

Note:

Course content may be changed, term to term, without notice. The information below is provided as a guide for course selection and is not binding in any form, and should not be used to purchase course materials.

COURSE SYLLABUS

EDUC 812

ADVANCED EDUCATIONAL STATISTICS

COURSE DESCRIPTION

This course involves an examination of descriptive statistics and basic inferential statistical techniques. Hypothesis testing, confidence intervals, analysis of variance, correlation techniques and nonparametric statistical methods will be discussed.

RATIONALE

This course is designed to help educators learn how to perform statistical tests in SPSS, interpret, and then report the results using correct APA format. This is an 800 level doctoral course and is not intended to teach basic statistics. It is assumed that students have taken basic courses in statistics during their undergraduate and master's programs. At the conclusion, the candidate should be able to write-up a result section to a quantitative dissertation. The focus will be to help students select the correct statistical test, run assumptions test, reject or fail to reject the nulls, and apply what they have learned in actual practice.

To maximize learning, it is advised that the student begins each week by completing the SPSS workbook exercise. Then, the students should complete the weekly worksheet which is designed to focus the students' attention on key information. The student should then use the Warner textbook to supplement their understanding. Using the worksheets as a guide, students will then work in small groups to complete a results section write-up using APA reporting procedures. Finally, at the end of the week, the weekly quiz will be used to evaluate individual understanding of the content and basic theory underlining each statistical analysis. The main textbook is the Green and Salkind, however, the Warner textbook will help students gain a deeper understanding of the theory behind each analysis.

I. PREREQUISITE

For information regarding prerequisites for this course, please refer to the [Academic Course Catalog](#).

II. REQUIRED RESOURCE PURCHASE

Click on the following link to view the required resource(s) for the term in which you are registered: <http://bookstore.mbsdirect.net/liberty.htm>

III. ADDITIONAL MATERIALS FOR LEARNING

- A. Computer with basic audio/video output equipment
- B. Internet access (broadband recommended)
- C. Blackboard [recommended browsers](#)

- D. Microsoft Office

IV. MEASURABLE LEARNING OUTCOMES

Upon successful completion of this course, the candidate will be able to:

- A. Explain basic research terms, the process by which research design informs the choice of statistical procedure, and the way in which questions and hypotheses should reflect a chosen design and statistical procedure.
- B. Define basic statistical terms including normal and non-normal distributions of data, measures of central tendency (i.e. mean, median, and mode), variability (i.e. range, variances, standard deviations, and the standard error of the mean), levels of measurement, and probability.
- C. Use SPSS to calculate and interpret descriptive statistics, to explore data and solve statistical problems, and to communicate statistical results in accordance with current APA style.
- D. Describe statistical hypothesis testing, including rejecting and failing to reject the null hypothesis.
- E. Define Type I and Type II errors in statistical decision-making, the power of a statistical procedure, and the maximizing of power.
- F. Describe the factors that inform the choice of a statistical procedure, choosing appropriate statistical procedures to solve educational research problems.
- G. Describe the logic of selected statistical procedures.

V. COURSE REQUIREMENTS AND ASSIGNMENTS

- A. Textbook Readings
The candidate will complete assigned readings from course texts and course documents.
- B. Course Requirements Checklist (CRC)
After reading the Course Syllabus and [Student Expectations](#), the candidate will complete the related checklist found in Module/Week 1
- C. Discussion Board Forum
The candidate will complete the Discussion Board Forum in two parts: 1) the posting of a thread in response to the stated prompt and 2) the posting of at least two replies to peers' threads. The thread is due **Thursday by 11:59 p.m. (ET)** of the pertinent module/week. The replies are due by the last day of the pertinent module/week on **Sunday by 11:59 p.m. (ET)**. All posts must be in current APA format and include citations and references. (MLO: A, C, D, F, G)

D. Textbook Quizzes (7)

The candidate will take 7 open-book quizzes covering the assigned Warner textbook readings and SPSS exercises. Each quiz will consist of 15 multiple-choice questions. The candidate will have 1 hour to complete each quiz. (MLO: A, B, D, E, F, G)

E. SPSS Lessons and Worksheets (6)

Using the SPSS dataset provided and corresponding case studies found at the end of each chapter of the Green and Salkind textbook, the candidate will choose the appropriate analysis, run the statistical procedure, analyze the data, and report the results onto the SPSS Lesson Worksheet. The SPSS Worksheet is due on **Wednesday by 11:59 p.m. (ET)** of each week. Answers on the worksheet will be used for the Group Write-up so late worksheets will not be accepted.

Datasets at <http://www.pearsonhighered.com/greensalkindSPSS/> (Note: The candidate will use the datasets from the 7th edition of the Green and Salkind textbook.) (MLO: A, B, C, D, E, F, G)

F. Group Write-ups (6)

Each group will write-up a *Findings Section* to the case study that was completed using the corresponding weekly SPSS Worksheet. Using the Example Write-up found in Bb as a template, the assignment will be complete in two parts: working individually (Part 1) and working in a small group of around five members (Part 2).

Part 1 will consist of a draft write-up that will be submitted by each individual group member into the group discussion board on **Thursday by 11:59 p.m. (ET)** of each week. Please keep in mind that you will be collaborating with group members, so the individual draft write-up is due on Thursday for group purposes only. The instructor will monitor the group discussion board to see who is participating. Candidates who do not post by Thursday or participate run a risk of not receiving credit for the group assignment. Group members are encouraged to email the instructor privately if individual members are not participating.

