



PSYC-121: STATISTICS FOR BEHAVIORAL SCIENCES

Also listed as: SOCI-121

Effective Term

Fall 2026

BOT Approval Date

06/12/2025

Discipline

PSYC - Psychology

Course Number

121

Course Title

Statistics for Behavioral Sciences

Short Title

Behavioral Statistics

Credit Status (CB 04)

D - Credit - Degree applicable

Units

Lecture Units

2.50

Lab Units

0.50

Total Units

3.00

Hours

Lecture Contact Hours

40-45

Out of Class Hours Lecture

80-90

Lab Contact Hours

24-27

Out of Class Hours Lab

0.00

Total Contact Hours

64 - 72

Total Out of Class Hours

80 - 90

Total Student Learning Hours

144 - 162

Is this an existing Extensive Lab?

Yes



Distance Education

Yes

Distance Education

Distance Education Type

Both Fully Online and Hybrid Online

Fully Online Delivery Requirements:

- a. Students must be notified via the college schedule of classes and the syllabus for the class if proctored tests are required for this course
- b. Any planned face-to-face meetings, such as an orientation or study session, must be optional
- c. The MSJC curriculum committee requires the use of accessible, asynchronous discussion as a component of every fully online course

Are you using publisher content?

No

Regular Substantive Interaction

Instructor-to-student, student-to-student, and student-to-content contact shall be distributed in a manner that will ensure regular substantive interaction (RSI) is maintained not only weekly but also for the duration of the course. Instructor interactions should be equivalent in time, quality and consistency to the engagement students would receive in a face-to-face course—for example, through announcements, discussion participation, personalized feedback, video messages, or other instructional communications. Instructors are expected to be responsive to student inquiries within a 24-72 hour time frame excluding holidays. RSI will be maintained through a variety of methods:

- Orientation - Students must be oriented to the online and face-to-face portions at the start of the course.
- Announcements - Announcements using the course management system must be posted at least weekly to keep students current on course events, due dates, materials, etc.
- Discussion Forums - Content-related discussion forums within the designated CMS will include appropriate instructor participation and will be initiated and maintained, with timely feedback provided. Instructors are required to monitor the discussions and related activities to provide guidance and direction. Open-ended discussion boards may be used to further learning and interaction.
- MSJC Communication – Instructor will use MSJC-administered communication tools (such as email or the designated CMS communication tools) to regularly communicate with and provide ease of access to students.
- Timely Feedback - Timely feedback on student work will be provided by the instructor, which may include comments and/or rubrics, within the Grades area of the designated CMS.
- Scheduled Meetings – Hybrid and synchronous courses will meet at regularly scheduled times. ADA Compliance - All course interactions and content must be designed with accessibility in mind and meet ADA requirements.

Cross Listed Course(s)

SOCI-121

C-ID (Admin Only)

C-ID SOCI 125

CB 00

CCC000589399

Course Title

Statistics for Behavioral Sciences

C-ID (Admin Only)

C-ID SOCI 125

Catalog Description

This course covers introductory statistics, emphasizing appropriate applications of statistics in social science research. Topics include basic research design, probability and sampling distributions, descriptive and inferential statistics including Z scores; linear correlation; regression; t-tests; analysis of variance; and chi-square. Students complete psychological experiments, using appropriate technology (e.g., SPSS) to analyze data and report results using APA style. Transfer credit for STAT-C1000 may not be available if taken after PSYC-121 or SOCI-121.



Requisites

Prerequisite(s)

Prerequisite(s) (must be taken before)

Appropriate Multiple Measures placement or completion of Intermediate Algebra meets the prerequisite for this course.

Codes

TOP Code (CB 03)

2003.00 - Behavioral Science

CIP Code

42.2813 - Applied Psychology.

Repeatability Code

No

Grading Option

Letter grade OR P/NP

Minimum Qualifications

Minimum Qualifications	And/Or
Psychology (Masters Required)	Or
Social Science (Masters Required)	Or
Sociology (Masters Required)	End

GE Information

Check GE Types Requested

AA/AS G - Math Competency

Cal-GETC Areas

Approved Cal-GETC Area

AREA-2

Learning Objectives

Learning Objectives

Learning Objective

1. Evaluate data collection procedures, including assessing the diversity and representation of the sample and its relevance to external validity, as well as determining statistical techniques that coincide with that data.
2. Analyze bias and representation in datasets, statistical analyses, and results interpretations, including an assessment of the diversity of the participants and how that counters past incidence of scientific racism/sexism, as well as considering the positionality of the members of the research team and how that may impact their interpretation of the results.
3. Generate and interpret appropriate descriptive and inferential statistics and visual graphics to ensure that such representations of data do not perpetuate biases or exclude marginalized groups.
4. Conduct elementary statistical computations by hand and through the use of statistical software such as SPSS in order to analyze data commonly found in the social and behavioral sciences.
5. Demonstrate familiarity with probability theory, sampling distributions, and the applications to hypothesis testing.
6. Organize, classify, and represent quantitative data in the social and behavioral sciences in various forms: tables, graphs, rates, percentages, measures of central tendency and variation.
7. Distinguish among different scales of measurement and their implications to research design and analysis, including analyzing the shape of distributions and reporting appropriate measures of central tendency and variability given a particular data set.

