.
- d. Select, calculate, and interpret inferential statistics, given sets of data.
- e. Read and evaluate statistical analyses in the published literature
- f. Conduct analyses of data using a packaged statistical program to calculate descriptive and inferential statistics.

- g. Write reports summarizing the statistical analyses and results, interpreting these analyses accurately and in sufficient detail that other colleagues and researchers are able to understand and interpret them accordingly
- h. Communicate the results of statistical analyses of data to other colleagues
- i. Work collaboratively with peers in the conduct of research activities (e.g., data analyses, interpreting statistical analyses of data, preparation of a short summary report).

Course Objectives

Successful completion of the course requirements are expected to result in students' increased ability to (a) compute and apply basic descriptive and inferential statistics to analyze real sets of data; (b) critically read and evaluate research literature; (c) recognize the strengths/ limitations of statistical analyses in the conduct of disciplined inquiry; (d) conduct data analyses and reporting of results in a manner consistent with the ethical guidelines of professional associations such as the American Statistical Association (ASA), American Educational Research Association (AERA), and the American Psychological Association (APA); (e) communicate with peers and other professionals on research issues.

Required Texts and/or Readings and Course Materials

Coladarci, T., Cobb, C. D., Minium, E. W., & Clarke, R. C., (2014). Fundamentals of Statistical Reasoning in Education (4th edition). New York, N.J.: John Wiley & Sons, Inc.

Optional SAS Text:

Goad, C. L. (2021). SAS programming for elementary statistics: Getting started (1st ed.). Chapman and Hall/CRC.

Supplementary (Optional) Texts and Materials

Carver, R. P. (1978). The case against statistical significance testing. *Harvard Educational Review*, 48, 378-399.

Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112, 155-159.

Kromrey, J. D. (1993). Ethics in Data Analysis. *Educational Researcher*, 22, 24-27.

Nickerson, R. S. (2000). Null hypothesis significance testing: A review of an old and continuing controversy. *Psychological Methods*, 5, 241-301.

AERA- Ethical Standards <http://www.aera.net/aboutaera?id=173>

How to Succeed in this Course

To succeed in this course, you should review the course materials, such as lecture videos, textbook chapters, and supplementary readings, during each topic session, complete the assigned homework and quizzes on time, and check your answers and feedback carefully. To reinforce your understanding and retention of the concepts and methods, you should use study strategies, such as practice quizzing, self-explanation, and worked examples.

Grading Scale

The criteria for grades are as follows:

90 - 100% = A

80 - 89% = B

70 - 79% = C

Below 70% = F

Grade Categories and Weights

Each student's final course grade will be computed as a weighted combination of five components as follows:

- a. Weekly Participation 30%
- b. Written Assignment I 10%
- c. Midterm Examination 25% (Take-home 15%; Closed book 10%)

- d. Written Assignment II 10%
- e. Final Examination 25% (Take-home 15%; Closed book 10%)

Instructor Feedback Policy & Grade Dissemination

The instructor will respond to e-mail communication relevant to the subject matter within 48 hours of the date received. The instructor will provide feedback on assignments within one week of the posted deadline, and feedback on the hands-on midterm component within two weeks of the posted deadline. [You can access your scores at any time using "Grades" in Canvas.](#)

Major Topics and Course Schedule

Tentative Course Schedule

Week	Data Assigned	Date	Due	Assignments	
Week	Date Assigned		Date Due	Reading Assignments	Topics
PART I: Descriptive Statistics					
	Aug. 24 th		Aug. 26 th	Syllabus	Orientation to the course
W1	Aug. 24 th		Aug. 30 th	Chapter 1	Introduction to Educational Statistics
W2	Aug. 31 st		Sep. 6 th	Chapters 2 & 3	Frequency Distributions Simple Graphical Displays of Data
W3	Sep. 7 th		Sep. 13 th	Chapter 4	Measures of Central Tendency

Week	Data Assigned	Date	Due	Assignments
W4	Sep. 14 th	Sep. 20 th	Chapter 5	Measures of Variability Skewness and Kurtosis
<i>Assignment One Due</i>				<i>Assignment I due by Sep. 27th, 11:00 pm</i>
W5	Sep. 21 st	Sep. 27 th	Chapter 7	Correlation
W6	Sep. 28 th	Oct. 4 th	Chapter 8	Regression and Prediction
W7	Oct. 5 th	Oct. 9 th		Preparation Week
<i>Midterm Exam</i>				Time Range: Oct. 10 th – 11 th ; Place: Home <i>Hands-on Midterm due by Oct 11th, 11:00 pm</i>
PART II: Inferential Statistics				
W8	Oct. 12 th	Oct. 18 th	Chapters 6 & 9	Normal Distribution and Standard Scores
W9	Oct. 19 th	Oct. 25 th	Chapters 10 & 12	Confidence Interval: Sampling and Interval Estimation

