

## EDUC 661: EDUCATIONAL RESEARCH METHODS

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### Office Hours for Fall 2004:

Wednesday: 11:30 a.m. to 2:00 p.m.

Thursday: Noon to 12:30 p.m.

Other times by appointment

### **Course Syllabus for Fall 2004**

**Course Objectives:** The search for knowledge and the pursuit of truth are natural human endeavors. Through research, we can better understand the world in which we live, and discover solutions to important problems. This course provides the fundamental knowledge and skills necessary for conducting quality research in education and related social science fields. Upon successful completion of this course, students will be able to formulate important research questions, design and carry out studies to provide answers to these questions, and critically evaluate the results and conclusions from other educational research studies.

This course stresses the scientific aspects of educational research that center on hypothesis formulation and hypothesis testing. Students are encouraged to design studies that address important and current educational issues, gather data to shed light on these issues, analyze these data, and derive conclusions based on their analyses. The strengths and limitations of various educational research designs, and the types of instruments used to measure educational outcomes, will be emphasized. Topics to be covered include:

- ○ Purposes and types of educational research
- ○ Ethical issues in educational research
- ○ Steps in carrying out a research study
- ○ Selecting and developing research questions
- ○ Conducting a literature reviews
- ○ Development and validation of assessment instruments (e.g., surveys, attitude scales, questionnaires, rating scales, etc.)
- ○ Research designs (experimental, quasi-experimental, and non-experimental)
- ○ Data collection techniques
- ○ Principles of sampling
- ○ Basic statistical methods for data analysis
- ○ Analyzing data using statistical software (i.e., Introduction to SPSS)
- ○ Interpreting and Drawing Conclusions From Research Results

- ○ Reporting Results

**Textbook:**

Gall, M. D., Gall, J. P., & Borg, W. R. (2003). *Educational research: An introduction* (7<sup>th</sup> edition). Boston, MA: Allyn and Bacon.

This is an excellent, comprehensive textbook, but I found out too late it is exorbitantly expensive. The book is available in the textbook annex. If you find a used version or a previous edition, that will be fine. Just make sure the chapters you are reading conform to those listed in the class schedule.

**Recommended (optional) Textbook:**

Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research*. Chicago: Rand McNally.

This book is one of the most influential works in educational research. The fact that it is still in print with a 1963 copyright says it all. The Gall et al. textbook (and any other good research methods text) incorporates much of the wisdom, and so it is merely recommended reading. It is also available in the textbook annex.

**Other Recommended Book:**

American Psychological Association (2001). *APA Publications Manual*(5<sup>th</sup> edition). Washington, D.C.: Author.

This book describes “APA style,” which is the format used in writing research reports and for submitting manuscripts to most journals in education and psychology.

**Required Readings (to be distributed)**

Bridgeman, B., Trapani, C., & Curley, E. (in press). Impact of fewer questions per section on SAT I scores. *Journal of Educational Measurement*.

Camara, W., Copeland, T., & Rothchild, B. (1998). Effects of extended time on the SAT I: Reasoning Test: Score growth for students with learning disabilities (*College Board Research Report 98-7*). New York, NY: The College Board.

Elliott, S. N., & Marquart, A. M. (2004). Extended time as a testing accommodation: It's effects and perceived consequences. *Exceptional Children*, 70, 349-367.

Feuer, M. J., Towne, L., & Shavelson, R. J. (2002). Scientific culture and educational research. *Educational Researcher*, 31(8), 4-14.

Payne, K. J., & Biddle, B. J. (1999). Poor school funding, child poverty, and mathematics achievement. *Educational Researcher*, 28(6), 4-13.

Tindal, G., Heath, B., Hollenbeck, K., Almond, P., & Harniss, M. (1998). Accommodating students with disabilities on large-scale tests: An experimental study. *Exceptional Children*, 64, (4), 439-450.

Wainer, H. (1992). Understanding graphs and tables. *Educational Researcher*, 21, 14-23.

Zwick, R., & Schlemmer, L. (2004). SAT validity for linguistic minorities at the University of California, Santa Barbara. *Educational Measurement: Issues and Practice*, 23(1), 6-16.

### **Other recommended texts and readings:**

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education (1999). *Standards for educational and psychological testing*. Washington, DC: American Educational Research Association.

Berliner, D. C. (2002). Educational research: The hardest science of all. *Educational Researcher*, 31(8), 15-17.

Burkhardt, H., & Schoenfeld, A. H. (2003). Improving educational research: Toward a more useful, more influential, and better-funded enterprise. *Educational Researcher*, 32(9), 3-14.

Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis issues for field settings*. Boston: Houghton-Mifflin.

Edirisooriya, G. (1996). Research presentation in a democratic society: A voice from the audience. *Educational Researcher*, 25, 25-30.

Hinsz, V.B. & Tomhave, J.A. (1991). Smile and (half) the world smiles with you, frown and you frown alone. *Personality and Social Psychology Bulletin*, 17, 586-592.

Jaeger, R. M. (1984). *Sampling in education and the social sciences*. New York: Longman.

Kerlinger, F. N. (1986). *Foundations of behavioral research (3rd Edition)*. New York: Holt, Rinehart & Winston.

Labaree, D. F. (2003). The peculiar problems of preparing educational researchers. *Educational Researcher*, 32(4), 13-22.

