

EDF 6400— Foundations of Educational Research: Overview  
Fall - 2010

Time:

Mondays 5:10 - 8:10 pm - *Room:* Norman 0270

Professor: Dr. Walter Leite

Office: Norman Hall 119 E

Phone: 352-273-4302

E-mail: walter.leite@coe.ufl.edu

Office Hours:

Mondays, 3-4 pm, Tuesdays 1-2 pm,

Wednesdays 1-2 pm.

Or by appointment

Course Description

This course is designed to cover the research methodology applied to the social sciences and topics in applied statistics.

Course Goal

In this course I focus on two goals: familiarizing students with the conceptual framework of quantitative methods, and fostering critical decision making and problem solving about research design. The course is design to promote the development of three specific skills: the ability to identify methodological strengths and weakness of published research, the ability to plan research studies that provide reliable and valid information, and the ability write research papers according to the standards of top tier educational journals.

Required Book

Kline, R. B. (2009). *Becoming a behavioral science researcher: A guide to producing research that matters.* Guilford press.

The class website is <http://online.education.ufl.edu>

The class website is the repository for the class readings, assignments and handouts. I will bring handouts to every class meeting but will post the course

handouts at the class website prior to the start of each class. I will also post assignments and data sets on the website, and assignments should be submitted through the website unless different instructions are given for a specific assignment. The website also contains discussion forums about each topic covered by the course.

### Video assignment

In many weeks, there is a video viewing assignment. The video corresponding to certain lectures is indicated in the Calendar of Topics and Readings included in this syllabus. Videos are taken from the Annenberg/CPB project series, "Against All Odds", a series of 26 basic-education statistics videos. Each video is one half-hour in duration. Course content generally complements what we are discussing in class, although the videos often provide useful practical and graphical illustrations of concepts. The videos are available free of charge, in streaming Windows Media format. The website is <http://www.learner.org/resources/series65.html>. Click the "VOD" icon (video on demand) to access the recommended program.

## COURSE ASSESSMENT

Homework Questions: There will be homework exercises assigned regularly. The number of homework exercises will depend on the pace of the class. The homework questions can be completed individually or with a partner.

### Online Discussion Forums

Each student is expected to post one reaction to the readings per week in the discussion forum of each topic, as well as any questions. Reactions are your own thoughts about the readings and responses to issues raised by other posts. Students are expected to initiate and maintain discussion, but I will occasionally post methodological issues and dilemmas to enhance the discussion. Given that each topic will be discussed in class on Monday, the period to post reactions to the readings of each week will be from Friday, 12:00 am of the previous week to Thursday 11:59 pm of the topic's week.

Quizzes: There will be quizzes about the topics covered on the previous class. These quizzes will not be scheduled in advance.

Research Critique: The students will submit a detailed methodological analysis of

an academic paper of their choice.

Final Paper: The students will submit a final individual paper, which will take the format of a conference proposal according to the call for proposals for the Annual Meeting of the American Research Association.

Presentation of Final Paper: The students will present their final papers at the last day of class using the format of paper sessions presented at the Annual Meeting of the American Research Association.

Human subjects training: Students are required to complete the course "Protecting Human Research Participants" provided by NIH. The due date for completing the training is the last day of class, but it can be completed anytime. Upload the certification of completion to the course website. To take the course, go to <http://phrp.nihtraining.com>.

General policy on missed work - In unusual circumstances, the instructor may grant a student an opportunity to turn in assignments or take exams on a different day than the scheduled due date. Special arrangements can only be obtained in private consultation with the instructor. A student needing special arrangements for homework or exams must contact the instructor in advance of the due date.

### Class Attendance

As a matter of mutual courtesy, please let the instructor know when you're going to be late, when you're going to miss class, or if you need to leave early. Please try to do any of these as little as possible. Students are expected to be present for all classes, since much material will be covered only once in class. Students who have extraordinary circumstances preventing attendance, or who must leave early, should explain these circumstances to the course instructor prior to the scheduled class, or as soon as possible thereafter. The instructor will then make an effort to accommodate reasonable requests. Attendance will not be checked or graded, but you are responsible for the content of all classes, including issues raised in the spontaneous class discussions. If you must miss a class, please request notes from your classmates.