Week	Data Assigned	Date	Due	Assignments	
W10	Oct. 26 th	Nov. 1 st	Chapters 11 & 19		Hypothesis Testing: Inferential Statistics and Power
W11	Nov. 2 nd	Nov. 8 th	Chapters 11 & 13		Testing a Single Mean: One-Group z- and t-test
<i>Assignment II Due</i>					<i>Assignment II due by Nov 15th, 11:00 pm</i>
W12	Nov. 9 th	Nov. 15 th	Chapters 14 & 15		Two-Group t-tests: Dependent and Independent Tests
W13	Nov. 16 th	Nov. 22 nd	Chapter 16		Analysis of Variance (ANOVA): One-way
W14	Nov. 23 rd	Dec. 29 th			Thanksgiving Holiday
W15	Nov. 30 th	Dec. 4 th			Preparation Week
W16	Dec. 5th	Dec. 10th		<i>Final Exam</i>	Time Range: Dec 5 th – 10 th ; Place: Home <i>Hands-on Final due by Dec 7th, 11:00 pm</i>

USF Core Syllabus Policies

USF has a set of central policies related to student recording class sessions, academic integrity and grievances, student accessibility services, academic disruption, religious observances, academic continuity, food insecurity, pregnancy and related conditions, and sexual harassment that **apply to all courses at USF**. Be sure to review these online:

<https://www.usf.edu/provost/faculty-success/resources-policies-forms/core-syllabus-policy-statements.aspx>

Student Recordings

Florida Statute 1004.097 Free Expression on Campus

Students may, without prior notice, record video or audio of a class lecture for a class in which the student is enrolled for their own personal, educational use (USF Policy 10-048). A class lecture is defined as a formal or methodical oral presentation as part of a university course intended to present information or teach enrolled students about a particular subject. Recording class activities other than class lectures, including but not limited to lab sessions, student presentations (whether individually or part of a group), class discussion, clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips, private conversations between students in the class or between a student and the faculty member is prohibited. Recordings may not be used as a substitute for class participation and class attendance and may not be published or shared without the written consent of the faculty member. Failure to adhere to these requirements may constitute a violation of the USF Student Conduct Code.

Course Policies: Grades

Turning in Assignments

The course schedule will run on a Saturday - Friday week. Assignments that need to be submitted include two collectible assignments, the take-home midterm and final, and the research project. Assignments that are submitted late will not be graded. It is not my desire to issue grades of 0, but in order to continue building on each topic and to maintain the course schedule, this policy is necessary. The Canvas server assigns a time signature

to every email and assignment submission. Those times will be used to determine whether or not your assignment was submitted on time.

Technical Problems & Assignment Deadlines

I suggest that you complete your work early and have a backup computer and backup Internet connection (e.g., at a friend's house) available. If there is a USF-caused server problem, I will make limited exceptions to deadlines. A good way to make sure this type of problem doesn't affect you is to complete your work well before the deadline.

[Academic Computing](#) is your resource for assistance in dealing with technical problems. Here is their contact information:

Phone: 974-1222 in Tampa or toll-free 1-866-974-1222 Statewide

In person: 6th floor of the Tampa Campus Main Library, LIB 608;

[Online customer service and support tool \(available at any time\).](#)

Academic Integrity

This course will include an emphasis on the value of peer review. However, it is required that you complete work on an individual basis. While you may discuss course material with your classmates, all assignments must be completed and submitted on an individual basis. This means that you must compose, type, and submit your own, unique responses to each and every assignment.

Grades of "Incomplete"

An Incomplete grade ("I") is exceptional and granted at the instructor's discretion only when students are unable to complete course requirements due to illness or other circumstances beyond their control. The course instructor and student must complete and sign the "I" Grade Contract Form that describes the work to be completed, the date it is due, and the grade the student would earn factoring in a zero for all incomplete assignments. The due date can be negotiated and extended by student/instructor as long as it does not exceed two semesters for undergraduate courses and one semester for graduate courses from the original date grades were due for that course. An "I" grade not cleared within the two semesters for undergraduate courses and one semester for graduate courses (including summer semester) will revert to the grade noted on the contract.

