

COURSE SYLLABUS

Lewis & Clark College
Graduate School of Education and Counseling

Course Name	Research Methods and Statistics II
Course Number	CPSY 531 Section 1
Term	GS/20
Department	Counseling Psychology
Textbooks/Materials	Sprinthall, R.C. (2012). <i>Basic Statistical Analysis</i>. (9th ed.) Needham Heights, MA: Allyn & Bacon.
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. As a continuation of CPSY 530, an additional goal is for students to further their understanding of the research process, including issues surrounding measurement, which will allow them to critically analyze published research and/or be able to conduct independent research.

The objectives are to provide opportunities to learn and apply the skills necessary to appropriately conduct 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:

Sprinthall, R.C.(2012). *Basic Statistical Analysis.* (9th ed.) Needham Heights, MA: Allyn & Bacon.

Supplementary Texts & Workbooks

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

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 2020 Assignments*

<u>School Psychology</u>		<u>Thesis Students</u>	
Homework	130	Homework	130
Class Participation/Assignments	85	Class Participation/Assignments	85
Statistical Test write-ups	120	Statistical Test s write-ups	120
"Evaluation" Grp Project	75	Thesis Work Methods	75
Instrument Development (15)		Additional write ups (20)	
Evaluation (Process & Product)		Reliability/Participants	
		Methods Section (50)	
		Thesis Presentation (5)	
'Final' (Take Home)	70	'Final' (Take Home)	70

*The assignments and points may change as the program evaluation becomes clarified

Final grades will be based on 500 points and will be distributed as follows:

455 and above	(91% of total points)	-	A
450 - 454	(90% of total points)	-	A-
440 - 459	88% or total points)	-	B+
415 - 439	(83% of total points)	-	B
400 - 414	(80% of total points)	-	B-
Below 400 -	(less than 80% of total points)		C/No credit
Below 365	(less than 70% of total points)		D/F -/No Credit

Tentative Class Schedule/Important Dates Spring 2020

<u>Date</u>	<u>Tentative Topics</u>	<u>Tentative Computer Exercise</u>	<u>Sprinthall Readings for Class</u>	<u>Hmwk/ Assignment Due Date</u>	<u>Points</u>
Jan 8	Overview of class Review of Research Methodology Research paradigms Types of Research Operationalization Intro to SPSS	SPSS intro setting up a data file Frequencies	In class resources Paradigms methods & methodology article Chap 9		Class participation 10 pts

<u>Date</u>	<u>Tentative Topics</u>	<u>Tentative Computer Exercise</u>	<u>Sprinthall Readings for Class</u>	<u>Hmwk/ Assignment Due Date</u>	<u>Points</u>
Jan 15	Operationalization in depth Measurement concepts Scales of measurement Test/Instrument Construction Norms and Test Standardization Evaluating Instruments/Tests Conceptualizing Correlation Reliability and Validity	Pre-Post Assessment Development Reliability and Validity	Chap 1, 9 & 17 Ch 11 290 - 296 Ch 18 pp. 542-553 Additional Readings	Homework 1 Due Notecards Due	10 pts 4 pts
Jan 22	Review of Designs Descriptives Tables, Figures Charts	Finalize Ron Russell Assessment Descriptives Participants Charts and Figures	Ch 9 Ch 2-3	Homework 2 due Notecards Due	10 pts 4 pts
Jan 29	Bivariate Analysis Chi Square	Crosstabs	Ch 13	Homework 3 due Notecards Due <i>Reliability write-up due (Thesis people only)</i>	10 pts 4 pts
FEB 5	First DATA Collection				
Feb 5	Normal Curve and z scores Histograms Interpreting Scores Review of Norms	Distributions	Ch 4 -6	Homework 4 due <i>Chi square write up due</i>	15 pts 20 pts

<u>Date</u>	<u>Tentative Topics</u>	<u>Tentative Computer Exercise</u>	<u>Sprinthall Readings for Class</u>	<u>Hmwk/ Assignment Due Date</u>	<u>Points</u>
Feb 12	Statistics & Parameters Parameter Estimates and Hypothesis Testing Confidence intervals z- test One sample t-	Confidence Intervals One sample t	Chap 7 & 8	Homework 5 due Notecards due <i>Participant write-up due (Thesis people only)</i>	10 points 4 pts 10 pts
Feb 19	Hypothesis Testing Hypothesis of Difference Independent t-tests	Indep t	Sprinthall Ch 10 (review ch 9)	Homework 6 due Notecards due	10 pts 4 pts
Feb 26	Hypo of Association Correlation Correlational Research –Scattergrams		Chap 11	Homework 7 due	10 pts
Mar 4	ANOVA Post Hoc Tests Effect Size	ANOVA	Sprinthall Ch 12 pp. 330-350	Homework 8 due <i>Independent t write up due</i>	10 points 30 pts
Mar 11	Factorial ANOVA	Factorial ANOVA	Ch 12 pp. 350-360	Homework 9 due	10 pts
Mar 18	Before-After Designs Paired T-tests Within Ss ANOVA	Paired t W/in Ss ANOVA	Sprinthall chapter 15	Homework 10 due <i>ANOVA/ Factorial write-up due</i>	10 pts 35 points
Mar 25	<i>Spring Break</i>	<i>Spring Break</i>			
APRIL 1 or 8	Final DATA Collected				
Apr 1	Bring Weekly Group Data to class NonParametrics Tests for Ordinal Data Regression – Predicting relationships (if time)	Non Parametrics Ordinal Non-Parametrics	Sprinthall Ch 16 & 14		

<u>Date</u>	<u>Tentative Topics</u>	<u>Tentative Computer Exercise</u>	<u>Sprinthall Readings for Class</u>	<u>Hmwk/ Assignment Due Date</u>	<u>Points</u>
Apr 08	Choosing the Correct Test Bring Pre-Post Data to class Thesis updates Complete Analysis/Prep for Presentations		Sprinthall Ch 19 & 16	<i>Paired t-test write up/w/in SS write-up due</i>	30 pts
April 15	School Psychs – Ron Russell Presentations				60 pts
Apr 15	Final Class Meeting Thesis Presentations Thesis Proposals/Methods sections due Reflections				50 points
April 22	Exam due				70 pts