

COURSE SYLLABUS
Lewis & Clark College
Graduate School of Education and Counseling

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| Course Name | Research Methods and Statistics II |
| Course Number | CPSY 531 Section 1 |
| Term | GS/16 |
| Department | Counseling Psychology |
| Textbooks/Materials | Sprinthall, R.C. (2012). <i>Basic Statistical Analysis</i> . (9 th 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 apt Friday 10:00 – 1:00 (after Feb 12) |

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 (2010). *Publication manual of the American Psychological Association.* (6th 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 Overall the requirements of the course include: in class assignments, homework assignments, computer assignments, statistical analysis portfolio which include statistical result section write-ups; and group project(s).

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

| | | |
|-----------------------------|---|-------------|
| 93% of points possible | - | A |
| 90 – 92% 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/No Credit |

Please note that if the basic requirements for an assignment 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: Pyrczak 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: Pyrczak Publishing.
- Holcomb, Z.C. (1997). *Real data. A statistics workbook based on empirical data*. Los Angeles: Pyrczak Publishing.
- Holcomb, Z.C. (2007). *SPSS Basics: Techniques for a First Course in Statistics (3rd Ed.)* Los Angeles: Pyrczak Publishing
- Pryzak, F. (2008). *Evaluating Research in Academic Journals (4th Ed.)* Los Angeles: Pyrczak Publishing.
- Patten, M.L. (2009). *Understanding Research Methods (7th Ed.)* Glendale CA: Pyrczak Publishing
- Mertler, C.A. & Vannatta, R. A. (2005). *Advanced and Multivariate Statistical Methods. Practical Application and Interpretation (3rd Ed.)* Glendale, CA: Pyrczak 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 2016 Assignments*

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|--------------------------------------|------------|
| Homework | 100 |
| Class Participation/write-ups | 100 |
| Stats write-ups | 120 |
| Group Projects | |
| Survey Presentation | 40 |
| “Program Evaluation” | 100 |
| Statistics Portfolio | 115 |

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

Final grades will be based on 575 point total and will be distributed as follows:

| | | | |
|---------------|---------------------------------|---|-------------|
| 534 and above | (93% of total points) | - | A |
| 517 – 533 | (90% of total points) | - | A- |
| 506 – 516 | 88% or total points) | - | B+ |
| 477 - 505 | (83% of total points) | - | B |
| 460 - 476 | (80% of total points) | - | B- |
| Below 460 - | (less than 80% of total points) | | C/No credit |

Tentative Schedule of Classes/Assignments:

| <u>Date</u> | <u>Tentative Topics</u> | <u>Tentative Computer Exercise</u> | <u>Sprinthal Readings for Class</u> | <u>Hmwk/ Assignment Due Date</u> | <u>Points</u> |
|-------------|--|---|--|----------------------------------|-------------------------------|
| Jan 14 | Overview of class Review of Research Methodology Operationalizing | SPSS intro setting up a data file Frequencies | | | Class participation 10 pts |
| Jan 21 | Review of descriptives Tables Figures Charts Bivariate Analysis | Descriptives Participants Charts and Figures Crosstabs | Chapter 9 Ch 1-3 Ch 18 pp. 542-553 | Homework 1 due | 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 28 | Measurement concepts Tests Construction Norms and Test Standardization Normal Curve and z scores Histograms | Work on Survey Project | Ch 4 -6 Ch 17 pp. 500-505 (through definition of reliability) | Homework 2 due | 10 pts |
| Feb 4 | Survey Presentation Intro to Inferentials Statistics & Parameters | Distributions | Chapter 7 | Homework 3 due | 10 pts |
| Feb 11 | Parameter Estimates and Hypothesis Testing Confidence intervals z- test One sample t- | Confidence Intervals One sample t | Sprinthall 8 | Survey Presentation | 40 pts |
| Feb 18 | Hypothesis Testing One Sample t- test Hypothesis of Difference Independent t- tests | Indep t | Sprinthall Ch 10 (review ch 9) Chapter 18 problems | Homework 4 due (includes ch 18) | 10 pts |
| Feb 25 | Hypothesis of Association Correlational Research – Correlation Scattergrams | | Sprinthall Ch 11 | Homework 5 due <i>Independent t write up due</i> | 10 pts 30 pts |
| Mar 3 | ANOVA Post Hoc Tests Effect Size | ANOVA | Sprinthall Ch 12 pp. 330-350 | Homework 6 | 10 pts 30 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> |
|-------------|--|---|--|---|------------------|
| Mar 10 | Factorial ANOVA | Factorial ANOVA | Sprinthall Ch 12 pp. 350-360 | Homework 7 | 10 pts |
| Mar 17 | Before-After Designs Paired T-tests Within Ss ANOVA | Paired t W/in Ss ANOVA | Ch 15 Chapter 18 problems | <i>ANOVA write-up</i> | 10 pts 35 pts |
| Mar 24 | Spring Break | <i>Spring Break</i> | | | |
| Mar 31 | Hypothesis of Association Correlational Research – Correlation Scattergrams/ Measurement Review of Reliability and Validity | Correlation/Regression Reliability | Sprinthall Ch 11 Sprinthall Ch 17 | Homework 8 <i>Paired t-test write up/w/in SS write-up</i> | 10 pts 35 pts |
| Apr 7 | NonParametrics Chi Square Tests for Ordinal Data | NonParametrics Chi Square | Chap 13 & 16 | Homework 9 due Reliability write-up (Thesis people only) | 10 pts 15 pts |
| Apr 14 | Regression / Predicting Relationships | Regression | Ch 14 Ch 18-19 | Homework 10 <i>Chi square write-up due</i> | 10 pts 25 pts |
| Apr 21 | Group Project Thesis Proposals Final Discussion Last class | | | Group Project | 105 pts |
| Apr 28 | Semester ends Portfolio's Due | | | Portfolios due | 115 pts |