<i>Assessment</i>	<i>weight</i>
Homework	20%
Quizzes	15%
Participation in online forums	10%
Completing human subjects training:	5%
Research critique:	20%
Final project	20%
Presentation of Final Project	10%

### Course Grades

Final grades will be assigned based on the scale below:

<i>Overall course percent</i>	<i>grade</i>
93.0% - 100%	A
90.0% - 92.9%	A-
87.0% - 89.9%	B+
83.0% - 86.9%	B
80.0% - 82.9%	B-
77.0% - 79.9%	C+
73.0% - 76.9%	C
70.0% - 72.9%	C-
67.0% - 69.9%	D+
63.0% - 66.9%	D
60.0% - 62.9%	D-
59.9% or less	E

Unless a computational error has been made, grades will not be changed after the end of the semester.

## CALENDAR OF TOPICS AND READINGS

Following are the topics to be covered during the semester and the readings that students are expected to be doing, whether or not the material is explicitly addressed on the date indicated. I may include additional readings at any point of the semester.

Due to copyright restrictions, I cannot post all the chapters in the class website at once. Therefore, some chapters will only become available in the course website one week prior to when they will be discussed in class.

### WEEK 1 - PHILOSOPHICAL BASES OF QUANTITATIVE RESEARCH

Presentation of the syllabus and class website

Chapter 2: Positivism - The march of science. In: M. Crotty. (1998). The foundations of Social Research.

Chapter 6: Science and Human Behavior, p.167-201, In: B. D. Slife & R. N. Williams. (1995). What's Behind the Research? Discovering Hidden Assumptions in the Behavioral Sciences. Sage.

Against All Odds video 11

### WEEK 2 - THE QUANTITATIVE RESEARCH PROCESS

Chapter 9: Writing. In. (2009). R. B. Kline. Becoming a behavioral researcher. Guilford press.

American Educational Research Association (2006). Standards for Reporting on Empirical Social Science Research in AERA Publications. Educational Researcher, 35, 33-40.

Chapter 3: Research Problems: Statements, Questions and Hypotheses. In: McMillan J. H. and Schumacher, S. (2006). Research in education: Evidence-based inquiry. Allyn and Bacon.

### WEEK 3 - DESIGN VALIDITY: STATISTICAL CONCLUSION VALIDITY AND INTERNAL VALIDITY

Chapter 2: Statistical conclusion validity and internal validity. P. 33-63 In: Shadish, W. R., Cook, T. & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*.

### WEEK 4 - DESIGN VALIDITY: CONSTRUCT VALIDITY AND EXTERNAL VALIDITY

Shadish, Cook and Campbell - Chapter 3 (p.64-102). In: Shadish, W. R., Cook, T. & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*.

### WEEK 5 - EXPERIMENTAL DESIGNS

Chapter 4. Design and analysis. P. 73-92. In. (2009). R. B. Kline. *Becoming a behavioral researcher*. Guilford press.

Against All Odds video 12

### WEEK 6 - QUASI EXPERIMENTAL DESIGNS

Chapter 4. Design and analysis. P.93-110. In. (2009). R. B. Kline. *Becoming a behavioral researcher*. Guilford press.

Shadish, W. R., & Cook, D. (2008). The Renaissance of Field Experimentation in Evaluating Interventions. *Annual Review of Psychology*, 60, 607-629.

### WEEK 7 - CORRELATIONAL DESIGNS

Chapter 11: Nonexperimental Research: Correlational Designs. In: Gall, M. D., Gall, J. P. & Borg, W. R. (2007). *Educational research: An introduction*. (8<sup>th</sup> Ed.). Boston: Allyn and Bacon.

Spector, P. E., & Brannick, M. (in press). Methodological Urban Legends: The Misuse of Statistical Control Variables. *Organizational Research Methods*.

