SW 830:
Applied Social Work Research:
Experimental and Quasi-Experimental Designs

I. NUMBER OF CREDITS: 2

II. PREREQUISITES
SW 829 or passing Waiver Examination

III. COURSE DESCRIPTION
This course is designed to provide a foundation of research skills for the masters-level social worker. The course will address empirically-based evaluation of social work practice and programs; single system designs beyond the A-B design; writing literature reviews; experimental and quasi-experimental research designs; measurement; sampling; data collection; statistical applications; data analysis; the use of computers in social work research and practice; and a beginning understanding of evidence-based practice.

Methods of Instruction
Skills and knowledge will be imparted via assigned readings and exercises, lecture, and class discussion.

I expect students to complete the assigned readings and self-tests in the readings before the class session for which they are assigned. If you do not understand content in the readings or do not understand how to do a self-test in the text, you should post a question to the class discussion list at timone@list.msu.edu.

There will be material presented in class that will not be covered in the assigned readings. Similarly, there will be material presented in the assigned readings that will not be covered in class.

You will be responsible for all material.

IV. TEXTS AND OTHER MATERIALS
A. Required
A. Required (continued)


Calculator: At a minimum, the calculator must carry out basic arithmetic, square root, and power functions. It would be useful if the calculator could also calculate basic statistical functions (mean, variance, and standard deviation).

On-Line Reserve: Available on line at class Web site: <http://www.msu.edu/course/sw/830/stocks/>

Adobe Acrobat Reader: Freeware available on line at http://www.adobe.com/products/acrobat/readstep.html

Evidence-Based Practice Readings on the Internet:
Hyde, P.S., et al. (2003). Turning Knowledge into Practice. A PDF version of this manual is available at http://www.acmha.org. To obtain a hard copy, contact The Technical Assistance Collaborative, publications@tacinc.org or 617.266.5657.

B. Recommended


V. COURSE OBJECTIVES

This course is designed to provide foundation knowledge of quantitative research methods used in social work. A student who successfully completes this course should be able to demonstrate the following:

- Integrate concepts of research methodology with professional social work practice.
- Recognize and understand concepts and procedures of evaluative research for practice and programs.
- Recognize and understand principles of experimental, quasi-experimental, and advanced single system design.
- Recognize and understand principles of reliability and validity in the measurement of variables.
- Understand statistical procedures and computer applications for data analysis.
- Apply concepts and principles of evaluative research, experimental and quasi-experimental design, single system design, measurement procedures, and statistical procedures to social work settings and problems.
- Understand the importance of evidence-based practice and directly apply principles to current practice.
- Understand the importance of and demonstrate ability to critique the empirical literature and complete a literature review.
VI. COURSE FORMAT
Skills and knowledge will be imparted via assigned readings and exercises, lecture, class discussion, and problem analysis.

I expect students to complete the assigned readings and self-tests in the readings before the class session for which they are assigned. If you do not understand content in the readings or do not understand how to do a self-test in the text, you should post a question to the class discussion list at timhai@list.msu.edu.

There may be material presented in class that will not be covered in the assigned readings. Similarly, there may be material presented in the assigned readings that will not be discussed in class.

You will be responsible for all material presented.

VII. ASSIGNMENTS AND BASIS FOR GRADING
I shall evaluate how well you fulfill the course objectives by your performance on class quizzes, papers, and other assignments. Other behavior in class also will contribute to your grade.

You must follow instructions for formatting assignments. Do not staple separate assignments together.

A. Class Conduct
I expect students to behave as active members of a learning community. Since this class is part of your professional training as a social worker, the expectations placed upon you are higher than those that are outlined in the MSU publication Spartan Life: Student Handbook and Resource Guide.

These expectations include, but are not limited to, those discussed in the MSU School of Social Work Field Education Manual with special emphasis on Professional Expectations of Social Work Students. This includes conformity to the NASW Code of Ethics.

Failure to abide by these expectations, including engaging in disruptive behavior, will result in lower evaluations.

Disruptive behavior includes, but is not limited to, carrying on conversations or engaging in activities other than class activities during class, use of computers unless explicitly instructed to, refusing to participate in class activities, and other behavior that detracts from enhancing the learning community.

Minor disruptions will result in a lower class participation grade for the class.

