



EDS 8823 Representation and Analysis of Quantitative Data

College

College of Education

Section

KBES6

Term

2023SP

Class Time & Place

Asynchronous

Campus

Online

Course Description

This course focuses on: (1) describing and summarizing data; (2) creating and interpreting standard scores, and; (3) using inferential statistics to make decisions. Students will be introduced to these quantitative procedures using the SPSS software. The skills developed in this course are a prerequisite to understanding educational research.

Credits

3

Instructor

Ben Andrews, PhD

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Office

Athens 223

Phone

706-548-8505 x8007

Office Hours

By appointment. Schedule a meeting with me here: <https://appt.link/meet-with-dr-andrews/office-hours>

Textbooks and Class materials

Salkind, N. J., & Frey, B. B. (2019). *Statistics for people who (think they) hate statistics*. Sage Publications, Incorporated. (REQUIRED)

You will also need a Premium membership to Laerd Statistics for this course: <https://statistics.laerd.com/pricing.php>
Discount code for 3 months' access: **CP-USD-3M-799** (REQUIRED)

Student Learning Outcomes

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

1. Explain how levels of measurement connects to which hypothesis test we conduct.
2. Evaluate the appropriate fit between data and the statistical analysis approach.
3. Describe characteristics of quantitative data using appropriate statistical tools like central tendency and measures of dispersion.
4. Apply key probability principles in hypothesis testing.
5. Build useful quantitative summaries for outside audiences.

Educational Technology Requirements

Online/Hybrid

Minimum technology requirements for online and hybrid courses may be found at the following URL: <https://www.piedmont.edu/academics/technology-requirements/>.

Active, weekly participation is required as a minimum standard to register attendance in an online or hybrid course. Logging onto a course, in the absence of active participation, is not sufficient to register attendance.

Grading Scale

To promote fair and consistent assessments, the following grading guidelines will be applied on the total points:

A	100%	to	90%
B	less than 90%	to	80%
C	less than 80%	to	70%
D	less than 70%	to	60%
F	less than 60%	to	0

Grading System

OVERVIEW OF ASSIGNMENTS

Module quizzes	10%
SPSS labs	20%
SPSS homework assignments	40%
Data in Practice Activity	10%
Final exam	<u>20%</u>

Total: 100%

Course Outline/Schedule

COURSE SCHEDULE

Week	Module	Topics	Readings	Assignments/Activities
Start Here		Course Introduction Meet Your Instructor Syllabus, Course Overview, Piedmont Policies	c Course Syllabus	

Week 1: 1/9 – 1/15	1 Due 1/15	Introduction to Statistical Reasoning and Quantitative Data Basics	c Ch. 1, Salkind & Frey c Laerd guide on descriptive and inferential statistics **All Laerd readings will be linked in Canvas	c "Monty Hall" game applet activity c Intro to SPSS Lab c Module 1 Quiz c Intro to SPSS Homework
Week 2: 1/16 – 1/22	2 Due 1/22	Levels of Measurement	c Laerd guide on types of variables	c Levels of Measurement activity c Levels of Measurement Lab c Module 2 Quiz c Levels of Measurement Homework
Week 3: 1/23 – 1/29	3 Due 1/29	Measures of Central Tendency and Measures of Dispersion	c Chs. 2-3, Salkind & Frey c 2 Laerd guides on descriptive statistics	c Descriptive Statistics applet activity c Descriptive Statistics Lab c Module 3 Quiz c Descriptive Statistics Homework
Week 4: 1/30 – 2/5	4 Due 2/5	Graphs and Visual Representations of Quantitative Data	c Ch. 4, Salkind & Frey c 5 Laerd guides on graphing data	c Building Visuals in SPSS Lab c Module 4 Quiz c Building Visuals in SPSS Homework
Week 5: 2/6 – 2/12	5 Due 2/12	The Normal Curve and Standardized Scores	c Ch. 8, Salkind & Frey c Laerd guide on testing for normality	c One Proportion applet activity c Testing Normality in SPSS Lab c Module 5 Quiz c Testing Normality in SPSS Homework
Week 6: 2/13 – 2/19	6 Due 2/19	Sample, Populations, and Confidence Intervals	c Laerd guide on sampling	c Sampling Words applet activity c Simulating Confidence Intervals applet activity c Sampling in SPSS Lab c Sampling in SPSS Homework
Week 7: 2/20 – 2/26	7 Due 2/26	Probability and the P-Value	c Ch. 7, Salkind & Frey	c One Proportion applet activity c Data in Practice Activity