8. Develop and Calculate inferential statistics to hypothesis testing, using Z scores, Correlational Analyses, t Tests, Analysis of Variance, Regression, and Chi Square, and make appropriate decisions to accept or reject a null hypothesis.
9. Assess the risks of Type I and Type II errors in research and understand the implications to research design.
10. Evaluate and interpret statistical reasoning and conclusions in a written narrative format in accordance with APA formatting and ethics requirements, including those APA guidelines related to inclusive and anti-biased language to respect the diversity of participants within the respective studies.
11. Compare and contrast, identify, and compute parametric and nonparametric statistical tests.
12. Evaluate research designs and determine appropriate inferential techniques, including distinguishing between Experimental vs. Non Experimental Designs, and identifying appropriate Independent Variables, Dependent Variables, Scales of Measurement, and Null and Alternate Hypotheses.

Learning Outcome Information

Course Learning Outcomes

Learning Outcome

1. The student will apply scientific skills to study psychology and the social sciences.
2. The student will be able to apply basic quantitative research methods in psychology and determine the appropriate statistical test for a given data set and hypothesis for social science research.
3. The student will be able to analyze social science research data using statistical software.
4. The student will be able to interpret and communicate their statistical and research findings in APA format.

Content

Course Lecture Content

1. American Psychological Association (APA) Ethics and Research Guidelines
 - a. Ethical Guidelines for Human and Animal Subjects in Research including ways in which research has historically marginalized and/or excluded diverse populations.
 - b. Inclusive Research Processes and Requirements
 - c. Informed Consent and Debriefing
2. Theories, hypotheses, operational definitions, and variables
3. Research Design:
 - a. Correlational studies
 - b. Experiments vs. Non Experimental
 - c. Between Subjects vs. Within Subjects
 - d. Inclusive Research Topics, Teams & Samples
4. Populations and Representative Samples
 - a. Sampling Methods
 - i. Random sampling and simple random sampling
 - b. Control for Sampling Biases
 - c. Sampling Error
5. Types of Data (discrete/continuous)
6. Scales of Measurement (nominal, ordinal, interval, and ratio)
7. Descriptive Statistics
 - a. Frequency graphs and tables (e.g., frequency, relative frequency, and percent)
 - b. Shape of frequency distributions (normal, positively and negatively skewed, bi-modal, etc.)
 - c. Outliers
 - d. Central Tendency (mean, median, mode)
 - e. Variability (variance, standard deviation, interquartile range)
8. Probability and Sampling Distributions
 - a. Rules of probability
 - b. Sample Size, Normal and non-normal distributions

- c. Sampling distributions of mean and proportion
- d. Central Limit Theorem
- 9. Hypothesis Testing & Inferential Techniques
 - a. Logic of hypothesis testing
 - b. Alpha, power, and type I and type II errors
 - c. Null and Alternative Hypothesis
- 10. Analyzing statistical data manually and using commonly used statistical software packages (i.e., SPSS)
 - a. Parametric tests
 - i. Z Scores
 - ii. T Tests
 - 1. Single-sample t-test
 - 2. Paired samples t-test
 - 3. Independent samples t-test
 - iii. Correlation and Regression
 - iv. Analysis of Variance
 - 1. One-way Analysis of Variance
 - 2. Two-way Analysis of Variance
 - b. Non-parametric tests
 - i. Chi-Square Goodness-of-Fit test
 - ii. Chi-Square tests for independence
- 11. Effect size and Confidence Intervals
- 12. APA Ethics, Formatting, and Style Guidelines
 - a. Analyzing Method and Results sections including appropriate tables and graphics
 - b. Interpreting and writing results of statistical analyses, consistent with American Psychological Association (APA) style

Course Lab Content

- 1. Research Design and Analysis
 - a. Design of social science studies to practice application of statistical analyses.
- 2. Data Collection and Analysis
 - a. Gather, input, and screen data to analyze given research questions.
 - b. Control for bias in data gathering, screening, analysis, and interpretation of data
- 3. Statistical Analysis of Social Science Research Data
 - a. Selection, calculation, and interpretation of appropriate statistical analyses for a given research hypothesis.
 - b. Conduct manual Calculations for Descriptive Statistics and Simple Inferential Techniques
 - c. Conduct calculations using Statistical Software Technology for Descriptive Statistics, Simple, and Complex Inferential Techniques.
- 4. Interpretation and Presentation of Results
 - a. Interpret results given appropriate levels of significance, as it relates to the rejection or retention of the null hypothesis.
- 5. Presentation of results
 - a. Production of tables and graphs to display data and statistical analyses in appropriate context.
 - b. Written narrative of results in accordance with APA ethics, formatting, and style guidelines. (i.e., Method and Results Sections).