More serious disruption or repeated minor disruption may result in exclusion from class for one session and/or lowering final grade for the course by one level (i.e., 4.0 to 3.5, 3.5 to 3.0, 3.0 to 2.5, 2.5 to 2.0, 2.0 to 1.5, 1.5 to 1.0, or 1.0 to 0.0) up to permanent exclusion and receiving a failing grade for the course (0.0).

I regard activity on the class Internet discussion list as behavior during class.

B. Instructions
Failure to follow instructions will result in lower grades for class work.

This includes, but is not limited to, failure to follow format instructions for written coursework and presentations.

Minor noncompliance with instructions will result in lower scores.

More serious noncompliance and/or persistent minor noncompliance may result in exclusion from class for one session and/or lowering final grade for the course by one level (i.e., 4.0 to 3.5, 3.5 to 3.0, 3.0 to 2.5, 2.5 to 2.0, 2.0 to 1.5, 1.5 to 1.0, or 1.0 to 0.0) up to permanent exclusion and receiving a failing grade for the course (0.0).
C. Academic Integrity

The School of Social Work adheres to the policies on academic honesty as specified in General Student Regulations 1.0, Protection of Scholarship and Grades; the all-University Policy on Integrity of Scholarship and Grades; and MSU Ordinance 17.00, Examinations. While you may discuss assigned class work with each other, each of you must turn in individual, original work. Students who violate academic integrity rules may receive a penalty grade. At my discretion, penalties may range from a failing grade on the particular piece of assigned class work to a failing grade for the course. Administrative sanctions may include dismissal from the university.

D. Late Work

Class work is due on the due date. I shall give work that is not handed in on time a score of zero unless you and I have reached some other agreement before the due date. Exceptions to this are study questions and certain general assignments.

If you hand in study questions or specifically designated assignments no later than the next class session after the due date, I shall grade them, but I shall assign the lesser of the following scores:

- Five points less than the lowest score in the distribution of scores for work received on time, or
- Twenty points less than your earned score.

After this grace period, I shall give overdue study questions and designated assignments a score of zero unless you and I have reached some other agreement before the end of the grace period.

E. Students with Disabilities

I wish to provide an environment that will enhance learning for all students. If you need accommodation for a disability, please let me know as well what accommodation you need. Also, contact the Resource Center for Persons with Disabilities to determine eligibility for accommodation.

Resource Center for Persons with Disabilities (RCPD)
120 Bessey Hall – Michigan State University
East Lansing, MI 48824-1033
(517) 353-9642 (517) 355-1293 (TTY)  http://www.rcpd.msu.edu

F. Other Requirements, Expectations & Weights

5% 1. Attendance: I expect you to attend all class sessions.

5% 2. Study Questions/Homework:
When assigned, these will be due at the start of the next class session.

5% 3. Class Participation:
Your performance in the classroom as well as your participation in the class Internet discussion group – TIMONE – will be evaluated.
F. Other Requirements, Expectations & Weights (continued)

20%  4. Literature Review:
Identify and operationalize a problem area as the focus for an advanced single
system design evaluation. Review the empirical literature and summarize current
evidence-based treatment approaches. This paper should follow APA Style
conventions. It should consist of no more than ten pages of typewritten text
include a minimum of ten empirical references. The title page and reference
section are not included in the page count.
The paper should be organized into four broad sections with the following
headings.

Problem Identification: Identify the problem and state why it is important.

Literature Review: Summarize the results of empirical studies of the problem.
I prefer studies of outcomes of interventions.

Dependent Measure: Describe the procedure used to measure the outcome of
your intervention. Your description should clearly identify how you intend to
measure the problem area. I prefer that you make use of one dependent
measure for this paper.

Design: Identify the specific single system design you would use to evaluate
outcome of your intervention, the number of observations in each phase and
the length of time for each phase. Briefly describe the procedures used in the
intervention phase or phases. [Note: a vague description will not be
acceptable.]

Section headings should follow APA-style conventions. You may have
subsections within these four broad sections if you wish. If you use subsections,
their headings must also follow APA-Style conventions.

5%  4. Assignments:
Some of these may require that you use SPSS for Windows (the program is on the
computers in the MSU Microcomputer Labs).

