APPLIED RESEARCH DESIGN (E27.2013.001)

FALL 2009 SCHEDULE
Seminars: Wed. Noon – 2:00 P.M., Barney Building, 5th floor conference room

INSTRUCTOR
Robert Tobias
(212) 998-5497; rjt3@nyu.edu
Pless Annex 300
Office Hours: Tuesday, 9:30 – 10:30 AM and by appointment

COURSE DESCRIPTION
This course provides an introduction to the design of research studies in applied educational settings. The design and implementation of research studies is contextualized in current educational issues and takes into account the practical constraints of the real world. Topics covered include the formulation of research questions/hypotheses, operational definitions of research constructs, sampling methods, experimental and quasi-experimental designs, threats to internal and external validity, psychometric and statistical methods, quantitative and qualitative inquiry, data analysis and research report writing. Each seminar session will focus on specific aspects of research design and methodology and the critical analysis of journal articles and research reports that employ these methods to investigate major issues in education. The quality of the research will be discussed, including the soundness of the design, methods of data collection, methods of data analysis, and the tenability of the conclusions drawn from evidence. During the course of the semester, students will complete seven written assignments: four will be brief critical analyses of research studies on major educational issues; two will involve the formulation of research questions and research designs; and one will be a brief report based on the interpretation of statistical analyses of actual data. In addition, students will write a 20-page final paper that will be a proposal for a research study in the students’ areas of interest. Students will prepare and deliver an oral presentation on their final research proposal.

COURSE OBJECTIVES
Through seminars discussions, and written and oral presentations, students will:
1. Develop knowledge and understanding of the fundamental principles of applied research, including the formulation of research questions, the development of methodological procedures and the collection, analysis and interpretation of data.
2. Develop skill in the critical analysis of research articles and reports.
3. Gain practical experience in developing research proposals and writing research reports.
4. Receive hands-on experience in accessing and analyzing data from extant databases to address real research questions.
5. Develop an understanding of how research is used to inform significant issues in education.
6. Gain an appreciation of the practical exigencies of conducting research in applied settings.

ABOUT THE INSTRUCTOR
Professor Robert Tobias is the founding Director of the Center for Research on Teaching and Learning in NYU’s Department of Teaching and Learning and served for over 13 years as the Executive Director of Assessment and Accountability for the New York City public schools. His prior experience with the New York City schools includes 16 years of service as research analyst and Administrator of Program Evaluations. He has expertise in psychometrics, multivariate statistical analysis, research design, and program evaluation; has conducted numerous evaluations of educational interventions and professional development and teacher education programs; and has authored more than 150 evaluation and research reports. Professor Tobias has been a frequent presenter at the annual meeting of the American Educational Research Association and has also presented at the Large Scale Assessment Conference sponsored by the Council of Chief State School Officers and the Association of American Colleges of Teacher Education. In his recent work, Professor Tobias has completed major research projects for the Charter School Institute of the State University of New York, Polytechnic University and the City Council’s Commission on the Campaign for Fiscal Equity.

READINGS AND ASSIGNMENTS
A textbook will be used as the main source of information on the theory and principles of research design and methods. Journal articles will be used to demonstrate the practical application of these principles and methods in the study of important educational issues.

Textbook:

Schedule of Readings and Assignments:
Readings and assignments are listed by the seminar date during which they will be discussed or submitted.

September 9
Text Chapter 1

September 16
Text Chapters 2 & 3

Assignment 1 is due.

September 23
Text Chapters 4 & 5

**Assignment 2 is due.**

**September 30**  
Text Chapters 6, 7, & 8

**October 7**  
Text Chapter 9  

**Assignment 3 is due.**

**October 14**  
Text Chapter 14  

**October 21**  
Text Chapter 15  

**Assignment 4 is due.**

**October 28**  
Text Chapter 16

**November 4**  
Text Chapter 17  

**Assignment 5 is due.**

**November 11**  
Text Chapter 10  

**November 18**  
Text Chapters 12 & 13

**Assignment 6 (Outline of final project) is due.**

**November 25**


The Milgram Experiment (Handout)


**Assignment 7 is due.**

**December 9**

**Final project is due.**

**DESCRIPTION OF ASSIGNMENTS**

**Assignment 1.** Select a research problem in your area of interest. Provide some background for the problem, including its significance or importance for your field and why and/or how it attracted your interest. Define the constructs and technical jargon that are included in your problem statement. Formulate two or three research questions and, if appropriate, associated hypotheses related to the problem. In no more than a few paragraphs, suggest a general research approach for a study designed to answer the research questions. Be prepared to discuss your study in class. (Approximately 2 pages, double spaced)