Methods of Instruction

Method

Activity

Integration

Instructors will design and facilitate activities whereby students can develop the skills necessary to apply their statistical knowledge with mock and/or basic research data through both computations and the use of appropriate statistical software such as SPSS, and presenting their statistical findings in a written narrative format consistent with APA formatting and ethics requirements, and style

guidelines. Narrative analyses should include assessments of the diversity and representation of both the sample and researchers, as well as considering any biases that may impact the validity of the study.

DE Adaptations for MOI

Activities can be adapted via accessible built-in features of a course management system. For example, student-to-student course activities can be facilitated using thematic discussion boards and group assignments. Student to instructor activities can be facilitated through discussion comments, or via email or within the comment section of assignment submission. Class participation in activities will encourage additional comprehension of the course material and allow students to analyze and apply statistical methods used in Psychology and social science research. All facets of this activity will meet accessibility requirements.

Method

Discussion

Integration

Instructor will provide opportunities for students to discuss research designs, common and historical biases that may exist in the design, sampling, or interpretation of results, including the exclusion of historically marginalized populations from samples, research topics, and research teams; as well as discussing skills and application of statistics within psychology and/or their respective disciplines to gain an understanding of the various ways in which these skills can help students become critical consumers of information for their everyday life experiences and future academic and professional careers.

DE Adaptations for MOI

Discussions can be adapted via accessible virtual chat or using built-in features of a course management system. For example, student to student interactions can be facilitated using thematic discussion boards, peer review, and group assignments. Student to instructor discussions can be facilitated through discussion comments, or via email or within the comment section of assignment submission. Class participation in discussions will encourage additional comprehension of the course material and allow students to analyze and apply research methods used in Psychology and social science research.

Method

In-class Exercises

Integration

Students should be given ample opportunity to work with real or mock research data applying the statistical concepts at hand in order to demonstrate their ability to conduct appropriate statistical computations; organize and summarize descriptive statistics with graphs and written presentation of appropriate measures, and interpret the results of such analysis in appropriate written form, consistent with APA ethics, formatting, and style guidelines.

DE Adaptations for MOI

For online classes, these in class activities can be facilitated through Discussion Forums, as Assignments, or as quizzes within the CMS. Instructors may use virtual chats available through the CMS to facilitate a peer to peer discussion board, or a discussion forum with an activity they complete individually and discuss as a group. Student to instructor discussions can be facilitated within the comment section of assignment submission. Class participation in discussions will encourage additional comprehension of the course material and allow students to examine and describe critical elements of social science research methodology. All instructor posted materials must meet accessibility guidelines. All facets of this activity will meet accessibility requirements.

Method

Individualized Instruction

Integration

Instructors will guide students in the independent analysis of a research study, including identifying variables and outlining operational definitions, collecting the necessary data to run the analysis, selecting the appropriate statistic that aligns with the research design and type of data collected, drawing inferences about the hypothesis based on the statistical results, and presenting their findings in written or oral format consistent with APA ethics, formatting, and style guidelines.

DE Adaptations for MOI

Individualized instruction can be adapted via accessible built-in features of a course management system. For example, student-to-student communications and assistance can be facilitated through discussion boards and group CMS page collaborations. Instructor

to student individualized instruction can be facilitated through discussion comments, rubric comments, or CMS Inbox, or within the comment section of assignment submission. Individual instruction will further enrich comprehension of the course material and allow students to analyze and apply statistical methods used in Psychology and social science research. All facets of this activity will meet accessibility requirements.

Method

Lab Activities

Integration

Instructor will demonstrate the design of research studies, the collection of data, the input of data into appropriate statistical software such as SPSS, the screening of such data, the descriptive and inferential processes used to analyze the data, the interpretation of the statistical output in order to address the original research question within the context of the demographics of population of interest, the construction of a results section to present the analysis and findings consistent with APA requirements. Students will then be given ample practice opportunities in order to develop these skills independently. Activities should include individual and group activities.

