

EDF 802 Quantitative Methods

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College of Education and Human Development Conceptual Framework

In order to successfully plan, develop, and implement curricula to meet the needs of diverse learners in today's worlds and to prepare students for the future, the College of Education and Human Development (COEHD) has identified four critical components of **The Effective Educator**: *standards-based instruction, knowledge of the learner, best pedagogical practices, and content knowledge.*

Course Description

This course builds on the foundation of research and statistics and introduces advanced statistical techniques commonly used in educational research. Focus in on developing skills in parametric and nonparametric analyses through the use of statistical analysis software.

Course Objectives

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

1. Demonstrate techniques of exploratory data analysis.
2. Differentiate between parametric and nonparametric testing procedures.
3. Describe and utilize analyses include ANOVA, regression analyses, discriminate analyses, canonical correlation, and factor analysis.
4. Demonstrate the ability to create, edit, update, transfer, and manage data files as well as the ability to transfer and retrieve data using the internet and e-mail.
5. Demonstrate the ability to create appropriate data structures for analyses using SPSS.
6. Demonstrate the ability to interpret results of analyses for policy decision-making.
7. Demonstrate the ability to communicate appropriately research findings for the writing of research reports using APA Style.

Text and Required Materials

This course requires the following textbook and statistical software:

- ! Field, A. (2005). *Discovering statistics using SPSS* (2nd ed.). London: Sage.
- ! SPSS 15.0 for Windows [Graduate Pack or Full Version] (earlier versions are also sufficient for this class)

Textbook:

The textbook that is used for this course is not offered through the textbook rental system.

The following is list of retailers from whom the text may be purchased. This is not an exhaustive list and you may search for additional retailers that may offer the text at better prices:

Sage publications: www.sagepub.com (paperback price: \$69.95)

Amazon: www.amazon.com (\$69.95, may have used copies available)

Books-A-Million: www.bamm.com (\$72.55 with card)

The

Software:

SPSS 15.0 for Windows [Graduate Pack] (earlier versions are also sufficient for this class)

Note: For this class and the remainder of your program, the Student Version of SPSS is not sufficient. However, under no circumstances should you purchase the regular retail version of the software (which currently costs ~\$1500.00). As a currently enrolled student in a graduate program, you are eligible to purchase the SPSS Graduate Pack which is the full version of the SPSS software offered at a discount for graduate students. The SPSS website lists the following sites from which the software can be purchased:

www.JourneyEd.com (\$199.98)

www.academicssuperstore.com (\$199.00)

www.studentdiscounts.com (\$195.00)

**The graduate pack is available for both Windows and Mac platforms.

Course Requirements

Practice Exercises (100 points) - Each topic will be accompanied by a series of practice exercises designed to provide an opportunity to conduct and report the results of analyses. The exercises will be graded for completion, not correctness. **The written answers must be submitted through the forms provided in the External Links section of Blackboard, and the SPSS Data, Output, and Syntax files MUST be submitted as email attachments.** After submitting your answers, you will receive a confirmation page containing the correct answers which will allow you to self check your work. If at any time you have questions concerning an exercise, do not hesitate to contact me.

When submitting SPSS files, you **MUST** use the following format to name the file: last name first initial_name of assignment_type of file. The following is an example for the data and output for Practice Exercise 1 for Jane Doe:

Example file name for data file: doej_exercise1_data

Example file name for output file: doej_exercise1_output

Example file name for syntax file: doej_exercise1_syntax

You will earn 5 points for each exercise that is completed and submitted through the forms provided in Blackboard.

If an exercise uses data from a previous exercise the data file MUST be renamed and resubmitted for the second exercise.

If you have any questions concerning the practice problems or the feedback, DO NOT HESITATE to contact me.

Graded Assignments (120 points) - This course is designed around 4 major themes: Introduction to SPSS/Descriptive Statistics, Analysis of Variance (Comparative research), Regression Analysis (Correlational research), and Factor Analysis (Survey research/instrumentation). At the conclusion of each theme, you will have a culminating assignment. For this assignment, you will be provided with a data set and series of questions or scenario(s). For each question, you will be required to conduct and report the results of the specified analysis. **The written answers must be submitted through email as a message or attachment so that they can be graded. Additionally, you must submit your SPSS Data, Output, and Syntax files as an attachment to the email containing your answers.**

When submitting SPSS files and answers, you MUST use the following format to name the file: last name first initial_name of assignment_type of file. The following is an example for the data, output, and answers* for Assignment 1 for Jane Doe:

Example file name for data file: doej_assign1_data

Example file name for output file: doej_assign1_output

Example file name for syntax file: doej_assign1_syntax

Example file name for answer file: doej_assign1_answers

Since these assignments are graded for correctness, they **MUST** be completed independently as indicated in the Academic Honesty policy stated below.