### WEEK 8 - PSYCHOMETRIC SCALES

Chapter 7: Measurement. In: (2009). R. B. Kline. *Becoming a behavioral researcher*. Guilford press.

Chapters 1: Validity. In: American Educational Research Association, American Psychological Association, & National Council on Measurement in Education (1999). Standards for Educational and Psychological Testing. Washington, DC: Author.

#### WEEK 9 - SURVEYS AND SAMPLING

Chapter 9. Survey Research. p. 244-284. In: Babbie, E. (2007). *The Practice of Social Research*. ThomsonWadsworth. ISBN: 0-495-09325-4

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#### WEEK 10 - OBSERVATIONS

Chapter 9: Collecting research data through observation and content analysis. p.262-295. In: Gall, M. D., Gall, J. P. & Borg, W. R. (2007). *Educational research: An introduction*. (8<sup>th</sup> Ed.). Boston: Allyn and Bacon.

#### WEEK 11 - INTRODUCTION TO HYPOTHESIS TESTING

Chapter 6: Introduction to hypothesis testing: Inferences about a single mean. In: Lomax, R. G. (2007). *An introduction to statistical concepts*. Lawrence Erlbaum Associates, Mahwah, NJ.

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#### WEEK 12 - INFERENCES ABOUT THE DIFFERENCE BETWEEN TWO MEANS

Chapter 7. Inferences About The Difference Between Two Means. In: Lomax, R. G. (2007). *An introduction to statistical concepts*. Lawrence Erlbaum Associates, Mahwah, NJ.

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#### WEEK 13 - EFFECT SIZES, CONFIDENCE INTERVALS, INTRODUCTION TO STATISTICAL SOFTWARE

Chapter 7. Practical Significance. In: Thompson, B. (2006). *Foundations of Behavioral Statistics: An insight-based approach*. Guilford press.

Against All Odds video 19

#### WEEK 14 - REVIEW

Wilkinson, L. & The Task Force on Statistical Inference.(1999). *Statistical Methods in Psychology Journals: Guidelines and Explanations*. *American Psychologist*, 54, 594-604.

Erdfelder, E. (2010). *Experimental Psychology: A Note on Statistical Analysis*. *Experimental Psychology*, 57, 1-4.

Shadish, W. R. (2002). *Revisiting Field Experimentation: Field Notes for the Future*. *Psychological Methods* , 7, 3-18.

#### WEEK 15 - PRESENTATION OF FINAL PROJECTS

Chapter 10: Presentations. In: (2009). R. B. Kline. *Becoming a behavioral researcher*. Guilford press.

### Academic dishonesty

For University's honesty policy regarding cheating and use of copyrighted materials, see: <http://www.dso.ufl.edu/judicial/procedures/honestybrochure.php>

Written assignments will be checked for plagiarism against published works, other papers submitted by classmates at the current and previous semesters and internet pages using Turnitin, which is UF's plagiarism detection software. It is expected that submitted individual work will solely reflect the student's own efforts.

### Accommodations for Students with Disabilities

If you require classroom accommodation because of a disability, you must first register with the Dean of Students Office (<http://oss.ufl.edu/>). The Dean of Students Office will provide documentation to you, which you then give to the instructor when requesting accommodation. The College is committed to providing reasonable accommodations to assist students in their coursework.

### Counseling and Student Health

Students may occasionally have personal issues that arise in the course of pursuing higher education or that may interfere with their academic performance. If you find yourself facing problems affecting your coursework, you are encouraged to talk with the instructor and to seek confidential assistance at the University of Florida Counseling Center, 352-392-1575, or Student Mental Health Services, 352-392-1171. Visit their web sites for more information:

<http://www.counsel.ufl.edu/> or

<http://www.health.ufl.edu/shcc/smhs/index.htm#urgent>

The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services, including primary care, women's health care, immunizations, mental health care, and pharmacy services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: [www.health.ufl.edu/shcc](http://www.health.ufl.edu/shcc)

Crisis intervention is always available 24/7 from:

Alachua County Crisis Center: (352) 264-6789.