DE Adaptations for MOI

All activity submissions can be facilitated through Discussion Forums and assignment submissions within the CMS. Using Discussion Forums for this type of assignment allows students to view each other's work, which can enhance their own learning of the content, as well as inspire additional ideas about how they may consider organizing and presenting their ideas in future assignments. Depending on the format, (individualized vs. collaborative) video and closed captioning features can be used when appropriate. Individualized activities can contribute to the metacognitive development of students and the awareness of their perceived competency of course content. All instructor materials, including instructional content, assignment instructions, and feedback must meet accessibility guidelines. All facets of this activity will meet accessibility requirements.

Method

Lecture

Integration

Lectures, with supporting visual materials, will present terms, concepts, research designs, formulas, assumptions, and other information related to Behavioral Statistics. For example, an instructor may present a lecture on the structure and requirements of an experimental design, addressing the requirement of control and manipulation for those designs, the ability to use experimental designs to test cause and effect relationships, a discussion of the Independent and Dependent Variables, the difference between the Control and Experimental Group, and how to identify the specific variables within a study. Lecture may also include a discussion of the Statistical Techniques that correspond with such designs including T Tests, ANOVA, or others, as is appropriate for the research question and appropriately representing statistics accurately to ensure that biases are not perpetuated through misrepresentation or incomplete representation. Relevant images, sample research studies, and practice questions should be included in order to support student learning for this complex concept.

DE Adaptations for MOI

Lectures will be posted in an electronic format within the CMS, with appropriate closed captioning and other accessibility requirements needed.

Method

Observation and Demonstration

Integration

Students will be assigned statistical problems allowing them to observe the methods used to solve those analyses, and then provide similar problems whereby students can now demonstrate their ability to solve such problems. This will include hand computations, and the use of appropriate statistical software such as SPSS.

DE Adaptations for MOI

Observation and Demonstration assignments can be facilitated within the CMS. Instructors can provide statistical problems for evaluation and application in discussion forums, assignments, as well as quiz assessment functions. All instructor material used will meet accessibility guidelines.

Method

Reading

Integration

Students will be assigned readings from textbook and supplemental research articles to learn about the various statistical concepts and the ways in which they are applied within the context of social science research.

DE Adaptations for MOI

Readings can be facilitated within the CMS. Instructors can provide statistical case study problems for evaluation, primary, peer-reviewed research articles, and other reading resources to students within the CMS. Internal reading file links and external articles links can be made available to students within the CMS. All instructor material used will meet accessibility guidelines.

Method

Film/video Viewing and Discussion

Integration

Audio-visual materials will be utilized to enhance students' learning experiences as part of a cohesive review of the various topics that apply to Behavioral Statistics. Research case histories and videos of historical studies and documentaries related to research processes and ethics may be presented through video. Video clips and films allow students to observe methods, processes, and other factors relevant to experimental psychology, while also observing and assessing other individual, social, cultural, and environmental influences on social science research.

DE Adaptations for MOI

Online courses will include video clips and/or films on course content. These video clips and/or films can be delivered synchronously through video conferencing software or asynchronously through the CMS. Video clips and/or film materials such as accessible digital slide presentations, closed caption videos, or links to external articles may be incorporated to supplement lectures and made available to students within the CMS. All instructor material used will meet accessibility guidelines.

Methods of Evaluation**Method**

Class Work

Integration

Students should have ample opportunity to practice applying the statistical techniques by way of manual computations and through the use of statistical software such as SPSS, with guidance and feedback from the instructor. Assessment can be based on completing the assigned work and/or applying the skills needed for the assignments, and/or the competency with which students are demonstrating the necessary skills.

DE Adaptations for MOE

All class work submissions can be facilitated through Discussion Forums and assignment submissions within the CMS. Depending on the format, (individualized vs. collaborative) video and closed captioning features, and image accessible descriptions, can be used when appropriate. Using Discussion Forums for this type of assignment, allows students to view each other's work, which can enhance their own learning of the content, as well as inspire additional ideas about how they may consider organizing and presenting their ideas in class work. Individualized class work can contribute to the metacognitive development of students and the awareness of their perceived competency of course content and identify areas for further content exploration. All instructor materials, including instructional content, assignment instructions, and feedback must meet accessibility guidelines. It is recommended that feedback be provided within two weeks. Additional time may be needed for more complex assignments.

Method

Exams/Tests

Integration

Exams and tests should be administered throughout the course to assess the students knowledge in selecting the appropriate statistical technique that corresponds with a given research design, accurately calculating the statistics using hand computations

and within SPSS statistical software, and accurately interpreting that data with the ability to identify patterns in the data that reflect disparities across groups, to answer research questions, while citing appropriate descriptive and inferential statistics. All results should be presented consistent with APA ethics and formatting requirements, including explicit descriptions of inclusion and exclusion criteria used in the sampling methods to ensure diverse and representative samples.

