

COURSE SYLLABUS

Lewis & Clark College
Graduate School of Education and Counseling

Course Name	Research Methods and Statistics II
Course Number	CPSY 531 Section 2
Term	GS/21
Department	Counseling Psychology
Textbooks/Materials	Frankfort-Nachmias, C., Leon- Guerrero, A., & Davis, G. (2021). <i>Social Statistics for a Diverse Society (9th Ed)</i> Thousand Oaks: Sage.
Faculty Name	Carol Doyle
Faculty Phone/E-mail	503 768-6067 cdoyle@lclark.edu
Faculty Office	Rogers Hall 317
Advising Hours	Tues, Thurs, by appt Friday 10:00 – 1:00

Catalogue Description:

Research design and data analysis, inferential statistics. Simple and complex designs, normal distribution, z-test, t-test, analysis of variance, statistical power, simple regression. Overview of nonparametric and multivariate analysis.

Course Description:

This course covers the descriptive and inferential statistics practitioners need for use in their practices. Focus is on understanding and application of basic descriptive and inferential statistics, appropriate interpretation of statistical results, and real-world presentation of data.

Course Goals and Objectives:

The primary goal of this class is to have students gain a conceptual and computational understanding of basic descriptive and inferential statistics as well as developing skill in interpreting those results. An additional goal includes include further understanding of the research process, including issues surrounding measurement, which will allow students to critically analyze instruments used and published research. These skills will also help students conduct independent research.

The objectives are to provide opportunities to learn and apply the skills necessary to appropriately conduct and interpret basic statistical analyses. Emphasis will be on: data processing, data analysis, appropriate use and interpretation of statistical tests, drawing conclusions from data, validity of conclusions, reporting results, discussion of results, and critiquing research.

By the end of the semester students will be able to

- Define, operationalize, and measure constructs
- Identify and compute descriptive statistics
- Identify data analysis appropriate for different types of research designs.
- Understand the hypothesis testing process
- Write research and null hypotheses
- Understand and compute basic inferential statistics
- Use the computer to perform descriptive and inferential statistical analysis
- Understand and compute reliability analyses

- Draw appropriate conclusions from data analysis
- Use APA style to write up results of statistical analyses.
- Understand the research process and use this understanding to identify strengths and weakness of published research.

From the NASP standards

The following NASP domains are addressed in this course:

2.1 Data-Based Decision Making and Accountability

School psychologists have knowledge of varied models and methods of assessment and data collection for identifying strengths and needs, developing effective services and programs, and measuring progress and outcomes.

2.5 School-Wide Practices to Promote Learning

School Psychologists have knowledge of school and systems structure, organization, and theory; general and special education; technology resources; and evidence-based school practices that promote learning and mental health.

2.9 Research and Program Evaluation

School psychologists have knowledge of research design, statistics, measurement, varied data collection and analysis techniques, and program evaluation sufficient for understanding research and interpreting data in applied settings.

From ACA: Goal Statement

The professional counselor is able to conduct research; interpret clearly the implications of research data to professional staff members, parents, students, clients, referral agencies, and community resources; and use the results in counseling and in program evaluation, program development, and program revision. (Engels, D.W. & Associates (2004). *The professional counselor. Portfolio, competencies, performance guidelines and assessment.* (3rd ed.) Alexandria, VA: American Counseling Association

Course Calendar:

See attached below

Required Texts:

Frankfort-Nachmias, C., Leon- Guerrero, A., & Davis, G. (2021). *Social Statistics for a Diverse Society (9th Ed)* Thousand Oaks: Sage.

American Psychological Association (2019). *Publication manual of the American Psychological Association.* (7th Ed.). Washington, DC: American Psychological Association.

Supplementary Texts & Workbooks

Statistical Analysis in JASP: A Guide for students

Green, S.B. & Salkind, N.J. (2011). *Using SPSS for Windows and Macintosh: Analyzing and Understanding Data.* (6th Ed.). Upper Saddle River NJ: Prentice Hall

Leong & Austin (1996). *The psychology research handbook. A guide for graduate students and research assistants.* Thousand Oaks, CA: Sage Publications

Cone, J.D. & Foster, S.L. (1993). *Dissertations and theses from start to finish*. Washington, DC: American Psychological Association.

