

Appalachian State University
Department of Educational Leadership – Fall 2016
EDL 7165 – QUANTITATIVE APPROACHES IN NON-EXPERIMENTAL STUDIES

Instructor: Dr. Tracy Goodson-Espy

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Class Meeting Times: Tuesday 6:00-8:30 PM

Classroom: RCOE 414-D

3 Semester Hours Credit

Office Hours: Tuesday 4:00-6:00PM, Wednesday 1:00-3:00PM, Thursday 1:00-3:00, other times by appointment

Course Description:

EDL 7165 is an applied course designed to introduce doctoral students to basic descriptive and inferential statistical methods commonly used in quantitative research methodology and to prepare them for the following course, EDL 7150 *Inferential Statistics*. Emphases are placed on practical issues, such as quantitative research designs, selecting appropriate statistical analyses to investigate research questions, using SPSS to analyze data, interpreting results, and applying the analyses in research areas of interest. The course provides students the requisite skills and experiences in non-experimental research design to allow the critical examination of non-experimental studies and the design of studies like those that will be typically appropriate to educational and institutional settings. The course will provide students with an understanding of the adaptation of correlational and experimental models to research settings and data sets that do not fit experimental assumptions. A wide variety of examples from the professional literature will be reviewed and students will engage in the design of studies. Prerequisites: EDL 7110 and completion of the EDL Doctoral Program statistical prerequisite.

Goals of the Doctoral Program:

The Doctor of Education degree (Ed.D.) in Educational Leadership is designed for potential and practicing educational leaders who wish to develop and refine their leadership capabilities in educational organizations. The goals of the program include:

- Introducing students to the methodologies of critical analysis of educational theory and practices;
- Engaging students in disciplined inquiry in the field of education;
- Preparing students for making a contribution to educational theory and practice; and,
- Preparing students to become leaders in the diverse world in which educational institutions exist.

Course Goals:

1. Enable students to understand quantitative research design methods including the differences between experimental and non-experimental studies and when each should be employed.
2. Enable students to understand and apply descriptive and inferential statistics.
3. Assist students in developing a thorough understanding of concepts such as independent and dependent variables, randomization, bias, measures of central tendency and variability, frequency distributions, normal distributions and standard scores, correlation, regression and prediction, non-

parametric models, comparing two means, introducing the general linear model, and other topics of inferential statistics as time permits.

4. Assist students in developing the competence to determine what type of statistical test is appropriate in a given situation.
5. Enhance students' ability to intelligently read and interpret educational research literature, particularly quantitative research literature including both experimental and non-experimental studies.

Required Text & Materials:

1. **Fundamentals of Statistical Reasoning, Fourth Edition**, by Theodore Coladarci & Casey Cobb, John Wiley & Sons (ISBN-13: 978-1-118-42521-3). (As a new text is rather pricey, I advise purchasing a used copy or renting a copy which can be achieved more economically. Be sure to get the 4th edition to ensure the problem sets will be correct.)
2. **Using SPSS: An Interactive Hands-On Approach, Second Edition**, by James B. Cunningham & James O. Aldrich, Sage Publishers (ISBN-13: 978-1483383576).
3. **Other Readings** will be assigned and will be available via AsU Learn.
4. **SPSS**. SPSS can be accessed for free on-campus. To work on SPSS from home, you need to obtain a student-version of SPSS for \$35.00 from ASU IT Support Services in Anne Belk Hall. (If you are an ASU employee, you may access SPSS off-campus via the Virtual Private Network (VPN).) As we will work extensively with SPSS, I strongly urge you to get a copy. (<http://support.appstate.edu/services/technology-support-center/equipmentsoftware-rentals-software-sales>). There are other excellent statistical software packages available (SAS, R) but SPSS is the only package I will teach in class and for which I will provide instructional support due to time limitations.

Class Web Supplements:

Class materials will be available via AsU Learn: <http://asulearn.appstate.edu/>

Course Requirements

(Adjustments may be announced in class or on AsU Learn to accommodate the needs of students.)

1. **Tests:** There will be two tests, a mid-term and a final exam.
2. **Weekly Tasks:** There will be weekly homework tasks that will be submitted on AsU Learn. These may include:
 - Homework problems
 - SPSS exercises
 - Reading and reading responses
 - Research critiques
 - Proposals concerning how to design a study, collect, and analyze data for a given research situation.

Late assignments may receive a point deduction.