DE Adaptations for MOE

Exams and/or tests administered fully online will be administered, graded, and evaluated through CMS. Exams/tests will be evaluated based on the demonstration of identification, understanding and application of major topics as described in course content in alignment with learning objectives. Exams will be administered in an equitable fashion in true or false, multiple choice, fill-in-the-blanks, and short answers questions. This provides an equitable opportunity for all students. Exams will be submitted to the online grading system within the CMS. Exams will be graded, be evaluated based on accuracy and completeness and students will receive feedback within 2 weeks, via the grade book, chat, or other accessible conferencing tools. Additional time may be warranted depending on the type and complexity of the exam. All facets of this activity will meet accessibility requirements.

Method

Homework

Integration

Instructors can assess students' skills through the use of regular homework assignments whereby students are applying the skills learned in class. Homework can be assessed based on the demonstrated progress in the application of these skills and/or correctness of the responses to the assigned problems.

DE Adaptations for MOE

Homework will be assigned and submitted through the course management system (CMS). Depending on the format, (individualized vs. collaborative) video and closed captioning features, and image accessible descriptions, can be used when appropriate. Using Discussion Forums for this type of assignment, allows students to view each other's work, which can enhance their own learning of the content, as well as inspire additional ideas about how they may consider organizing and presenting their ideas in class work. Using the assignment submission feature, students can submit their individual homework assignment for review. Feedback and grading comments by peers and/or the instructor can be facilitated through the CMS using the Discussion, grading comments, and/or messaging features within the CMS. It is recommended that feedback be provided within 2 weeks based on the criteria outlined with the assignment or within an accompanying rubric. Additional time may be needed based on the depth and complexity of the assignment. All submissions and feedback must meet accessibility guidelines.

Method

Other

Integration

After scaffolding students in the development of these skills, instructors can assess mastery of concepts and accurate application of research design, statistics, and presentation of findings consistent with APA requirements by evaluating how well students conducted and interpreted data analyses as part of course requirements, including application of diversity, equity, and inclusion considerations in our data collection and analysis. These other activities can be assessed as participation and completion as a means to engage students with the course content.

DE Adaptations for MOE

Other methods of evaluation can be facilitated through the CMS. Depending on the format, (individualized vs. collaborative) video and closed captioning features, and image accessible descriptions, can be used when appropriate. Using Discussion Forums for this type of assignment, allows students to view each other's work, which can enhance their own learning of the content, as well as inspire additional ideas about how they may consider organizing and presenting their ideas in class work. Using the assignment submission feature, allows students to submit their individual application of research design and statistics for review. Feedback and grading comments by peers and/or the instructor can be facilitated through the CMS using the Discussion, grading comments, and/or messaging features within the CMS. It is recommended that feedback be provided within 2 weeks based on the criteria outlined with the assignment or within an accompanying rubric. Additional time may be needed based on the depth and complexity of the assignment. All submissions and feedback must meet accessibility guidelines.

Method

Papers

Integration

Writing assignments should be integrated to serve as assessments of the application of course content and critical thinking skills including allowing students to practice identifying variables and hypotheses; differentiate between experimental and nonexperimental research; design their own studies; determine which statistical technique is appropriate based on the research design and type of data; and/or write results to studies consistent with APA formatting. Examples of writing assignments may include statistical reports using American Psychological Association (APA) style, written homework, journals, responding to published articles in the press and in peer review journals, etc. Written assignments will be assessed based on accuracy, clarity, content, and the depth with which concepts are addressed in a qualitative manner. Sample papers and rubrics are recommended.

DE Adaptations for MOE

Group or individual papers will be assigned and submitted through the course management system (CMS). Students can communicate with peers and the instructor through the discussion boards and inbox of the CMS. The student will also be evaluated on their writing skill as well as their adherence to the APA format in their completed research assignment. Students may be required to present their results through the creation of a slide presentation, a written report, or a live video conference and the presentations may be made available to the entire class, with student approval, through the CMS. Research projects will be submitted via the CMS to allow for feedback and grading by the instructor. It is recommended that feedback be provided within 2 weeks either through comments posted on the assignment or within an accompanying rubric. Additional time may be needed based on the depth and complexity of the assignment. All papers/essays, submissions, and feedback must meet accessibility guidelines.

Method

Group Projects

Integration

Instructors can assess global competency of the subject by having students design a basic research study, collect and analyze the data from the study, and present their findings in a research paper consistent with APA formatting requirements. Research projects will be evaluated based on the accuracy with which students are applying the research principles and practices learned in class, and the quality of the written materials submitted.