## Course Requirements

**1) Attendance and Participation:** Students expecting to receive course credit will need to attend all (or nearly all) classes, work their way through the suggested readings, and complete several assignments. In addition, students are expected to actively participate in class.

**2) Weekly Assignments:** Assignments will be given each week. Some will be reading/writing assignments, others will require gathering, analyzing, and summarizing data.

**3) Midterm:** A take-home test will be distributed around the middle of the semester. Students will have at least one week to complete the midterm. This midterm will assess knowledge of research design issues as well as identification of threats to the internal and external validity of educational research.

**4) Class presentation:** Each student will be expected to give a 5-10 minute presentation on an aspect of the research they conduct in this class. I will provide you with guidance for this assignment. Quality presentations are organized and engaging, and typically include visual displays (overhead transparencies, PowerPoint slides, etc.) and handouts.

**5) Final research paper:** Each student will write a final report on a research topic on which they will work throughout the semester. Several of the weekly assignments will be draft sections of this final paper (e.g., literature review, gathering data, summarizing data, etc.). All reports must include a statement of the problem, literature review, method section, results section, and discussion.

For some of the weekly assignments, you will need to send and receive e-mail. If you do not have access to e-mail (for example, through an OIT account at UMASS) you will need to either establish an OIT account, or find some other way to at least temporarily access e-mail.

**Late assignments:** Late assignments will be reduced by one-letter grade for each day late. Unforeseen emergencies, as determined by the professor, are exceptions to this policy.

**Grading:** Your final grade is determined using the following weighting scheme:

<u>Activity</u>	<u>Weight</u>
Attendance/Participation	.10
Weekly Assignments	.35
Midterm	.15
Class presentation	.05
<u>Final Research Paper</u>	<u>.35</u>

Total

1.00

### **Resources for Learning Course Material:**

You have at least four resources for helping understand the material presented in this course. Specifically,

(a) Me: I will do my best to present material clearly in class. Your class notes should be useful for completing assignments and examinations. In addition, I am available outside of class during my office hours and by appointment. You can also ask me questions using e-mail. See the top of this syllabus for office hours and e-mail address.

(b) The textbook: I selected this textbook because I think it does a good job explaining the material. I encourage you to also get the Stanley and Campbell text and to look at other textbooks.

(c) The handouts: I will give you numerous handouts throughout the semester. These handouts are designed to summarize and supplement the lectures. I strongly recommend you review them in completing assignments and exams.

(d) Each other: Minimally, you need to work with your colleagues in your assigned group. I encourage you to discuss class content and all aspects of research with your all of your classmates. Discussing the material will help you absorb the more difficult concepts, and “teaching” others is the best way to retain new material.

### **Plagiarism Policy**

It is expected that you will work cooperatively with the other members in your group in developing surveys and other material related to data collection. It is also expected that the group will work collaboratively on the group presentation. However, direct copying of someone else=s work is not allowed. Printing out someone else=s computer output, and handing it in as your own work, is also not allowed. Passing off someone else=s work as your own will result in failing this course. Please see me if you have questions about this policy, or if you have trouble completing any assignments.

### **Statistical Software:**

We will cover the basics regarding how to enter data into SPSS and how to run some descriptive and basic inferential statistical analyses. SPSS is the most popular statistical software package in education and psychology. It is available for your use in the Hills South computer lab, which is open 9-5, Monday through Friday. You will be given a class username and password. Some students may want to purchase SPSS. It is not required that you do so for this course. However, if you would like to purchase SPSS, a graduate student version is available in the UMASS textbook annex at a reduced rate.

**EDUCATIONAL RESEARCH METHODS**  
**TENTATIVE CLASS SCHEDULE FOR FALL 2004**

The topics that will be covered in class are listed below. The dates listed for each topic are tentative.

<b>Class</b>	<b>Topics</b>	<b>Readings</b>
9/14	Purposes of Educational Research Ethical Issues in Ed. Research Steps in Conducting Research	Text Chs. 1-3 Zwick (2004)
9/21	Conducting Literature Reviews— <i>Meet in library</i> Selecting a research topic Formulating Research Questions	Text Ch. 4
9/28	Types of Educational Research Anatomy of a Research Report	Bridgeman et al. (in press) Camara et al. (1998) Elliott & Marquart (2004) Tindal et al. (1998)
10/5	Introduction to the Scientific Method Internal and External Validity Experimental Research	Campbell & Stanley (1963) Feuer et al. (2002) Text Ch. 12
10/12	Quasi-Experimental Research Non-Experimental Research Correlational Research	Text Chs. 10, 11, 13
10/19	Instrument Development	Handouts Text Ch. 8
10/26	Survey Research Sampling	Text Ch. 6
11/2	Creating a Database Using SPSS (Don't forget to vote!)	Handout
11/9	Fundamental Statistical Techniques	Handout (Text Ch. 5)
11/16	Analyzing Data and Interpreting Statistical Results	(Text Ch. 5)
11/23	Reporting Results Displaying Data	Wainer (1992)
11/30	Submitting Manuscripts for Publication	APA (2001)
12/7	Presenting Research Results (Class Presentations)	Edirisooriya (1996)
12/21	<b>Final Research Papers Due (No class)</b>	