Course Evaluation:

Evaluation of your performance in the course will be made as follows:

Test 1	20%
Test 2	20%
Weekly Tasks	60%

TOTAL	100%
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Grading Scale	What the grades mean...
A = 94 -100	A Exceptional work which goes beyond the expectations of the course
A- = 90 – 93	A- Superior work, very high quality
B+ = 88 - 89	B+ Work of high quality, much better than average
B = 83 - 87	B Very good work, meets all expectations
B- = 80 – 82	B- Good work
C+ = 78 – 79	C+ Satisfactory work that indicates a basic understanding of the course material
C = 76 – 77	C Satisfactory work, passable
C- = 74 - 75	C- Passing work, but below reasonable expectations
D = 69-73	D Barely passing, less than satisfactory
F = Below 69	F Failure

Attendance Policy: Students are discouraged from being absent as a great deal of material is covered in a once-a-week class! Attendance will be taken every class meeting. Prompt and regular attendance is expected. Learning is a social process. Thus, students are expected to attend every class and be an active participant in the classroom practices. In the event of an absence, students are to contact the instructor in advance and turn in any work that is due on AsU Learn. Absent students are responsible for any work announced in class and for all announced changes, additions, and deletions to the syllabus. Absence from class is not a valid excuse for failing to meet deadlines or fulfill course requirements.

All that said, students can miss one class session without penalty—life happens. This day should be reserved for illness or family emergencies and should not be viewed as a ‘free day’. As we will use part of our class time for SPSS instruction, it is critical that one does not get left behind. Each subsequent unexcused absence may result in a final grade lowered by a letter grade (e.g., A becomes B, B becomes a C, etc.). Extenuating circumstances will be handled individually. Two tardies/early departures constitute one absence. It is the student’s responsibility to ask the professor to change an absence into a tardy immediately after the class in which the tardy occurred. (No changes will be made on a later day.)

Absences due to religious observance will be respected. The ASU religious observance policy can be accessed at <http://academicaffairs.appstate.edu/resources/syllabi>. Students wishing to be absent from class due to religious observance must notify the instructor in writing in advance as specified by university policy.

Electronic Device Policy: Full participation in all course activities is required. Please silence all phones and pagers and put them away during class. It is also not acceptable to be texting during class. These devices may only be used during class breaks. If you text, or have your phone out during class, your grade will be lowered. Laptops may be used to take notes and will be needed when we use SPSS together in class. If you are observed using your laptop for other non-scholarly things (e.g., Facebook, etc.), then your grade may be lowered. Failure to cooperate with regard to electronic devices may result in removal from the course.

Academic Integrity Code:

As a community of learners at Appalachian State University, we must create an atmosphere of honesty, fairness, and responsibility, without which we cannot earn the trust and respect of each other.

Furthermore, we recognize that academic dishonesty detracts from the value of an Appalachian degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form and will oppose any instance of academic dishonesty. This course will follow the provisions of the Academic Integrity Code, which can be found on the Office of Student Conduct Web Site: <http://academicintegrity.appstate.edu/>.

Americans with Disabilities Act:

Appalachian State University is committed to making reasonable accommodations for individuals with documented qualifying disabilities in accordance with the Americans with Disabilities Act of 1990, and Section 504 of the Rehabilitation Act of 1973. If you have a disability and may need reasonable accommodations in order to have equal access to the University's courses, programs and activities, please contact the Office of Disability Services (828.262.3056 or www.ods.appstate.edu). Once registration is complete, individuals will meet with ODS staff to discuss eligibility and appropriate accommodations. Any student whose disabilities fall within ADA should inform the instructor at the beginning of the term of any special needs or equipment necessary to accomplish the requirements of the course.

Tentative Schedule for Fall 2016

EDL 7165 – QUANTITATIVE APPROACHES IN NON-EXPERIMENTAL STUDIES (Weekly tasks are posted on AsU Learn)	
Date	Topics
Session 1: August 16	Review Syllabus <i>Overview:</i> Research Methodologies, Research Designs, Experimental vs. Non-experimental Studies, Descriptive vs. Inferential Statistics Introduction to SPSS
Session 2: August 23	Frequency Distributions & Graphical Representations
Session 3: August 30	Central Tendency, Variability, & Graphical Representations
Session 4: September 6	Normal Distribution & Z Scores
Session 5: September 13	Scatterplots, Correlation, Covariance, & Pearson's <i>r</i>
Session 6: September 20	Correlation, Linear Regression, & Prediction
Session 7: September 27	Linear Regression & Prediction
Session 8: October 4	Multiple Regression
Session 9: October 11	Non-experimental Research Designs and Methods
October 13-14	Fall Break
Session 10: October 18	Midterm Due Non-experimental Research Designs and Methods
Session 11: October 25	Probability & Probability Distributions
Session 12: November 1	Hypothesis Testing & Estimation Previewing Inferential Statistics
Session 13: November 8	Sampling Distributions The One Sample z-Test and the Non-parametric Binomial test of Equality
Session 14: November 15	Independent Samples <i>t</i> -Test and the Non-parametric Mann-Whitney <i>U</i> Test of Equality
Session 15: November 22	Paired Samples <i>t</i> -Test and the Non-parametric Wilcoxon Test
November 23-25	Thanksgiving Holidays
Session 16: November 29	Introduction to ANOVA

Session 17: December 6	Final Examination Due
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***Changes to the schedule/topics may be needed to accommodate the class needs and will be communicated via AsU Learn.**