Week 8: 2/27 – 3/5	8 Due 3/5	Introduction to Hypothesis Testing and the One-Sample T-Test	c Ch. 9, Salkind & Frey c 2 Laerd guides on hypothesis testing and the one sample t-test	c One Proportion applet activity c One-Sample T-Test Lab c One-Sample T-Test Homework
PIEDMONT UNIVERSITY SPRING BREAK MARCH 6-12				
Week 9: 3/13 – 3/19	9 Due 3/19	Independent Samples T-Test	c Ch. 11, Salkind & Frey c Laerd guide on independent samples t-test	c Independent Samples T-Test Lab c Module 9 Quiz c Independent Samples T-Test Homework
Week 10: 3/20 – 3/26	10 Due 3/26	Dependent (Paired) Samples T-Test	c Ch. 12, Salkind & Frey c Laerd guide on paired samples t-test	c Dependent Samples T-Test Lab c Module 10 Quiz c Dependent Samples T-Test Homework
Week 11: 3/27 – 4/2	11 Due 4/2	One-Way ANOVA	c Ch. 13, Salkind & Frey c Laerd guide on one-way ANOVA	c One-Way ANOVA Lab c Module 11 Quiz c One-Way ANOVA Homework
Week 12: 4/3 – 4/9	12 Due 4/9	Correlation	c Chs. 5 and 15, Salkind & Frey c Laerd guide on Pearson's product moment correlation	c Correlation Lab c Module 12 Quiz c Correlation Homework
Week 13: 4/10 – 4/16	13 Due 4/16	Linear Regression	c Ch. 16, Salkind & Frey c Laerd guide on simple linear regression	c Linear Regression Lab c Module 13 Quiz c Linear Regression Homework
Week 14: 4/17 – 4/23	14 Due 4/23	Chi-Square Goodness of Fit Test and Chi-Square Test for Association	c Ch. 17, Salkind & Frey c 2 Laerd guides on chi-square tests	c Chi-Square Lab c Module 14 Quiz c Chi-Square Homework

Week 8: 4/24 – 4/29	15 Due 4/29	Course Wrap Up and Final Exam	c Final Exam c Submit Field Experience Reflection c Submit Program Outcome Reflection c Course Evaluation
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Piedmont Policies

Non-Discrimination Policy: It is the policy of Piedmont University not to discriminate in its educational programs, activities, or employment on the basis of sex, gender identity, sexual orientation, physical or mental disability, pregnancy, race, age, religion, color, national or ethnic origin, veteran status, genetic information, or any other category protected by applicable federal, state, or local law.

Piedmont University adheres to the federal definition of a credit hour as an amount of work represented in intended learning outcomes and verified by evidence of student achievement. For the purposes of this definition, an instructional hour equates to direct instruction of 750 minutes for each credit hour awarded. The standard expectation for direct instruction classes is that students will spend a minimum of two hours outside the classroom for each hour spent in class, which is, 1500 minutes per credit hour awarded. Courses that are offered on a schedule other than the full 15-week semester contain the same number of hours as if the course were scheduled for a full semester. No reduction in direct instruction time or work time outside of class is permitted for courses offered in accelerated terms.

The Learning Center exists to help our students reach their various academic goals. The Learning Center offers academic support in all areas, including accounting, foreign languages, math, science, writing, and more. All tutors have excelled in the subjects that they help support and tutors are trained in the art of tutoring. Tutoring sessions and athletes in the Study Hall are monitored to provide the individualized attention our students need to achieve their personal best. We offer support by appointment in Starfish and walk-in availability is provided on a first come first served basis. For more information, please contact Oliver Howington ohowington@piedmont.edu or call 706-778-8500, ext. 1176 or visit: <https://www.piedmont.edu/learning-center>.