Course Requirements: See below

CPSY Departmental Attendance Policy/Requirements:

Class attendance is expected and required. Any missed class time will be made up by completing extra assignments designed by the instructor. Missing more than ten percent of class time *may* result in failure to complete the class. This would be 4.5 hours of a 45 hour class (3 credits), 3.0 hours for a 30 hour class (2 credits) or 1.5 hours for a 15 hour class (1 credit.) In case of extreme hardship and also at the discretion of the instructor, a grade of incomplete may be given for an assignment or the entire course. In such cases, the work to be submitted in order to remove the incomplete must be documented appropriately and stated deadlines met. Students are expected to be on time to class and tardiness may be seen as an absence that requires make-up work.

One absence without arrangement or explanation, 2nd absence requires a make-up of class assignments, an additional assignment (such as an additional write up or an article summary) and explanation.

Assignments: The graded requirements of the course differ slightly depending on your program. Overall the requirements of the course include: in class & computer assignments, homework assignments, research write-ups; and a program evaluation project(s) and/or thesis development.

See attached for specific assignments and points

Evaluation and Assessment:

Each assignment will be graded via a point system. Generally speaking, the following grades can be associated with the points for each assignment and for the final grade

91% of points possible	-	A
90% points possible	-	A-
88 – 89% or points possible	-	B+
83 - 87% of points possible	-	B
80 – 82% points possible	-	B-
78 – 79% or points possible	-	C+
73 - 77% of points possible	-	C
70 – 72% of points possible	-	C/No Credit-
Less than 70%	-	D/F No Credit

Please note that if the basic requirements for an assignment (aside from the homework) the points given will be associated with a B⁺. If one exceeds the requirements of the assignment there point total will improve accordingly. Similarly, if the assignment does not meet the requirements point total will decrease accordingly. The points associated with each assignment are attached.

Late papers and assignments: Any assignments turned in late (without previous permission) will automatically receive a 10% reduction in grade.

Accommodations for Students with Special Needs and/or Disabilities:

If you have a disability that may impact your academic performance, you may request accommodations by submitting documentation to the Student Support Services Office in the Albany Quadrangle (x7156). After you have submitted documentation and filled out paperwork there for the current semester requesting accommodations, staff in that office will notify me of the accommodations for which you are eligible. Please notify me of any special learning considerations that I should be aware of so that we can work together to make the appropriate accommodations.

Authorization Levels: all

Partial Bibliography:

- Cone, J.D. & Foster, S.L. (1993). *Dissertations and theses from start to finish*. Washington, DC: American Psychological Association.
- Faherty, V.E. (2008). *Compassionate Statistics. Applied Quantitative Analysis for Social Services*. Thousand Oaks, CA: Sage.
- Galvan, J.L. (2006). *Writing Literature Reviews (3rd Ed.)* Los Angeles: Pyczak Publishing.
- Heppner, P.P., Kivlighan, D. M., & Wampold, B.E. (2008). *Research Design in Counseling (2nd Ed.)*. Pacific Grove, CA: Brooks/Cole.
- Holcomb, Z.C. (2007). *Interpreting Basic Statistics (5th Ed.) A Guide and Workbook Based on Excerpts from Journal Articles*. Los Angeles: Pyczak Publishing.
- Holcomb, Z.C. (1997). *Real data. A statistics workbook based on empirical data*. Los Angeles: Pyczak Publishing.
- Holcomb, Z.C. (2007). *SPSS Basics: Techniques for a First Course in Statistics (3rd Ed.)* Los Angeles: Pyczak Publishing
- Pryzak, F. (2008). *Evaluating Research in Academic Journals (4th Ed.)* Los Angeles: Pyczak Publishing.
- Patten, M.L. (2009). *Understanding Research Methods (7th Ed.)* Glendale CA: Pyczak Publishing
- Mertler, C.A. & Vannatta, R. A. (2005). *Advanced and Multivariate Statistical Methods. Practical Application and Interpretation (3rd Ed.)* Glendale, CA: Pyczak Publishing
- Rosenthal, J.A.(2001). *Statistics and Data Interpretation for the Helping Professions*. Belmont, CA: Wadsworth/Thompson Learning
- Rubin, A. (2007). *Statistics for Evidence-Based Practice & Evaluation*. Belmont, CA: Wadsworth/Thompson Learning
- Salkind, Neil J. (2014). *Statistics for People Who (Think They) Hate Statistics (5th Ed)*. Thousand Oaks, CA: Sage.

