

ED 5500--Methods and Materials of Research (3 S.H.) Summer Session II - 2007

Instructor: Dr. Ronald B. Straub

Office: 202B Retan Center Phone: (570) 662-4796

Fax: (570) 662-4364

E-mail: rstraub@mnsfld.edu

Office Hours: Monday through Friday 11:00 a.m. - noon

Class Meets: Monday - Friday, 8:00 a.m.- 9:45 a.m., 104 Retan Center

Required Text

Patten,M. (2007), *Understanding Research Methods*, 6th Ed., Glendale, CA: Pyrczak Publishing

Course Description

An introduction to research techniques and their practical educational application. The focus will be on types of research, evaluation of published research data collection, organizing and interpreting data, reporting findings and evaluating research.

Course Objectives

(The numerical-alpha symbols after each objective reflect association with the Danielson's (1996) components.) At the conclusion of this course, the students should be able to:

- ✔ List and briefly describe the elements in the process of research. (1a)
- ✔ List and define types of research. (1a)
- ✔ List and define the advantages and disadvantages of the types of research. (1a)
- ✔ List the steps in data collection. (1a, 1d, 1f, 4b)

- ✔ List the elements necessary to interpret data. (1a)
 - ✔ List the elements included in reporting findings. (1a, 4c)
 - ✔ List the elements included in evaluating research. (1a, 1f)
 - ✔ Be able to use the above information to design an original research project and evaluate its outcome. (1a, 1e, 1f, 2d, 3a, 4a, 4c, 4d, 4e, 4f)
 - ✔ Be able to evaluate the soundness of other's research. (Does it meet the above considerations?) (1a, 1c, 1d, 4a, 4f)
-

Frameworks

The objectives which address some of Danielson's (1996) components of teaching are also based on the National Board for Professional Teaching Standards:

- ✔ Teachers are committed to students and their learning.
 - ✔ Teachers know the subjects they teach and how to teach those subjects to students.
 - ✔ Teachers are responsible for managing and monitoring student learning.
 - ✔ Teachers think systematically about their practice and learn from experience.
 - ✔ Teachers are members of learning communities.
-

Course Content

- ✔ Characteristics of research.
 - ✔ Selecting a problem and constructing a hypothesis
 - ✔ Identifying independent variables
 - ✔ Construction operational definitions of variables.
 - ✔ Techniques for the manipulation of variables (designs of research)
 - ✔ Internal validity considerations
 - ✔ External validity considerations
 - ✔ Procedures for observation and measurement (recording)
 - ✔ Interpretation of data (analysis)
 - ✔ Reporting results
-

Evaluation

Course Requirements

Requirement	Points
Exams--each test will be both objective and subjective.	
1. Midsession Exam - July 19	50
Proposal for original research (typed, double spaced)	
Table of Contents	1
1. Introduction	
a. statement of problem	2
b. anticipated value of the study	2
c. definitions	2
d. basic assumptions	2
e. limitations	2
2. Literature Review (2 pts. per source)	10
a. Hypothesis	2
3. Methods Section	
a. Subjects	2
b. Variables	2
c. Apparatus/instruments	2
d. Procedure	2
e. Analysis	2
Reference Page & Appendix (if appropriate)	2
Due: July 13	Total = 35
Article Critique	
1. Problem	1
2. Procedure	1
3. Independent and Dependent Variables	4
4. Results	2

5. Valid or Not (internal & external validity)	4
Due: July 18	Total = 12
Class "Experiment" Report	
Abstract	2
Table of Contents	
1. Introduction (5 subsections)	5
2. Literature Review (hypothesis)	3
3. Methods (5 subsections)	5
4. Results (verbal and pictorial)	5
5. Summary	
a. Conclusion	2
b. Discussion	2
c. Recommendations	2
Reference Page	1
Appendix	1
Due: July 27	Total = 28
Final Research Report	
Abstract	2
Table of Contents	1
1. Introduction Section (5 subsections)	15
2. Literature Review -- 2 points/article or book (Hypothesis) - 14 references	28
3. Methods (5 subsections)	15
4. Results (verbal and pictorial)	8
5. Summary	
a. Conclusion	2
b. Discussion	2
c. Recommendations	2
6. References	
7. Appendix (if appropriate)	