Campus Free Expression

It is fundamental to the University of South Florida's mission to support an environment where divergent ideas, theories, and philosophies can be openly exchanged and critically evaluated. Consistent with these principles, this course may involve discussion of ideas that you find uncomfortable, disagreeable, or even offensive.

In the instructional setting, ideas are intended to be presented in an objective manner and not as an endorsement of what you should personally believe. "Objective" means that the idea(s) presented can be tested by critical peer review and rigorous debate, and that the idea(s) is supported by credible research.

In this course you may be asked to engage with complex ideas and to demonstrate an understanding of the ideas. Understanding and engaging with an idea does not require you to believe it or to agree with it.

Course Policies: Technology and Media

Canvas:

This course is offered via USF's learning management system (LMS), Canvas. If you need help learning how to perform various tasks related to this course or other courses being offered in Canvas, please consult the [Canvas Student Guides](#). You may also contact USF's IT department at (813) 974-1222 or help@usf.edu.

Online Exam Proctoring:

All students must review the syllabus and the requirements, including the online terms and video testing requirements, to determine if they wish to remain in the course. Enrollment in the course is an agreement to abide by and accept all terms. Any student may elect to drop or withdraw from this course before the end of the drop/add period.

Online exams and quizzes within this course may require online proctoring. Therefore, students will be required to have an operational webcam with a microphone when taking an exam or quiz. Depending on the test requirements, a side-view camera may be required. This setup will require the use of a separate USB webcam. Students understand that remote recording devices are purchased and controlled by the student and that recordings from any private residence must

be done with the permission of any person residing, and present, in the residence at the time of testing. Students should use a private testing space that meets the instructor's specified test-setting requirements, as needed to eliminate any consent and privacy concerns. Students with concerns may discuss the location of an appropriate space for the recordings with their instructor or advisor.

Students must ensure that any recordings do not invade any third-party privacy rights and accept all responsibility and liability for violations of any third-party privacy concerns.

Students are fully responsible for ensuring all technological requirements necessary to take an online proctored exam, including, but not limited to, a reliable computer, a functional camera with a microphone (USB or internal, depending on test requirements), a high-speed internet connection, and up-to-date software, including the latest versions of [Chrome browser](#) and the [Honorlock Chrome extension](#) are available. Depending on the exam, students may also need to download the Honorlock app.

Setup information will be provided prior to taking the online proctored exam. For additional information, please visit the [USF online proctoring student FAQ](#) and [Honorlock student resources](#).

Course Policies: Student Expectations

Health and Wellness

Your health is a priority at the University of South Florida. We encourage members of our community to look out for each other and to reach out for help if someone is in need. If you or someone you know is in distress, please make a referral at www.usf.edu/sos so that the Student Outreach & Support can contact and provide helpful resources to the student in distress. A 24-hour licensed mental healthcare professional, offered through the counseling center, is available by phone at 813-974-2831, option 3. Please remember that asking for help is a sign of strength. In case of emergency, please dial 9-1-1.

Title IX Policy

USF is committed to fostering a safe and respectful learning environment, free from sex discrimination and sexual harassment, in accordance with Title IX and USF Policy 0-004. If a student shares an experience of sexual harassment, sexual assault, stalking, or relationship violence with a USF employee (including faculty), that employee will notify the Title IX Office. This allows the Title IX Office to send the student an email with information about support resources and options—if it is safe to do so. Students are not required to respond to this email. The Title IX Office is a private resource. Information is shared only on a need-to-know basis to provide students with support measures. To speak to a confidential resource, students may contact USF Center for Victim Advocacy at 813-974-5757. Confidential resources do not notify the Title IX Office unless the student requests it. For more information about Title IX, available resources, or to make a report, please visit www.usf.edu/title-ix.

Course Hero / Chegg Policy

The USF Policy on Academic Integrity specifies that students may not use websites that enable cheating, such as by uploading or downloading material for this purpose. This does apply specifically to Chegg.com and CourseHero.com – almost any use of these websites (including uploading proprietary materials) constitutes a violation of the academic integrity policy.

Professionalism Policy

Per university policy and classroom etiquette; mobile phones, iPods, etc. must be silenced during all classroom and lab lectures. Those not heeding this rule will be asked to leave the classroom/lab immediately so as to not disrupt the learning environment. Please arrive on time for all class meetings. Students who habitually disturb the class by talking, arriving late, etc., and have been warned may suffer a reduction in their final class grade.

Turnitin.com

In this course, turnitin.com may be utilized. Turnitin is an automated system which instructors may use to quickly and easily compare each student's

assignment with billions of web sites, as well as an enormous database of student papers that grows with each submission. Accordingly, you may be expected to submit all assignments in both hard copy and electronic format. After the assignment is processed, as instructor I receive a report from turnitin.com that states if and how another author's work was used in the assignment. For a more detailed look at this process visit <http://www.turnitin.com>.