Final Project (100 points) - The final project will consist of a comprehensive analysis of a data set. You will be provided with a series of questions from which you will determine, conduct, and report the proper analyses. **The written answers must be submitted through email as a message or attachment so that they can be graded. Additionally, you must submit your SPSS Data, Output, and Syntax files as an attachment to the email containing your answers.**

When submitting SPSS files and answers, you MUST use the following format to name the file: last name first initial_name of assignment_type of file. The following is an example for the data, output, and answers* for Project 1 for for Jane Doe:

Example file name for data file: doej_project_data

Example file name for output file: doej_project_output

Example file name for syntax file: doej_project_syntax

Example file name for answer file: doej_project_answers

Since the Final Project is graded for correctness, they **MUST** be completed independently as indicated in the Academic Honesty policy stated below.

Final Examination (50 points) - The comprehensive final exam will be conducted online and subject to specific guidelines for accession and completion. Specific details regarding the exam will be provided approximately one week before the exam deadline.

Grading Policy

370 - 343 points	A	(100% - 93%)
342 - 295 points	B	(92% - 80%)
294 - 258 points	C	(79% - 70%)
257 - 239 points	D	(69% - 65%)
238 and below	F	(64% and below)

Academic Honesty

The use of unauthorized material; communication with fellow students during the completion of the graded assignments, final project, or final examination; attempting to benefit from the work of another student; and similar behavior defeats the intent of examinations and other coursework and is unacceptable to the University. Cheating on the graded assignments, final project, or final examination is considered a serious offense and shall be grounds for disciplinary action which may include but is not limited to the assignment of a lower grade or an F (zero) to the test or assignment, or in the case of a serious violation, a lower grade or F for the course.

The following guidelines must be followed when completing the course requirements.

1. **It is NEVER acceptable to, as a group, collectively write one set of answers and have two or more students submit the same file/set of answers for individual credit.**
2. Since the **Practice Exercises** are not graded for correctness and are designed to provide practice and feedback, working through these together is acceptable, keeping in mind the first guideline.
3. Since the **Graded Assignments and Final Project** are graded for correctness, the analysis and questions must be completed independently and not discussed until after they have been submitted. If this policy is followed, it is impossible for two individuals to submit written responses that are identically formatted and worded.

Email Policy

All email communication **MUST** be sent through your official university email address.

Students with Disabilities

If you are a qualified student with a disability seeking accommodations under the Americans with Disabilities Act, you are required to self-identify with the Office of Disability Services, Room 203, Student Union. No accommodations will be granted without documentation from the Office of Disability Services.

Resources

Abrami, P. C., Cholmsky, P., & Gordon, R. (2001). *Statistical analysis for the social sciences: An interactive approach*. Boston: Allyn & Bacon.

Howell, D. C. (2002). *Statistical methods for psychology* (5th ed). Pacific Grove, CA: Brooks/Cole.

Kiess, H. O. (2002). *Statistical concepts for the behavioral sciences* (3rd ed.). Boston: Allyn and Bacon.

Salkind, N. J. (2000). *Statistics for people who think they hate statistics*. Thousand Oaks, CA: Sage Publications.

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Date	Topic(s)		Assignments
Aug. 21	Introduction to SPSS Descriptive statistics		
Aug. 28	Statistical significance Inferential Statistics		
	Analysis of Variance		
Sept. 4	<ul style="list-style-type: none"> • Oneway ANOVA • Post Hoc comparisons • Factorial ANOVA • Oneway ANCOVA • Repeated Measures 		
Sept. 11			
Sept. 18			
Sept. 25			
Oct. 2			
	Regression Analysis		
Oct. 9	<ul style="list-style-type: none"> • Regression Analysis • Logistic Regression 		
Oct. 16			
Oct. 23			
Oct. 30	Factor Analysis and Data Entry/Transformation, etc.		
Nov. 6			
Nov. 13			
Nov. 20	Thanksgiving Holiday		
Nov. 27			
Dec. 4			

Important dates:

Friday, September 21	Last day to withdraw or resign from Term I classes
Friday, October 19	Last day to withdraw or resign from regular classes
Wednesday, November 14	Last day to withdraw or resign from Term II classes
Monday, December 10	Last day to return rental textbooks without a fine