DE Adaptations for MOE

Group or individual research projects will be assigned and submitted through the course management system (CMS). Students can communicate with peers and the instructor through the discussion boards and inbox of the CMS. The student will be evaluated on their research design, research ethics, writing and presentation skills, as well as their adherence to APA guidelines. Students may be required to present their research findings through the creation of a slide presentation, a written report, or a live video conference and the presentations may be made available to the entire class, with student approval, through the CMS. Feedback and grading comments by peers and/or the instructor can be facilitated through the CMS using the Discussion, grading comments, and/or messaging features within the CMS. It is recommended that feedback be provided within 2 weeks based on the criteria outlined with the assignment or within an accompanying rubric. Additional time may be needed based on the depth and complexity of the assignment. All final research projects can be submitted directly to the CMS using plagiarism checks where appropriate. All papers/ essays, submissions, and feedback must meet accessibility guidelines. All instructor/student communication must conform to accessibility and confidentiality guidelines.

Assignments

Assignment Type

Reading

In-class and/or outside of class

In-class

Outside of class

Formative or Summative

Formative

Assignment

Read the following article: Cui, Kam, Cheng, & Liu (2022). Exploring the factors relating to academic resilience among students with socioeconomic disadvantages: Factors from individual, school, and family domains. *Psychology in the Schools*, 60, 1186 - 1201. Critically evaluate the article and identify the type of study, the variables, the scales of measurement, the diversity and representation

of the sample, the statistical analyses used, the interpretation of those analyses, potential biases and/or generalization of the findings, and other related factors as discussed in lecture.

Read the assigned chapter in the course text and then answer the complete the following hand calculations for quantitative measures of central tendency and variability for the class dataset. Interpret the calculated descriptive statistics using formal writing adhering to APA writing style.

Using the MSJC Library Database, locate and analyze an empirical study related to a social or cultural group with which you identify. Critically evaluate the article and identify the type of study, the variables, the scales of measurement, the statistical analyses used, the interpretation of those analyses, potential biases and/or generalization of the findings, and other related factors as discussed in lecture.

How assignment will be adapted in online format

All assignments will be assigned, submitted, and graded through the course management system (CMS), using available plagiarism checkers where appropriate. Online courses should make course material, including assignment instructions, supplemental resources, website links, etc., available to students through the CMS. Students will submit the assignment through the CMS and will be provided with instructor feedback through the grade book function, messaging, or other forms of confidential communication within 2 weeks of submission. Additional time may be warranted given the depth and complexity of the assignment. Any material for students and communications must meet accessibility guidelines.

Assignment Type

Other

In-class and/or outside of class

In-class

Outside of class

Formative or Summative

Formative

Assignment

As a data analyst team, extract 30 cases of data from a public source. For example, batting averages of Major League Baseball, Yelp restaurant ratings, daily temperatures for a month, or a data set relevant to your own interests and/or cultural backgrounds. Create a new SPSS dataset file. Verify data entry accuracy and dataset completion. Once data is verified, run the appropriate descriptive statistics, frequency chart, and frequency graph for the data. Interpret the descriptive statistics using formal APA style writing and explicitly address the shape and spread of the distribution, and include the central tendency, variability and skewness results in your summary. Using our course survey data set that includes sample demographics, Learning Style Assessment, Self-Efficacy in Statistics and Political Attitudes, calculate the appropriate descriptive statistics based on their level of measurement, for Gender Identity, Race/Ethnic Identity, Age, Student Learning Styles, Self-Efficacy in Statistics and Political Attitudes. Using a Z-score analysis conduct a hypothesis test comparing your individual score to the class sample average. How do you compare?

How assignment will be adapted in online format

All assignments will be assigned, submitted, and graded through the course management system (CMS), using available plagiarism checkers where appropriate. Online courses should make course material, including assignment instructions, supplemental resources, website links, etc., available to students through the CMS. Students will submit the assignment through the CMS and will be provided with instructor feedback through the grade book function, messaging, or other forms of confidential communication within 2 weeks of submission. Additional time may be warranted given the depth and complexity of the assignment. Any material for students and communications must meet accessibility guidelines.

Assignment Type

Writing

In-class and/or outside of class

In-class

Outside of class

Formative or Summative

Summative

Assignment

Prepare a written summary of a data set, along with the corresponding results that summarizes the descriptive statistics in paragraph form using formal writing and formatting statistics consistent with APA ethics, formatting, and style requirements. For scale (interval and ratio) variables include the M, SD, n, Minimum and Maximum descriptive statistics in the write up. For categorical variables (nominal and ordinal) include the frequency %, reporting highest to lowest percent, and n (total number of participants that responded to that item).

