EDF 701 Educational Statistics

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College of Education and Human Development Conceptual Framwork

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 Educationa 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

Study of basic statistical concepts, both descriptive and inferential. Emphasis is placed on the use of these concepts in solving educational problems.

Internet and Software Requirements

Microsoft Windows 98 or higher*
SPSS Statistical Software (see course material information below)
Adobe Acrobat Reader (if you do not already have this software, it is a free download from adobe.com)
Daily Internet Access (email and WWW)
Valid email address (see email policy below)
Proficiency in sending and receiving email with attachments

*You may use a Mac system, however, you will need to purchase the Graduate Pack version of SPSS since the student version is currently only available for Windows platforms.

Course Objectives

1. Identify the difference between descriptive and inferential statistics.
2. Utilize statistical software to generate measures of central tendency and variability and provide interpretations within the context of a research situation.
3. Utilize statistical software to generate and interpret graphical displays of data.
4. Utilize statistical software to compute correlation coefficients and provide interpretations within the context of a research situation
5. Identify differences between null, directional, and nondirectional hypotheses.
6. Utilize statistical software to compute and interpret z-scores
7. Identify the difference between type I and type II errors as they relate to test of significance
8. Utilize statistical software to conduct parametric analyses (Independent Samples T Test, T Test for Dependent Means, One-way Analysis of Variance with Post Hoc Tests, Testing of

Correlations)
9. Interpret and present the results of parametric analyses
10. Utilize statistical software to conduct nonparametric analyses (Mann-Whitney U, Wilcoxon Test, Kruskal-Wallis One-way ANOVA, Chi-Square Tests)
11. Present and interpret the results of parametric and nonparametric analyses

Text and Required Materials

Textbook and Software Package:

This course requires the following textbook and statistical software:

- Salkind, N. J. (2003). Statistics for people who think they hate statistics (2nd ed.). Thousand Oaks, CA: Sage.

- SPSS Student Version for Windows 13.0 (earlier versions are also sufficient for this class)

The textbook that is used for this course is offered through the textbook rental system, and the cost is included in your fees. The text may be picked-up at the Southeastern Textbook Rental. **However, the software must be purchased.**

NOTE: The second edition of this text has been released. Due to regulations regarding textbook rental, only the 1st edition is currently available through the textbook rental bookstore. If you choose to purchase the text (see next paragraph), either the 1st or 2nd edition will be acceptable.

Information on purchasing the software is provided below. As you will see, the cost of the software by itself is approximately $96.00. **However, the following two retailers offer a package that includes the software and the textbook for approximately $65.00** ($30.00 cheaper than the software alone, plus you get to keep the textbook for later reading :-)

www.amazon.com (approx. $65.00 -- may also offer free shipping)
www.sagepub.com (approx. $65.00)

To locate the textbook/software package, enter the textbook title in the search box. You should be given a results list containing the textbook only item and another item indicating the textbook with software.

**The student version of SPSS which is included in this package is currently available for Windows platforms only. The graduate pack (see below) is available for both Windows and Mac platforms.

Software (without textbook):

SPSS Student Version for Windows 13.0 (earlier versions are also sufficient for this class)

Available at:

www.amazon.com (approx. $96.00 with manual)

To locate software on Amazon.com, enter the following into the search box: spss student

www.prenhall.com (approx.$96.00 with manual)

To locate the software on prenhall.com enter the following ISBN number into the search box and be sure to change the search type to "by isbn": 0-13-147027-2

> **Note on software:** The student version of SPSS is more than sufficient for the requirements of this course and many analyses that you may conduct outside of class. However, there are some limitations to this version of the program (the most notable is that you are limited to only 50 columns and 1500 rows of data). For more information on the student version, you can go the SPSS Student Version page at SPSS.com. As a currently enrolled student in a graduate program, you are also eligible to purchase the SPSS Graduate Pack which is the full version of the SPSS software offered at a discount for graduate students (this version is approx. $200). The Graduate Pack can be purchased through JourneyEd.com.

I would recommend the Graduate Pack ONLY if you are interested in conducting large scale analyses outside of this class.

**The student version of SPSS is currently available for Windows platforms only. The graduate pack is available for both Windows and Mac platforms.

Course Requirements

Practice Exercises (150 points) - The practice exercises are available in the Course Documents section of Blackboard. The exercises may be printed so that you can conduct the analysis and prepare your responses offline. **The written answers must be submitted through the forms provided in the External Links section of Blackboard, and the SPSS Data and Output files MUST be submitted as email attachments.** (See "cheat sheets" in the External Links section of Blackboard for information on saving Data and Output files in SPSS). 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 email 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_pe1_data
> Example file name for output file: doej_pe1_output

You will earn 5 points for each exercise that is completed and submitted through the forms provided in the External Links section of Blackboard. For exercises requiring the submission of SPSS files, you will receive 4 points for submitting your responses through the External Links section of Blackboard and 1 point for submitting the necessary SPSS data and output files. This "extra" point will appear in the gradebook under the SPSS files grade entry. For exercises that do not require the submission of SPSS files (e.g., exercises 10, 11, and 13), the full five points will appear in the gradebook entry corresponding to the exercise.

If an exercise uses data from a previous exercise (e.g., exercises 2 and 5) the data file MUST be renamed and resubmitted for the second exercise. For example, when completing Practice Exercise 5, you can open the data file that was saved for Practice Exercise 2 (doej_pe2_data) and use the Save As option in the File menu to save a new file named doej_pe5_data.

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

Graded Assignments (130 points) - The graded assignments are available in the Course Documents section of Blackboard. These assignments may be printed so that you can conduct the analysis and prepare your responses offline. **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 and Output files as an attachment to the email containing your answers.** Each assignment specifies a set of Practice Exercises that must be completed prior to completing the assignment.

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 answer file: doej_assign1_answers

*If you type your answers in the body of the email, you will only have data and output files attached.

> Since the Graded Assignments are graded for correctness, they **MUST** be completed independently and not discussed as indicated in the Academic Honesty policy stated below.

Final Projects (70 points) - The final projects will consist of a series of 4 problems that will require you to determine, conduct, and report the findings from the appropriate method of analysis. The final projects will be emailed as a .pdf (acrobat) file approximately one week before the scheduled deadline. You will be able to print the projects so that you can conduct the analysis and prepare your responses offline. **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 and Output 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_project1_data
> Example file name for output file: doej_project1_output
> Example file name for answer file: doej_project1_answers

*If you type your answers in the body of the email, you will only have data and output files attached.

Since the Final Projects are graded for correctness, they **MUST** be completed independently and not discussed 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

400 - 378 points	A	(100% - 95%)
377 - 338 points	B	(94% - 85%)
337 - 298 points	C	(84% - 75%)
297 - 278 points	D	(74% - 70%)
277 and below	F	(69% and below)

Academic Honesty

The use of unauthorized material; communication with fellow students during the completion of graded assignments, final projects, and the 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 graded assignments, final projects, and examinations are considered serious offenses 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 Projects** are graded for correctness, the analysis and questions must be completed independently and not discussed until after they have been submitted. If this policy if 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.

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.