Spring Semester 2021 Tasks & Assignments*

<u>School Psychology*</u>		<u>Thesis Students*</u>	
Homework (2 components)	115	Homework	115
Class Participation/In Class Assignments	100	Class Participation/Assignments	110
Statistical Test write-ups	90	Statistical Test s write-ups	90
"Evaluation" Grp Project	45	Thesis Method Section	35
Instrument Development (5)		Methods Section (30)	
Process and Product (40)		Thesis Presentation (5)	
'Final' (Take Home)	50	'Final' (Take Home)	50

*The assignments and points may change as the semester progresses

Final grades will be based on 400 points and will be distributed as follows:

364 and above	(91% of total points)	-	A
360 - 363	(90% of total points)	-	A-
352 - 359	88% or total points)	-	B+
332 -351	(83% of total points)	-	B
320 - 331	(80% of total points)	-	B-
Below 320	(less than 80% of total points)		C/No credit
Below 280	(less than 70% of total points)		D/F -/No Credit

Tentative Class Schedule/Important Dates Spring 2021

<u>Date</u>	<u>Tentative Topics</u>	<u>Tentative In Class Exercise</u>	<u>Readings for Class</u>	<u>Hmwk/ Assignment Due Date</u>	<u>Points</u>
Jan 14	Overview of class Review of Research Methodology Research paradigms Types of Research Measurement concepts Scales of measurement Intro to JASP		In class resources Paradigms methods & methodology article Chap 1		Class participation

<u>Date</u>	<u>Tentative Topics</u>	<u>Tentative In Class Exercise</u>	<u>Readings for Class</u>	<u>Hmwk/ Assignment Due Date</u>	<u>Points</u>
Jan 21	Graphical Presentation of Data Tables, Figures Charts Operationalization in depth	Working with data in JASP Begin Pre-Post Assessment Development	Review Ch 1 Chapter 2 Reread Chap 1 Skim 3-4	Homework 1 Due Notecards Due	8 pts 3 pts
Jan 28	Review of descriptives Univariate Descriptives Central Tendency Variability Bivariate Descriptives Correlation	Descriptives Reliability and Validity	Ch 3-4 Ch 12 p. 421 Additional readings	Homework 2 due Notecards Due	8 pts 4 pts
Feb 4	Bivariate Analysis Introduction to Hypothesis testing Choosing the Correct Test Measures of Association Chi Square	Finalize Ron Russell Assessment Crosstabs	Ch 9 & 10	Homework 3 due Notecards Due	8 pts 3 pts
Feb 10	First DATA Collection				
Feb 11	Normal Distribution Interpreting Scores Review of Norms	Normal Curve	Ch 5	Homework 4 Due Notecards Due <i>Chi square write up due</i>	15 pts 3 pts 25 pts
Feb 18	Sampling Statistics & Parameters Sampling Distributions	Sampling Distribution of Means	Ch 6	Homework 5 due Notecards due	8 points 3 pts

<u>Date</u>	<u>Tentative Topics</u>	<u>Tentative In Class Exercise</u>	<u>Readings for Class</u>	<u>Hmwk/ Assignment Due Date</u>	<u>Points</u>
	Distribution of Means				
Feb 24	Introduction to Inference Estimation Confidence Intervals SEM	Confidence Intervals	Ch 7	Homework 6 due Notecards due	8 pts 3 pts
March 4	Hypothesis Testing Hypothesis of Difference Z test Independent t-tests	Indep t	Ch 8	Homework 7 due Notecards due	8 pts 3 pts
Mar 11	ANOVA Post Hoc Tests Effect Size	ANOVA	Ch 11	Homework 8 due Notecards due <i>Independent t write up due</i>	8 points 3 pts 30 pts
Mar 18	Factorial ANOVA	Factorial ANOVA	Additional Readings	Notecards due	3 pts
Mar 25	<i>Spring Break</i>	<i>Spring Break</i>			
Apr 1	Hypo of Association Correlation/Regression Correlational Research – Scattergrams Regression – Predicting relationships (if time)		Chap 12	Homework 9 due Notecards Due <i>ANOVA/ Factorial write-up due</i>	8 pts 3 points 35 pts
Apr 08	Before-After Designs Paired T-tests Within Ss ANOVA	Paired t W/in Ss ANOVA	Additional Readings (Sprinthall)	Homework 10 due Notecards Due	8 pts 3 pts
APRIL 14	Final DATA Collected				
Apr 15	Bring Weekly Group Data to class	Work on Presentations			

<u>Date</u>	<u>Tentative Topics</u>	<u>Tentative In Class Exercise</u>	<u>Readings for Class</u>	<u>Hmwk/ Assignment Due Date</u>	<u>Points</u>
	Bring Pre-Post Data to class Thesis updates Complete Analysis/Prep for Presentations	Work on Methods Sections			
April 22	Final Class Meeting Thesis Presentations Thesis Proposals/Methods sections due School Psychs – Ron Russell Presentations Reflections				40 pts 5 pts 30 pts
April 29	Exam due				50 points