25%  5. First Test

35%  6. Second Test (Cumulative)

G. Grade Assignment

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percent</th>
<th>Grade</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0</td>
<td>≥ 93</td>
<td>2.0</td>
<td>65 - &lt;72</td>
</tr>
<tr>
<td>3.5</td>
<td>86 - &lt;93</td>
<td>1.5</td>
<td>58 - &lt;65</td>
</tr>
<tr>
<td>3.0</td>
<td>79 - &lt;86</td>
<td>1.0</td>
<td>51 - &lt;58</td>
</tr>
<tr>
<td>2.5</td>
<td>72 - &lt;79</td>
<td>0.0</td>
<td>0 - &lt;51</td>
</tr>
</tbody>
</table>

GRADES ARE FINAL. The exception to this is if there is instructor error in grading and/or
instructor error in computation of grades. Thus, you are encouraged to hold on to all class
work until after you have received your grade report from the University.

H. Posting of Grades
I shall assign each of you a random identification number. Please indicate whether you want
me to post your current grades at various times during the semester next to the random
identifier (or if you do not want me to post them). I use a random identifier so that only you
and I will know whose grades have been posted.
VIII. TOPICAL OUTLINE

Complete the assigned readings and self-tests in the readings before the class session for which they are assigned. If you do not understand content in the readings or do not understand how to do a self-test in the text, post a question to the class discussion list at timhai@list.msu.edu.

There will be some modifications to the reading assignments made over the course of the semester.

SESSION 1: AUGUST 26 Course Overview / Research, Ethics and Evidence-Based Practice

SESSION 2: SEPTEMBER 2 Knowledge Construction: Research, Ethics and Evidence-Based Practice

Required Reading:
Rubin & Babbie: 4. The Ethics and Politics of Social Work Research
Stocks: 1. The Construction of Knowledge: Evidence I
2. The Construction of Knowledge: Evidence II
Appendix III. Mathematical Symbols and Operations
Hyde et al.: 1. An Introduction to Evidence-Based Practice
2. Recovery, Resilience and Evidence-Based Thinking

Recommended Reading:
Roberts & Yeager: 1. Bridging Evidence-Based Health Care and Social Work
2. The Evidence For and Against Evidence-Based Practice
Rubin & Babbie: 1. Scientific Inquiry and Social Work
2. Philosophy and Theory Issues in Science and Research
Stocks: Appendix III. Mathematical Symbols and Operations

SESSION 3: SEPTEMBER 9 Problem Formulation / Evidence-Based Practice

Required Reading:
Rubin & Babbie: 6. Problem Formulation
7. Conceptualization and Operationalization
Appendix A. Using the Library
Stocks: 3. The Construction of Knowledge: Causation and Theory
Hyde et al.: 3. Different Words for Different Ideas – Definitions That Matter
4. Examples of Evidence-Based and Promising Practices

Recommended Reading:
Roberts & Yeager: 3. What is Evidence-Based Practice?
4. A Practical Approach to Formulating Evidence-Based Questions in Social Work
5. Implementing Best Practice and Expert Consensus Procedures
Stocks: Appendix III. Mathematical Symbols and Operations
SESSION 4: SEPTEMBER 16
Levels of Measurement / Review of Descriptive Statistics / Evidence-Based Practice

Required Reading:
Rubin & Babbie: 14. Sampling
20. Quantitative Data Analysis:
   Introduction, Levels of Measurement
Stocks: 4. Measurement
5. Frequency Distributions: Tables
7. Probability and Sampling:
   Section II
Hyde et al.: 5. How to Select and Implement Evidence-Based Practices
6. How to Work with Practitioners around Evidence-Based Practices

Recommended Reading:
Roberts & Yeager: 6. Overview of Evidence-Based Practices
7. Implementation of Practice Guidelines and Evidence-Based Treatment
8. Concise Standards for Developing Evidence-Based Practice Guidelines
   12. Facilitating Practitioner Use of Evidence-Based Practice
Stocks: Appendix III. Mathematical Symbols and Operations

SESSION 5: SEPTEMBER 23
Sampling / Review of Descriptive Statistics / Evidence-Based Practice

Required Reading:
Rubin & Babbie: 14. Sampling
Stocks: 7. Probability and Sampling:
   Section II
8. Descriptive Statistics – I:
   Sections I.A., I.B., I.C.1., I.E. through I.G., II.A. through II.D., II.E.1., II.E.2.a., II.F. through II.H.
9. Descriptive Statistics – II:
   Sections II, III, & IV.
Hyde et al.: 7. How to Work with Your Organization or Program around Evidence-Based Practices
   8. Sustaining and Improving on the Effort