How assignment will be adapted in online format

All assignments will be assigned, submitted, and graded through the course management system (CMS), using available plagiarism checkers where appropriate. Online courses should make course material, including assignment instructions, supplemental resources, website links, etc., available to students through the CMS. Students will submit the assignment through the CMS and will be provided with instructor feedback through the grade book function, messaging, or other forms of confidential communication within 2 weeks of submission. Additional time may be warranted given the depth and complexity of the assignment. Any material for students and communications must meet accessibility guidelines.

Assignment Type

Other

In-class and/or outside of class

In-class

Outside of class

Formative or Summative

Formative

Assignment

Given a set of data and a corresponding research question, enter the data into SPSS and analyze the data using the appropriate statistical technique, evaluate the implications for the hypothesis, and present the findings by way of a written results sections consistent with APA formatting.

How assignment will be adapted in online format

Online courses should make course material, including assignment instructions, supplemental resources, website links, etc., available to students through the CMS. Students will submit the assignment through the CMS and will be provided with instructor feedback through the grade book function, messaging, or other forms of confidential communication within 2 weeks of submission. Additional time may be warranted given the depth and complexity of the assignment. All Instructor material and communications must meet accessibility guidelines.

Course Materials**Textbooks**

Frankfort-Nachmias, C., Leon-Guerrero, A., Davis, G. (2024). Social Statistics for a Diverse Society, 10th Edition. Sage Publications. 978-1-07-191050-4

Nesselroad, K. P., Grimm, L. G. (2024) Essentials of Behavioral and Social Science Statistics 3rd Edition, Wiley Publishing, ISBN-13: 978-1394184101

Pivitera, G. J. (2023) Statistics for the Behavioral Sciences, 4th Edition, ISBN-13: 978-1544362816

Other Resources

American Psychological Association (2020). American Psychological Association. Publication Manual of the American Psychological Association, 7th Edition. 978-1433832154

Open Educational Resources

Cote, L. R., Gordon, R., College, A., Randell, C. E., Schmitt, J., & Guerra, R. (2024) Introduction to Statistics in the Psychological Sciences University of Missouri - St. Louis Open Source Textbook

Davies, C. & Carmarthen, W. (2021) A quick guide to quantitative research in social sciences. University of Wales Trinity Saint David Open Educational Resource

Class Size Information

Class Size

35

Class Size Category

B - Facilitated learning 35

Diversity and Inclusion

Course Design and Materials: Course will incorporate diverse perspectives, authors, and examples that reflect a variety of cultures, identities, and lived experiences. Instructional materials will be reviewed regularly to ensure representation, inclusivity, and alignment with equity-minded practices across disciplines.

Inclusive Learning Environment: Instructors will establish classroom norms and policies that promote respect, civil discourse, and belonging in both online and face-to-face classes. Clear expectations for communication and engagement will support a learning space where all students feel valued and heard.

Accessible Instruction: Course content will be delivered using accessible design. Materials will follow accessibility guidelines within the CMS, including captioned media, readable document formats, and multiple means of engagement to support diverse learning.

Equitable Teaching Practices: Instructors will use transparent and grading criteria, varied assessment methods, and timely feedback to promote fairness and student success. Opportunities for revision, reflection, and multiple demonstrations of learning may be incorporated when appropriate to the discipline.

Culturally Responsive Pedagogies: Instructional strategies will encourage critical thinking about diverse perspectives and systems of power relevant to the course content. Faculty will foster opportunities for students to connect course material to real-world contexts.

Ongoing Reflection and Improvement: Faculty will engage in continuous professional development related to IDEAA principles and reflect on course practices using metacognition to identify opportunities for increased equity, inclusion, and accessibility.

Explain how diversity and inclusion(e.g., gender, culture/race, sexuality, etc.) is infused into the course.

Behavioral Statistics is an applied course that allows students to conduct statistical analyses within the context of social science research examining individual, social, or cultural factors that may contribute to differences in experiences, perceptions, and functioning. The content itself does include addressing research ethics consistent with the American Psychological Association, which does include utilizing representative samples and inclusive research practices. Furthermore, they are required to learn the value of conducting research as teams with diverse identities and perspectives contributing to the design of research questions and the interpretation of those findings through a more inclusive lens as part of their student to student interactions.

Demographics are always collected for every sample and students are expected to analyze those demographics as part of their presentation of the research. They are also able to use that data as a participant variable and explore differences between groups that may affect their outcome variable. All of these things help contribute to the development of students such that they are more likely to use inclusive practices in their own research, generate research topics that relate to diverse communities, ensure they are studying diverse and representative samples, and interpret the data through a more culturally informed lens as part of a diverse research team.

Describe how assignments, instruction, evaluation, course content, and interactions are contextualized for diverse learners promoting an equitable course.