Netiquette Guidelines

- Act professionally in the way you communicate. Treat your instructors and peers with respect, the same way you would do in a face-to-face environment. Respect other people's ideas and be constructive when explaining your views about points you may not agree with.
- Be sensitive. Be respectful and sensitive when sharing your ideas and opinions. There will be people in your class with different linguistic backgrounds, political and religious beliefs or other general differences.
- Proofread and check spelling. Doing this before sending an email or posting a thread on a discussion board will allow you to make sure your message is clear and thoughtful. Avoid the use of all capital letters, it can be perceived as if you are shouting, and it is more difficult to read.
- Keep your communications focused and stay on topic. Complete your ideas before changing the subject. By keeping the message on focus you allow the readers to easily get your idea or answers they are looking for.
- Be clear with your message. Avoid using humor or sarcasm. Since people can't see your expressions or hear your tone of voice, meaning can be misinterpreted.

Email and Discussion Board Guidelines

- Use the subject line effectively by using a meaningful line of what your email or discussion is about.
- Keep your emails and postings related to the course content. You should not post anything personal on a discussion board unless it is requested by the instructor.
- Any personal, course or confidential issues should be directly communicated to the instructor via email. The discussion boards are public spaces; therefore, any issues should not be posted there.

End of Semester Student Evaluations

All classes at USF make use of an online system for students to provide feedback to the University regarding the course. These surveys will be made

available at the end of the semester, and the University will notify you by email when the response window opens. Your participation is highly encouraged and valued.

Food and Drink Policy (for in-campus sessions only).

Please adhere to the firm policy of no beverages (other than bottled/capped water), food, tobacco products, or like items in the classroom. Your understanding of the necessity for this policy and cooperation will be greatly appreciated. This policy will be strictly enforced.

Learning Support and Campus Offices

Academic Accommodations

Students with disabilities are responsible for registering with Student Accessibility Services (SAS) in order to receive academic accommodations. For additional information about academic accommodations and resources, you can visit the SAS website.

[SAS website for the Tampa campus and Sarasota-Manatee Teachout site.](#)

[SAS website for the St. Pete campus.](#)

Academic Support Services

The USF Office of Student Success coordinates and promotes university-wide efforts to enhance undergraduate and graduate student success. For a comprehensive list of academic support services available to all USF students, please visit the [Office of Student Success website](#).

Canvas Technical Support

If you have technical difficulties in Canvas, you can find access to the Canvas guides and video resources in the “Canvas Help” page on the homepage of your Canvas course. You can also contact the help desk by calling 813-974-1222 in Tampa or emailing help@usf.edu.

[USF IT Services](#)

Center for Victim Advocacy

The [Center for Victim Advocacy](#) empowers survivors of crime, violence, or abuse by promoting the restoration of decision making, by advocating for their rights, and by offering support and resources. Contact information is available online.

Counseling Center

The Counseling Center promotes the wellbeing of the campus community by providing culturally sensitive counseling, consultation, prevention, and training that enhances student academic and personal success. Contact information is available online.

[Counseling Center website for the Tampa campus and Sarasota-Manatee Teachout site.](#)

[Counseling Center website for the St. Pete campus.](#)

Tutoring

The Tutoring Hub offers free tutoring in several subjects to USF undergraduates. Appointments are recommended, but not required. For more information, email asctampa@usf.edu.

[Tutoring website for the Tampa campus and Sarasota-Manatee Teachout site.](#)

[Tutoring website for the St. Pete campus.](#)

Writing Studio

The Writing Studio is a free resource for USF undergraduate and graduate students. At the Writing Studio, a trained writing consultant will work individually with you, at any point in the writing process from brainstorming to editing.

Appointments are recommended, but not required. For more information or to make an appointment, email: writingstudio@usf.edu.

[Writing studio website for the Tampa campus and Sarasota-Manatee Teachout Site.](#)

[Writing studio website for the St. Pete campus.](#)

Student Ombuds Office

Florida Statute 1006.51 and Florida Board of Governors Regulation 6.011 require that all public institutions provide ombuds services to students. The Student Ombuds Office at USF is a confidential, impartial, informal, and independent resource for students experiencing challenges related to the university. Ombuds can help students safely explore options, clarify processes, and consider next steps. [Learn more or make an appointment at usf.edu/student-ombuds.](https://usf.edu/student-ombuds)