8. A copy for the instructor		
Due: August 1	Total =	75
Class Power Point Presentation		
1. Quick summary of procedure and results; also give hypothesis.		
2. Be able to field questions concerning research project.		
3. Visual display of results		
	Total =	10

Late Assignments:

One point will be subtracted per calendar day late for all assignments. Missing more than two days will mean no bonus points.

Course Calendar

Date	Topic	Reading
July 2	Introduction to research	
July 3	Types of Research/Variables (Library)	Part A
July 5	Literature Review & Hypotheses	Part B
July 6	Sampling/Survey Research	Part C, topics 35 & 36
July 9	Individual Sessions	
July 10	Individual Sessions	
July 11	Individual Sessions	
July 12	Individual Sessions	
July 13	Mock Experiment in Class - <u>Proposal Due</u>	
July 16	Single Subject Designs/Unobtrusive	Part E

	Measures	
July 17	Experimental Designs	
July 18	Threats to Internal and External Validity	
July 19	Midsession	
July 20	Class Experiment - Take Home Write-Up	
July 23	Individual Sessions	
July 24	Individual Sessions	
July 25	Individual Sessions	
July 26	Individual Sessions	
July 27	Descriptive Statistics	Part F
July 30	Inferential Statistics	Part G
July 31	Qualitative Research	Part H
Aug 1	Research Presentations	
Aug 2	Research Presentations	
Aug 3	Research Presentations	

References

Web Sites

- ☞ [Education Internet Guide](http://www.library.usyd.au/Guides/Education/index.html)
<http://www.library.usyd.au/Guides/Education/index.html>
- ☞ [Education Index](http://www.educationindex.com) <http://www.educationindex.com>
- ☞ [Librarians' index](http://sunsite.berkeley.edu/internetindex/) <http://sunsite.berkeley.edu/internetindex/>
- ☞ American Psychological Publication Manual (5th ed.), (2001), Washington, D.D.: American Psychological Association.
- ☞ [Electronic Reference Formats recommended by the American Psychological Association](http://www.apa.org/journals/webref.html) How to cite information from the World Wide Web from frequently asked questions about the Publication Manual of the American Psychological Association (4th ed.). Available <http://www.apa.org/journals/webref.html> (1998, April 20).
- ☞ Kirk, E. E. (1998, March 5). [Evaluating Information Found on the Internet](http://milton.mse.jhu.edu:8001/research/education/net.html). Retrieved March 1, 2000 from the World Wide Web: <http://milton.mse.jhu.edu:8001/research/education/net.html>
- ☞ <http://www.tufts.edu/~gdalla/LHSP.HTM> [The Little Handbook of Statistical Practices](http://www.tufts.edu/~gdalla/LHSP.HTM) by Gerard Dallal, Ph.D., Tufts University
- ☞ <http://faculty.vassar.edu/~lowry/VassarStats.html> VassarStats,

web site for statistical computation

☞ <http://trochim.human.cornell.edu/> Bill Trochim's site, Cornell University - great link titled "Selecting Statistics"

☞ <http://www.sportsci.org/resource/stats/index.html> Written to teach the basics

☞ <http://www.psychstat.smsu.edu/> Includes a link on the bottom of the pages to many other statistic sites

☞ <http://davidmlane.com/hyperstat/index.html> Includes online handbook for Hyperstat program

ADA: If any student needs modification of materials and/or teaching procedures due to a disability, please notify the instructor.

Professionalism: It is assumed any contact with the public on behalf of class assignments will occur with confidentiality and professionalism. Plagiarism will result in the failing of this course.