**Assignment 2.** Write a descriptive and critical analysis of the Schappe article. Describe the research problem, hypotheses, and the type of research design employed. Comment on the appropriateness of the methodology for addressing the research problem, and the quality of the methods and procedures. Also, assess the extent to which the results support the conclusions as stated by the researcher. (Approximately 3 pages, double spaced)

**Assignment 3.** Write a descriptive and critical analysis of the Borman article. Describe the research problem, hypotheses, and the type of research design employed. Comment on the appropriateness of the methodology for addressing the research problem, and the quality of the methods and procedures. Also, assess the extent to which the results support the conclusions as stated by the researcher. (Approximately 3 pages, double spaced)

**Assignment 4.** Write a descriptive and critical analysis of the Ehri article. Describe the research problem, hypotheses, and the type of research design employed. Comment on the appropriateness of the methodology for addressing the research problem, and the quality of the methods and procedures. Also, assess the extent to which the results support the conclusions as stated by the researcher. (Approximately 3 pages, double spaced)
Assignment 5. Write a research-report results section based on an analysis of a statistical dataset that will be posted on Blackboard. You will be given the statistical output. Your results section should include tables and/or graphs and associated narrative. (Approximately 3 pages, double spaced).


Assignment 7. Write a descriptive and critical analysis of the Bleske-Recheke article. Describe the research problem, hypotheses, and the type of research design employed. Comment on the appropriateness of the methodology for addressing the research problem, and the quality of the methods and procedures. Also, assess the extent to which the results support the conclusions as stated by the researcher. (Approximately 3 pages, double spaced)

Final Project Specifications
1. 20 pages (excluding bibliography and tables/figures/appendices), doubled-spaced research proposal/paper on topic of individual choice, prepared in APA style.
2. Paper should consist of the following sections (approximate guidelines for length):
   - Title Page (title of proposed study, author, affiliation, running head) (1 page)
   - Abstract (maximum of 150 word summary of entire proposal) (1 page)
   - Literature review, culminating in statement of proposed research problem(s) and hypotheses (5+ pages)
   - Methodology (sample, groups, setting, instrumentation, procedures, data analysis) (5+ pages)
   - Expected or actual results (3+ pages)
   - Discussion (significance of positive findings, implications of negative findings, limitations of the proposed study, potential new directions for further research) (3+ pages)

Grading Criteria
1. Quality of seminar participation (e.g., insightful/active participation)
2. Quality of work on assignments
3. Quality of presentation of research paper and oral defense
Seminar 1. Introduction and overview
- Introduction to course goals and objectives
- Review of the course outline
- Discussion of students’ and instructor’s research interests
- What is applied research?

Seminar 2. Formulating research questions and hypotheses
- Identifying the issues and defining the problem
- Developing research questions
- The critical role of theory
- Links between research questions/hypotheses and research methodology
- Theoretical and operational definitions of independent (predictor), dependent (outcome), and intervening/moderator variables

Seminar 3. Communicating research
- Components of research proposals
- Components of research reports
- Critiquing research reports

Seminar 4. Experimental quantitative research designs
- Types of variance
- Controlling variance
- Experimental designs
- Quasi-experimental designs

Seminar 5. Nonexperimental Quantitative research designs
- Ex post facto
- Surveys
- Questionnaires & interviews

Seminar 6. Sampling
- Purpose of sampling
- Universe or target population
- Types of sampling
- Determining the size of a sample

Seminar 7. Measurement and data collection
- Levels of measurement
- Reliability
- Validity
Oct. 28  Seminar 8. Introduction to descriptive statistical analysis
  • Continuous versus categorical variables
  • Frequency distributions
  • Central tendency
  • Dispersion
  • Correlation

Nov. 4   Seminar 9. Introduction to inferential statistical analysis
  • Logic of hypothesis testing
  • Type I and Type II errors
  • Statistical power analysis
  • Parametric versus nonparametric
  • Tests of significance

Nov. 11  Seminar 10. Qualitative research designs
  • Conceptual foundations
  • Types of designs
  • Data analytic methods

Nov. 18  Seminar 11. Mixed and other methods
  • Multiple measures and multiple methods
  • Delphi methods
  • Meta-analysis

Nov. 25  Seminar 12. General issues
  • Conducting a pilot study
  • IRB approval
  • Ethical issues
  • Practical considerations in entering the field
  • Social and political context
  • Publishing in journals

Dec. 2   Research paper presentations

Dec. 9   Research paper presentations

Please note: Any student attending NYU who needs an accommodation due to a chronic, psychological, visual, mobility and/or learning disability, or is deaf or hard of hearing should register with the Moses Center for Students with Disabilities at 212-998-4980, 240 Greene Street New York, NY 10003. www.nyu.edu/csd