

Educational Research -- ERSH 4200/6200
Fall, 2004
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COURSE DESCRIPTION

The course will provide the student with the basic principles of research, including the ability to be an enlightened consumer of research, and the ability to prepare a protocol for a research project. See the section on Student Activities, below.

COURSE RATIONALE

In order to function as an informed practitioner in the field of education, one must understand the logic of the research process and the basic concepts of research methodology. In the professional setting, the practitioner needs not only to understand what others have done, but also to use research methods and values to evaluate his or her own practice. Some students also need the ability to demonstrate their professional skills by writing a research protocol and eventually conducting a formal research study (i.e., a thesis or dissertation).

TEXTS

A word about texts: I do not teach the contents of a textbook; I teach what I think you should know. As graduate students, you need to own the Huck book. Any other educational research text is, for the purpose of the course, supplementary. If you learn best with a book, buy one. I will never hold you responsible for what author XYZ said on page 192.

Required:

Huck, S.W. (2000) *Reading statistics and research*. Addison Wesley Longman (I recommend the 2nd edition if you can find it; current edition is 4th).

Suggested:

Leedy, P. & Ormrod, J. (2005) *Practical research: Planning and Design* Upper Saddle River, NJ: Pearson Merrill Prentice Hall (in the bookstore)

Tuckman, Bruce W. (1994) *Conducting educational research*. Orlando, FL: Harcourt Brace.

Kerlinger, F.N. (1973, 1986) *Foundations of behavioral research*. NY: Holt, Rinehart, and Winston.

Huff, D. (1953) *How to lie with statistics*. NY: Norton.

(Or almost any other book on educational research methods by, e.g., Gall, Borg, Ary, McMillan, or Sowell)

Suggested references are on reserve in the Curriculum Materials Center, 207 Aderhold.

COURSE OBJECTIVES

The successful student will be able to:

1. Demonstrate an understanding of the basic principles of research by responding to test questions requiring written discussion and short answers.
2. Define and correctly apply basic research concepts such as:
 - variable identification (dependent, independent, moderator, intervening, etc)
 - experimental design
 - validity (various types)
 - reliability (various types)
 - control (design and statistical)
 - causation
 - correlation/covariance
 - randomness
 - probability
 - bias (various kinds)
3. Discuss and appropriately select (not calculate (well, maybe a little)) basic statistical analysis procedures, e.g.:
 - measures of central tendency
 - measures of variability
 - frequency distribution
 - correlation coefficient
 - t-test
 - chi square
 - analysis of variance/analysis of covariance
4. Identify (in a research report) and explain various threats to research validity, and the means of counteracting them.
5. Locate published resource material on a specific research topic.
6. Plan, organize, and write (in correct style) a research proposal, and present it orally.
7. Plan for, collect, and organize quantitative and/or qualitative data.
8. Interpret a simple statistical analysis printout as produced by SAS, SPSS, or Epi Info statistical programs.

Specific objectives will be provided in class.

STUDENT ACTIVITIES

1. Read suggested pages in the texts and handouts.
2. Develop an annotated bibliography of approximately 10 references on a self-chosen topic in some area of educational/social/behavioral research. Each entry should include a correct APA reference, a statement of the research hypothesis, and a brief statement of the outcome of the study. Not graded, for experience only.
3. Prepare portions of a simple research protocol. A guide will be provided.
4. Present research protocol orally to class. Not graded, for experience only.
5. Review two articles, commenting on independent and dependent variables, hypotheses tested, general design, threats to validity, importance, clarity, and organization.
6. Formal and informal assessments.

EVALUATION

Grades will be based on a composite of the following:

- Article reviews (20%)
- Take-home tests (30%)
- Final project (50%)

The purpose of the written activities is to give you an opportunity to provide me with information that supports the inference that you have learned something in this class. Use it. Relevance is valued. Creativity, wit, and elaboration are also valued. Scores are assigned based on my evaluation of your work, not in comparison to other students' performance. Revisions for additional credit are almost always possible.

When submitting written work, *preferably typed*, your name should appear only on the *back* of the *last* page. Please avoid fancy bindings and folders; I prefer a simple staple in the upper left corner.

**Semester Plan
Fall, 2004**

| Date¹ | Content | References |
|-------------------------|--|---|
| 8/23 | Introductions, Overview Research Process, Problems, Hypotheses | RSR ² : xiii-xviii, Ch 1 PR ² : Ch 1-3 |
| 8/30 | Variables | |
| 9/6 | Labor Day Holiday | |
| 9/13 | Threats to validity and research design | On Reserve PR: Ch 10 |
| 9/20 | Quasi-Exp & Causal Comparative designs First article review due | |
| 9/27 | Correlational designs and statistics | RSR: Ch 3 PR: pp. 180-182 |
| 10/4 | Qualitative & descriptive research methods Bibliography due Review and discussion | Handouts PR: Ch 7 |
| 10/11 | Scales of measurement Measures of central tendency & variability First take-home due | PR: pp 25-28, Ch 11 RSR: Ch 2 |
| 10/18 | Significance/hypothesis testing Other statistics | RSR: Ch 7 PR: Ch 11 |
| 10/25 | Instrument Validity Second article review due | RSR: pp.88-98 PR: p. 92 |
| 11/1 | Instrument Reliability Presentations | PR: p. 93 RSR: pp. 75-88 |
| 11/8 | Visual display of information Review and discussion Presentations | Handout |
| 11/15 | Sampling, surveys, and observations Second take-home due Presentations | Handout PR: Ch 9 RSR: pp. 105-124 |
| 11/22 | Data collection and organization Presentations | Handout |
| 11/29 | Computer data analysis Presentations | Handout |
| 12/6 | Potpourri, special topics Presentations | |
| 12/13 | Research proposal due 4:00 PM | |

¹--Dates are approximate, subject to your interests, my whims, and the weather.

²--RSR=*Reading Statistics and Research*

PR=*Leedy & Ormrod, Practical Research*