

Educational Research -- ERSH 4200/6200  
Spring, 2001  
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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**

##### **Required:**

Huck, S.W. (2000) *Reading statistics and research*. Addison Wesley Longman  
Gay, L.R. & Airasian, P. (2003) *Educational Research: Competencies for Analysis and Applications (Ed. 7)* Upper Saddle River, NJ: Pearson Education.

##### **Suggested:**

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 Gall, Borg, Ary, McMillan, or Sowell)

Recommended 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 and selection (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.
3. Prepare portions of a simple research protocol. A guide will be provided.
4. Present research protocol orally to class.
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. This means that 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  
Spring, 2003

<b>Date (approx)</b>	<b>Content</b>	<b>References</b>
1/9	Introductions, Overview	RRS*: xiii-xviii ER*: Ch 1
1/14 - 21	Research Process, Problems, Hypotheses, Variables	RRS: Ch 1 ER: Ch 2-3
1/23 - 2/4	Threats to validity and research design	On Reserve ER: Ch 9, 13
2/6	Quasi-Exp & Causal Comparative designs First article review due	ER: Ch 16
2/11	Correlational designs and statistics	RRS: 55-84 ER: Ch 15
2/13 - 18	Qualitative & descriptive research methods Bibliography due (2/13) Receive first take-home (2/18)	Handouts ER: Ch 18-20
2/20	Review and Discussion	
2/25 - 27	Scales of measurement First take-home due	ER: pp 145-148
3/4	Measures of central tendency & variability	RRS: 19-53 ER: Ch 10
3/6-13	Significance/hypothesis testing Other statistics	RRS: Ch 7 ER: Ch 11-12
3/18-20	Spring Break	
3/25 - 27	Instrument Validity Second article review due (3/27)	Handout ER: Ch 8
4/1 - 3	Instrument Reliability	ER: Ch 8
4/8	Visual display of information Receive 2 <sup>nd</sup> take home	Handout
4/10	Review and discussion	
4/15 - 17	Sampling, surveys, and observations Second take-home due (4/15)	Handout ER: Ch 6
4/22	Data collection and organization	Handout ER: Ch 7
4/24	Computer data analysis	Handout
4/29	Potpourri, special topics	
5/1	Research proposal due 4:00 PM	

\*----- RRS=*Reading Research and Statistics*  
ER=*Gay & Airasian, Educational Research*