Part 2, the group will work together, and agree on the best way to present the findings. Once the group has come to a consensus regarding the write-up, one member of the group will submit the finalized group write-up via the SafeAssign link on **Sunday by 11:59 p.m. (ET)** of the same modules/weeks. (MLO: A, B, C, D, E, F, G)

G. Final Exam

The candidate will write-up the *Findings Section* to the scenario found in Bb under course content week 8. Use the Example Write-up as a guide and submit the finalized individual write-up via the SafeAssign link by 11:59 p.m. (ET) on Friday of the same modules/weeks. (MLO: A, B, C, D, E, F, G)

VI. COURSE GRADING AND POLICIES**A. Points**

Course Requirements Checklist	10
Discussion Board Forum	70
Textbook Quizzes (7 at 30 pts each)	210
SPSS Lessons (6 at 20 pts each)	120
Group Write-ups (6 at 75 pts each)	450
Final Exam	150
Total	1010

B. Scale

A = 960–1010 A- = 940–959 B+ = 920–939 B = 900–919 B- = 880–899
 C+ = 860–879 C = 840–859 C- = 820–839 D+ = 800–819 D = 780–799
 D- = 760–779 F = 0–759

C. Plagiarism Policy

Plagiarism is prohibited. See the current APA manual for information about plagiarism and how it is defined. Also, be aware that the examples in the course are provided as examples and not templates. Copying the verbiage of examples will be considered plagiarism. Additionally, academic misconduct includes not only plagiarism, but also academic dishonesty falsification. This includes hiring a tutor or consultant to complete assignments. See *The Liberty Way* for specific definitions, penalties, and the processes of reporting.

D. Professional Writing Policy

The candidate is expected to demonstrate professionalism in all writing assignments. Assignments that display poor writing and numerous APA, spelling, and/or grammar errors will be required to be rewritten or will result in a zero at the instructor's discretion.

E. Email Policy

The course instructor will only email the candidate using the candidate's university email address; therefore, the candidate is responsible for regularly checking his/her university email. Additionally, when sending an e-mail to the instructor, the candidate must label it in the following manner: course, last name, first name (i.e., EDUC812_Doe_John). The candidate must only e-mail the faculty from his/her Liberty account.

F. Disability Assistance

Candidates with a documented disability may contact Liberty University Online's Office of Disability Accommodation Support (ODAS) at LUOODAS@liberty.edu to make arrangements for academic accommodations. Further information can be found at www.liberty.edu/disabilitysupport.

If you have a complaint related to disability discrimination or an accommodation that was not provided, you may contact ODAS or the Office of Equity and Compliance by phone at (434) 592-4999 or by email at equityandcompliance@liberty.edu. Click to see a full copy of Liberty's [Discrimination, Harassment, and Sexual Misconduct Policy](#) or the [Student Disability Grievance Policy and Procedures](#).

COURSE SCHEDULE

EDUC 812

Textbooks: Green & Salkind, *Using SPSS for Windows and Macintosh* (2017). Datasets available for download: <http://www.pearsonhighered.com/greensalkindSPSS/> (Note: The candidate will use the datasets from the 7th edition of the textbook.)

Warner, *Applied Statistics: From Bivariate through Multivariate Techniques* (2013).

MODULE/ WEEK	READING & STUDY	ASSIGNMENTS	PTS
1	Warner: chs. 1, 2, & 4 (data screening) Green & Salkind: SPSS lessons 1-21 (how to use the software program)	Class Introductions	0
		CRC	10
		Advising Guide Acknowledgement	0
		Quiz 1 (Warner: chs. 1, 2, & 4)	30
		Discussion Board Forum	70
2	Warner: chs. 3 & 5 (t-test) Green & Salkind: SPSS lesson 24	Quiz 2 (Warner: chs. 3 & 5)	30
		SPSS Worksheet 1	20
		Group Write-Up 1	75
3	Warner: ch. 6 (ANOVA) Green & Salkind: SPSS lesson 25	Quiz 3 (Warner: ch. 6)	30
		SPSS Worksheet 2	20
		Group Write-Up 2	75
4	Warner: ch. 13 (Two-Way ANOVA) Green & Salkind: SPSS lesson 26	Quiz 4 (Warner: ch. 13)	30
		SPSS Worksheet 3	20
		Group Write-Up 3	75
5	Warner: ch. 17 (ANCOVA) Green & Salkind: SPSS lesson 27	Quiz 5 (Warner: ch. 17)	30
		SPSS Worksheet 4	20
		Group Write-Up 4	75
6	Warner: ch. 7 (Correlation) Green & Salkind: SPSS lesson 31	Quiz 6 (Warner: ch. 7)	30
		SPSS Worksheet 5	20
		Group Write-Up 5	75
7	Warner: chs. 9 & 11 (Regression) Green & Salkind: SPSS lesson 33 & 34	Quiz 7 (Warner: chs. 9 & 11)	30
		SPSS Worksheet 6	20
		Group Write-Up 6	75
8	Warner: Review previous readings Green & Salkind: Review previous lessons	Individual Write-Up (Final Exam)	150
TOTAL			1010

NOTE: Each course module/week begins on Monday morning at 12:00 a.m. (ET) and ends on Sunday night at 11:59 p.m. (ET). The final module/week ends at 11:59 p.m. (ET) on **Friday**.