

**HI ED 598-D: Designing IR Studies**  
**Research Design Syllabus**  
**(ANGEL only Course Revised: 6-26-06)**

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

1. Define and explain the following concepts/tools of social science research:

The scientific method	Survey designs and methods
Theory and its role	Sampling theory and designs
Constructs and variables	Approaches to data collection
Experimental designs	Quasi-experimental designs
Hypotheses and relations	Ethical principles and practices
Measurement reliability and validity	Ex post facto designs
Quantitative analytical designs	Qualitative analytical designs
	Focus Groups & Interviews

2. Apply these concepts/tools in designing a study relating to education research or policy analysis;
3. Effectively critique and evaluate both the theoretical bases (if any) and methods of a journal article or report of a piece of research or policy analysis.

**Students are expected to:**

- Know the definition of a “variable” and the distinctions among dependent, independent, and control variables.
- Know basic descriptive statistics (e.g., mean, median, variance, standard deviation, percentage distributions), basic inferential statistics ( $\chi^2$  test of association and goodness-of-fit test, t-tests, one-way analysis of variance, correlations); the concepts underlying ordinary least-squares (OLS) multiple regression and the basic multiple regression statistics ( $R^2$ ,  $R^2$ -change, b-weights, and beta weights).
- Complete assignments in a timely fashion.
- Participate in on-line Unit discussions

## **Required Texts:**

Krathwohl, D. R. (2004). *Methods of educational and social science research: An integrated approach* (2<sup>nd</sup> ed.). Long Grove: Waveland.

Carmines, E. G., & Zeller, R. A. (1979). *Reliability and validity assessment*. Quantitative Applications in the Social Sciences Series, Volume 17. Newbury Park, CA: Sage.

Kalton, G. (1983). *Introduction to survey sampling*. Quantitative Applications in the Social Sciences Series, Volume 35. Newbury Park, CA: Sage.

Suskie, L. A. (1996). *Questionnaire survey research: What works* (2<sup>nd</sup> ed). Tallahassee, FL: Association for Institutional Research.

Selected readings from Penn State University Electronic Reserve System, designated <ER> in this syllabus.

## **WEEKLY SYLLABUS**

### **SECTION I: The Nature of Research**

#### **Unit #1: Course Introduction, Orientation, and Overview**

(Drop Box & Message Board Exercises)

##### **Reading:**

Krathwohl:

“Preface for the Student”

Chapter 3 (pp. 46-58)

#### **Unit #2: Research Paradigms and Philosophy of Science**

##### **Reading:**

Krathwohl:

Chapter 1 (read fairly quickly, for background and main design features)

Chapter 2

Chapter 4

Optional but recommended for skimming: Krathwohl Chapters 5 & 6

## **SECTION II: Foundational Concepts and Designs**

### **Unit #3: Ethics in Institutional Research**

#### **Reading:**

AIR Code of Ethics (see <http://www.airweb.org/page.asp?page=140>)  
(Suski's Appendix 1 has a briefer, somewhat dated, and unofficial version)

Krathwohl, Chapter 10

Optional Resource: Schiltz, M. E. (Ed.) (1992). *Ethics and standards in institutional research*. New Directions for Institutional Research, No. 73. San Francisco: Jossey-Bass.

### **Unit #4: Variance and Its "Explanation" A statistics refresher?**

### **Unit #5: Experimental Designs**

#### **Reading:**

Krathwohl: Chapter 7 & Chapter 20 (pp. 498-531)

### **Unit #6: Ex Post Facto and Other Designs**

#### **Reading:**

Krathwohl, Chapter 20 (pp. 531-552) and Chapter 9

### **Unit #7: Measurement Validity and Reliability**

#### **Reading:**

Carmines & Zeller (1979). [Entire book, but don't get bogged down in formulas]

Krathwohl, Chapter 18 (optional, but recommended)

## **SECTION III: Survey Research and Data Collection**

### **Unit #8: Sampling**

#### **Reading:**

Kalton (1983) [entire book, but don't get bogged-down in the algebra. Read for *concepts*. Skim pp. 38-52, 56-63 (top), and pp. 69-81 for whatever sticks.]

Krathwohl, Chapter 16 (pp. 351-356)

### **Unit #9: Survey Data Collection Designs**

#### **Reading:**

Dillman (2000). *Mail and internet surveys: The tailored design method (2<sup>nd</sup> ed)*. New York: Wiley. [Chapter 1 – Introduction to Tailored Design, and Chapter 3 – Constructing the Questionnaire] <ER>

Krathwohl, Chapter 9

Suskie Chap 1 and 4 (required), plus Appendices 2, 5, 6 (optional)

### **Unit #10: Survey Instrument Development**

#### **Reading:**

Suskie Chap 2, 3, and 5 (required), plus Appendices 3, 4 (optional)  
Krathwohl, Chapter 16 (pp. 361-381)

### **Unit #11: Qualitative Designs & Methods**

#### **Reading:**

Krathwohl, Chapter 11

Wolfe-Wendell Reading

### **Unit #12: Qualitative Data Collection: Interviews and Focus Groups**

#### **Reading:**

Krathwohl, Chapter 13

Suskie Chap 4 (re-read pp. 83-90) plus Appendix 6

**Unit #13: Q&A Review and Wrap-up Session:**

Things that go “Bump” in the Night: Terenzini, ASHE 2002  
Research Design and Measurement Deficiencies.

**Unit #14: Course Evaluation and Final Paper Due**