

ERSH 4200 Methods of Research in Education (Exercise Science)
Fall 2002

I. Instructor Information

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II. Purpose

The purpose of this course is to provide an overview of research methods, and descriptive and experimental research designs in order to prepare students to conduct and read research.

III. Objectives

At the conclusion of the course the student should be able to:

1. Discuss the purpose of research in exercise science.
1. Identify and define a research problem, including the associated hypothesis to be tested, and limitations, delimitations, and underlying assumptions.
1. Describe the scientific method and the elements of the research process.
1. Discuss the importance of reviewing the literature in identifying and developing a research problem; use a computer to search available data bases to obtain published literature.
1. Demonstrate an understanding of selected basic statistical concepts, including measures of central tendency, variance, sampling, hypothesis testing, and inferential tests of significance, and how they are used in research. Correctly interpret basic descriptive and inferential statistics.
1. Define objectivity, reliability, and validity, and discuss their importance in research. Describe how they are assessed.
1. Describe and discuss the strengths and weaknesses of typical descriptive, quasi-experimental and experimental designs used in exercise science research, including the major threats to internal and external validity.
1. Discuss factors that affect the sensitivity of an experiment, including statistical power.
1. Evaluate the strengths and weaknesses of exercise science research published in peer-reviewed journals.

1. Describe the format and main components of a scientific, peer-reviewed manuscript and thesis or dissertation.
1. Discuss ethical issues in research including honesty in collection, authorship, and representation of data and safe, respectful treatment of participants.

IV. Tentative Topics by Week

Week

- 1 Nature and purpose of research, Chapter 1
- 2 Defining a problem, Chapter 2
- 3 Reviewing the literature, Chapter 2
- 4 Elements of the research process, Chapter 3
- 5 Ethics in research, data collection methods, selection of research participants/sampling, Chapters 3 - 5
(Test One)
- 6 Reading and evaluating journal articles, Chapter 6
- 7 Experimental research, Chapter 7
- 8 Experimental research, Chapter 7
- 9 Descriptive research, Chapter 8
- 10 Overview of other approaches to research, Chapters 9 - 11
(Test Two)
- 11 Descriptive statistics, Chapter 12
- 12 Inferential statistics, Chapter 13
- 13 Measurement issues in research, Chapter 14
- 14 Disseminating the research results, Chapter 15
- 15 Reading and evaluating journal articles
(Test Three, during final exam week)

V. Evaluation

1. Criteria
 - A. Exams: 90 % [3 tests] [Make-up possible with excuse]
 - B. Quizzes/Projects/Subjective ratings of class contributions: 10%
[Quiz make-up possible]
2. Standards
 - A. A : 80% of total points
 - B. B : 65% of total points
 - C. C : 55% of total points
 - D. D : 45% of total points

- E. F : less than 45% of total points
- F. I : Failure to complete all required assignments
- G. W: Withdrawn from the class by the instructor for excessive number of unexcused absences from class

VI. Attendance Policy

Sometimes roll will be taken in class. More than six unexcused absences is grounds for the instructor withdrawing you from the class (see grading standards in this handout). In the University of Georgia Undergraduate Bulletin is the following statement: Students are expected to attend classes regularly. A student who incurs an excessive number of absences may be withdrawn from a class at the discretion of the professor.

VII. Required Assignments

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- 1. E-mail the class instructor by the end of the 2nd week of classes
 - 2. Turn in the biographical information sheet by the end of the 2nd week of classes
 - 3. Galileo project (week 4)
 - 4. Research article project (week 13)

VIII. Honesty Policy

Students in this course are expected to confirm to the UGA Student Honor Code: “I will be academically honest in all of my academic work and will not tolerate academic dishonesty of others.” Academic honesty means performing all academic work without plagiarism, cheating, lying, tampering, stealing, receiving unauthorized or illegitimate assistance from any other person, or using any sources of information that is not common knowledge. Students who assist other students in academically dishonest acts are in violation of the policy. Consequences of academic dishonesty may vary from receiving a lower grade to expulsion from the University. Students have the responsibility for knowing the University’s policy and procedures on academic dishonesty, which are described in the publication, A Culture of Honesty. Copies of this publication can be obtained from the Office of the Vice President for Instruction or may be viewed at the following web site: <http://www.uga.edu/ovpi>’ .

IX. Suggested Textbooks

- 1. Baumgartner, Strong, and Hensley. (2002). Conducting and Reading Research in Health and Human Performance, 3rd ed., McGraw-Hill.
- 1. Thomas and Nelson. (2001). Research Methods in Physical Activity, 4th ed., Human

Kinetics.

1. Neutens and Rubinson. (1997). Research Techniques for the Health Sciences, 2nd ed., Allyn & Bacon.
1. Huck and Cormier. (1996). Reading Statistics and Research, 2nd ed., Addison & Wesley.

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