**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/21** |
| **Department** | **Counseling Psychology** |
| **Textbooks/Materials** | **Frankfort-Nachmias*, C.,*Leon- Guerrero, A., & Davis, G. (2021).** *Social Statistics for a Diverse Society (9th Ed) 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: 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 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 13 | **Overview of class**<br><br>**Review of Research Methodology**<br>   Research paradigms<br><br>   Types of Research<br><br><br>**Measurement concepts**<br>  Scales of measurement<br><br><br>**Intro to JASP** | | In class resources<br><br>Paradigms methods & methodology article<br><br><br>Chap 1 | | Class participation |

| Date | Tentative Topics | Tentative In Class Exercise | Readings for Class | Hmwk/ Assignment Due Date | Points |
|------|------------------|----------------------------|--------------------|---------------------------|--------|
|  |  |  |  |  |  |
| Jan 20 | **Graphical Presentation of Data**<br><br>**Tables, Figures Charts**<br><br>**Operationalization in depth** | **Working with data in JASP**<br><br><br>**Begin Pre-Post Assessment Development** | Review Ch 1<br>Chapter 2<br><br>Reread Chap 1<br><br>Skim 3-4 | **Homework 1 Due**<br><br><br>**Notecards Due** | 8 pts<br><br><br>3 pts |
| Jan 27 | **Review of descriptives**<br><br>**Univariate Descriptives Central Tendency Variability**<br><br>**Bivariate Descriptives Correlation** | Descriptives<br><br><br><br>Reliability and Validity | Ch 3-4<br><br>Ch 12 p. 421<br><br>Additional readings | **Homework 2 due**<br><br>**Notecards Due** | 8 pts<br><br><br>4 pts |
| Feb 3 | **Bivariate Analysis**<br><br>**Introduction to Hypothesis testing**<br><br>**Choosing the Correct Test**<br><br>**Measures of Association Chi Square** | **Finalize Ron Russell Assessment**<br><br><br>Crosstabs | Ch 9 & 10 | **Homework 3 due**<br><br>**Notecards Due** | 8 pts<br><br><br>3 pts |
| <mark>FEB 10</mark> | <mark>**First DATA Collection**</mark> |  |  |  |  |
| Feb 10 | **Normal Distribution**<br><br>**Interpreting Scores**<br>Review of Norms | Normal Curve | Ch 5 | **Homework 4 Due**<br><br>**Notecards Due** | 15 pts<br><br>3 pts<br><br>25 pts |

| Date | Tentative Topics | Tentative In Class Exercise | Readings for Class | Hmwk/ Assignment Due Date | Points |
|------|------------------|---------------------------|-------------------|---------------------------|--------|
| | | | | *Chi square write up due* | |
| Feb 17 | **Sampling** **Statistics & Parameters** **Sampling Distributions** **Distribution of Means** | Sampling Distribution of Means | Ch 6 | **Homework 5 due** **Notecards due** | 8 points 3 pts |
| Feb 24 | **Introduction to Inferentials Estimation Confidence Intervals SEM** | Confidence Intervals | Ch 7 | **Homework 6 due** **Notecards due** | 8 pts 3 pts |
| Mar 3 | **Hypothesis Testing** **Hypothesis of Difference Z test Independent t-tests** | Indep t | Ch 8 | **Homework 7 due** **Notecards due** | 8 pts 3 pts |
| Mar 10 | **ANOVA Post Hoc Tests Effect Size** | ANOVA | Ch 11 | **Homework 8 due** **Notecards due** *Independent t write up due* | 8 points 3 pts 30 pts |
| Mar 17 | **Factorial ANOVA** | Factorial ANOVA | Additional Readings | **Notecards due** | 3 pts |
| Mar 24 | *Spring Break* | *Spring Break* | | | |
| Mar 31 | **Hypo of Association Correlation/Regression** **Correlational Research –Scattergrams** **Regression – Predicting relationships (if time)** | | Chap 12 | **Homework 9 due** **Notecards Due** *ANOVA/ Factorial write-up due* | 8 pts 3 points 35 pts |
| Apr 7 | **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 |

| Date | Tentative Topics | Tentative In Class Exercise | Readings for Class | Hmwk/ Assignment Due Date | Points |
|---|---|---|---|---|---|
| | | | | | |
| APRIL 14 | **Final DATA Collected** | | | | |
| Apr 14 | **Bring Weekly Group Data to class** **Bring Pre-Post Data to class** **Thesis updates** **Complete Analysis/Prep for Presentations** | Work on Presentations Work on Methods Sections | | | |
| April 21 | **Final Class Meeting** **Thesis Presentations** **Thesis Proposals/Methods sections due** **School Psychs – Ron Russell Presentations** **Reflections** | | | | 40 pts 5 pts 30 pts |
| April 28 | **Exam due** | | | | 50 points |