Piedmont University strives to make learning experiences accessible to all participants and will provide reasonable accommodations for students with disabilities. If you experience difficulties, based on the impact of a disability or health condition, please contact the **Office of Accessibility, Resources, and Services (OARS)** to initiate a conversation with our Director of Compliance, Equity, and Inclusion, Courtney Snow, about your options. Please know that accommodations are not retroactive, so avoid any delays. Contact Courtney Snow. at csnow@piedmont.edu or 706-778-8500, ext. 1504, or visit Daniel 303 Suite D. To request accommodations (*academic, dietary, housing, or emotional support animals*) please click the link below and use your Piedmont email and password: https://piedmont-accommodate.symplicity.com/public_accommodation/. If you are already receiving accommodations and need to update your memo or information, please click the link below and use your Piedmont email and password: <https://piedmont-accommodate.symplicity.com/students>

Statement on Academic Integrity: Students must be familiar with the university academic integrity policy. Plagiarism and other violations of this policy will not be tolerated. Instructors must send any academic integrity concerns directly to the dean who is responsible for the discipline in which the course is taught. See catalog at <https://piedmont.smartcatalogiq.com/> for complete policy.

Directives on Completion of Student Work: Course activities designated as quizzes, tests and exams are always to be completed by a student individually and without assistance from other people or resources UNLESS permission for collaboration or the use of external resources is explicitly permitted by the course professor(s). Hence all quizzes, tests and exams are to be considered closed-book/closed-notes and closed-internet (e.g., Google searches). Artificial intelligence apps are also banned on quizzes, tests and exams unless explicitly permitted by the course professor(s).

Student Email Policy: All Piedmont University students are required to use their Piedmont Lions email account (see Catalog at <https://piedmont.smartcatalogiq.com/> for complete policy). Since the Lions account is an official communications channel of the university, students are responsible for all information distributed to them through their account. Students are expected to check it daily.

Withdrawal Policy: Within the first several days of a term, students may add and drop courses with the permission of their advisor. The ranges for drop/add vary depending on the term (Fall, Spring, or Summer) and duration of the class (8 week or 15 week). Students should check the academic calendar for specific information. After this time, students may withdraw from a class. Please refer to the university catalog at <https://piedmont.smartcatalogiq.com/> for the particulars regarding the withdrawal policy.

Excused Absence Policy: Student absences for university-sanctioned events are generally considered excused absences because they are supportive of the university program. However, there are exceptions to the policy as noted in the University catalog. When absences are excused, instructors must allow students to make up any work that has been missed. Students are responsible for notifying their instructors, in advance, about absences from class due to participation in university-sanctioned events. See full policy in the University catalog at <https://piedmont.smartcatalogiq.com/>.

Starfish®: We Care About Your Success! We have partnered with Starfish Retention Solution, creating a platform for communication and resources focused on supporting your efforts throughout your educational journey. During the semester you may receive emails or texts from Starfish® regarding your course grades or academic performance. Please pay attention to these communications and consider taking the recommended actions. They are sent to help you be successful. In addition, your instructor may: (1) request that you schedule an appointment by going to Starfish, or (2) recommend that you contact a specific campus resource, such as tutoring or counseling. You may also be contacted directly by one of these services. You can quickly connect to many resources using Starfish. We hope you will choose to use the tool to support your success. You may access Starfish at <https://piedmont.starfishsolutions.com/starfish-ops/support/login.html?tenantId=9379>.

Piedmont University Library is dedicated to the success of our on- and off-campus students. The Library's website (<https://library.piedmont.edu/home>) offers the fastest, simplest solution to finding the authoritative sources you need: journal citations and full-text articles, access to books and eBooks, study guides, encyclopedias, streaming video, and more. Overwhelmed? Need help navigating? No problem: speedy assistance is available via chat or email with the Ask a Librarian service.

Additional Information

COLLEGE OF EDUCATION SOCIAL JUSTICE STATEMENT

All are welcome as we strive to learn together, regardless of ability status, affectional orientation, age, color, ethnicity, gender expression, gender identity, marital status, nationality, political ideology, race, religious beliefs, sex, sexual orientation, spiritual beliefs, socioeconomic status, or veteran status. It is important that professors and students all strive to maintain an environment (online and in-person) in which all individuals receive respect, acceptance, positive regard, and the opportunity to safely develop and exchange ideas. We must acknowledge diverse world views and celebrate our rich differences. As educators, our ability to respect, support, and celebrate our differences has a profound impact on our daily interactions with our students and our classrooms. To support a safe and welcoming environment in our classrooms, Piedmont University College of Education professors will seek to promote fairness, empowerment, and advocacy for each student.