Instruction will incorporate culturally relevant course materials using both formative and summative assignments with an emphasis on scaffolding to enable students to gain familiarity with appropriate research and statistics concepts that allow them to propose studies, test hypotheses, and analyze the inferential statistics to answer the specific research questions related to social science, while adhering to APA Code of Ethics. This process provides students direct experience scientifically analyzing the individual, social, and cultural factors that impact human behavior and psychological functioning.

Additionally, the course utilizes a variety of instructional methods, assessments, and assignments in order to provide a variety of approaches that support diverse learning styles and allow students to demonstrate their learning through a variety of methods. This variation not only supports diverse learning styles, but also increases accessibility and engagement for neurodiverse students.

Furthermore, the applied requirements of the course are evidence based practices to increase success outcomes for diverse students, which have been historically marginalized in higher education in accordance with APA ethics, formatting, and style.

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Interactions

Explain how the course will incorporate student-to-student interaction.

This course facilitates student-to-student interaction through in-class interactive activities, discussions, and collaborative student activities and assignments in and outside of class. Students will analyze, discuss, critique and conduct statistical data related to psychology and other social sciences in individual and group format. Both instructional methods and assignments will encourage group activities to allow for collaborative discussion, critique, analyses, and application of content to support student learning and skill development as statisticians and researchers. Group activities are expected to foster community, professionalism, responsiveness, strengths-based team partnerships, and encourage student connection with the material and one another. They also expose students to the facets of research teams, statistical analysis, and peer review processes used in the production and publication of scholarly research.

Explain how the course will incorporate instructor-to-student interaction.

The course will utilize an applied lab approach to enhance knowledge and promote skill development as statisticians and researchers. In addition to providing lectures that deliver content to students, instructors will also serve as facilitators whereby they will demonstrate relevant statistical skills including computations and instructions for students to utilize appropriate statistical software (i.e., SPSS). Furthermore, instructors will engage students on an individual and group basis in order to address questions and provide individualized instructions as needed for assignments, projects, and other class activities. Instructional support is offered to help students expand their understanding and analysis of the content and guide lab activities that offer students more hands-on opportunities to learn and apply statistical concepts. Additionally, the instructor will scaffold the learning of the content and development of research and statistical skills critical to their success in the field of psychology and other social science fields.

Explain how the course will incorporate student-to-content interaction.

Student-to-content interaction will be achieved through the assigned readings and assignments, such as analyzing empirical research articles on data visualization ethics and reviewing case studies of statistical misrepresentation in the media. Students will also interact with the content through practical lab activities, such as creating and evaluating statistical graphs using real-world datasets to identify potential biases or areas of misrepresentation. Applied learning activities, like group discussions on the interpretation of statistical results in social science research, will allow students to deepen their understanding of how quantitative statistics relate to diverse contexts. Class and homework activities, including weekly problem sets and collaborative data analysis projects, will contribute to the students' learning as they apply course concepts, critical thinking, and problem-solving skills in an applied statistics extensive lab setting. In addition, student research papers will reflect their understanding of content, including the clarity of descriptive and inferential statistics, as they critically analyze and present data from both a technical and an ethical perspective. These papers will also highlight additional opportunities for growth as a research statistician and scientific writer, particularly in considering how statistical practices can promote or hinder diversity, equity, and inclusion in research and in career settings.

Explain how the course will incorporate student-to-self interaction (metacognitive).

Taking notes during readings, lectures, and lab activities will allow student-to-self interaction. This will allow them to assess their understanding and identify areas needing added clarification. For example, students can calculate a practice problem to apply core formulas and statistical concepts to a practice dataset and then follow a series of open-ended reflection prompts to have them internally assess how they feel about their mathematical process as well as identify how confidence are in their ability to carry out the necessary steps to calculate a formula or carry out a statistical analysis using statistical software. Writing assignments such as journals and thought papers will also help students with their metacognition. For example, students could answer metacognitive prompts like, "When I think about this problem, I..." or "One statistical concept I am confident about is..." which encourages integrative inquiry into their learning experiences. Integrate inquiry is the process by which a person explores, from a place of curiosity, their thoughts, feelings, attitudes and skill set related to a topic. Student-to-self interaction can also be achieved through the use of in-class and online discussions (both synchronous and asynchronous) where students will be expected to write their thoughts first before sharing them in both small group and large group discussions. Additionally, reflection activities will be utilized to help students consider their understanding of the material, themselves, their learning process, and the diversity of experiences that contribute to their performance and overall success. For example, students could respond to an open-ended prompt such as: "Give an example of a hypothesis you could test and answer using the scientific skills related to a topic in psychology or another related social science." Students can also engage in quantitative ethnographic statistical analyses, such that they complete a series of self-assessments for various psychological constructs and then write up the quantitative statistics using formal writing and interpret their self-assessment scores in comparison to a sample of their peers, an overall population of college students or similar.



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