Recommended Reading:
Roberts & Yeager: 11. Toward Common Performance Indicators and Measures for Accountability in Behavioral Health Care
Stocks: Appendix III. Mathematical Symbols and Operations
SESSION 6: SEPTEMBER 30  Review of Descriptive Statistics / Evidence-Based Practice

Required Reading:
Rubin & Babbie: 20. Quantitative Data Analysis
Stocks: 8. Descriptive Statistics – I:
Sections I.A., I.B., I.C.1., I.E. through I.G., II.A. through II.D., II.E.1., II.E.2.a., II.F. through II.H.
9. Descriptive Statistics – II:
Sections II, III, & IV.
Hyde et al.: Appendix C. How to Read and Understand the Literature

Recommended Reading:
Stocks: Appendix III. Mathematical Symbols and Operations

SESSION 7: OCTOBER 7  Review of Descriptive Statistics / Reliability and Validity/
Y = T = E / Reliability Coefficients: Retest, Parallel Forms & Internal Consistency / Standard Error of Measurement/
Content Validity, Criterion-Related Validity & Construct Validity/ The Literature Review

Required Reading:
Rubin & Babbie: 8. Measurement
9. Constructing Measurement Instruments
Stocks: 10. Descriptive Statistics – III
Appendix IV. Applied Measurement Theory
Galvan: 1. Writing Reviews of Academic Literature: An Overview
2. Considerations in Writing Reviews for Specific Purposes

Recommended Reading:
Stocks: Appendix III. Mathematical Symbols and Operations

SESSION 8: OCTOBER 14  Reliability and Validity/
Y = T = E / Reliability Coefficients: Retest, Parallel Forms & Internal Consistency / Standard Error of Measurement/
Content Validity, Criterion-Related Validity & Construct Validity/ The Literature Review

Required Reading:
Rubin & Babbie: 8. Measurement
Stocks: Appendix IV. Applied Measurement Theory
Galvan: 3. Selecting a Topic and Identifying Literature for Review
4. General Guidelines on Analyzing Literature

Recommended Reading:
Stocks: Appendix III. Mathematical Symbols and Operations
SESSION 9: OCTOBER 21  FIRST TEST (1st half of the class period)
Group Research Designs / Experimental Control.
/ The Literature Review

Required Reading:
Rubin & Babbie: 10. Causal Inference and Correlational Designs
Stocks: Appendix VI: Threats to the Validity of Conclusions.
Galvan: 5. Analyzing Quantitative Research
6. Analyzing Qualitative Research
7. Building Tables to Summarize Literature

Recommended Reading:
Stocks: Appendix III. Mathematical Symbols and Operations

SESSION 10: OCTOBER 28
Group Research Designs / Logical Control /
Threats to the Validity of Conclusions Designs / Review of Inferential
Statistics: Estimating Parameters

Required Reading:
Rubin & Babbie: 11. Experimental Designs
Stocks: Appendix VI: Threats to the Validity of Conclusions.
11. Univariate and Bivariate Inferential Statistics :
   Sections I, II, III and IV.A.
Galvan: 8. Synthesizing Literature Prior to Writing a Review
9. Guidelines for Writing a First Draft

Recommended Reading:
Stocks: Appendix III. Mathematical Symbols and Operations

SESSION 11: NOVEMBER 4  REVIEW OF Inferential Statistics: Estimating Parameters /
Hypothesis Tests

Required Reading:
Stocks: 11. Univariate and Bivariate Inferential Statistics :
   Sections I, II, III and IV.A.
12. The Rationale for Statistical Hypothesis Testing
11. Comprehensive Self-Editing Checklist for Refining the Final
   Draft

Recommended Reading:
Rubin & Babbie: Appendix B. Statistics for Estimating Sampling Error
Stocks: Appendix III. Mathematical Symbols and Operations

SESSION 12: NOVEMBER 11  Review of Inferential Statistics: Hypothesis Tests

Required Reading:
Stocks: 12. The Rationale for Statistical Hypothesis Testing
13. Single Sample Tests
   Sections I, II and III
14. Tests of Two Related Samples
   Sections I, II, III and IV
15. Tests of Two Independent Samples
   I, II and III

Recommended Reading:
Stocks: Appendix III. Mathematical Symbols and Operations
SESSION 13: NOVEMBER 18  
**Single System Designs**

**Required Reading:**
- **Rubin & Babbie:** 12. *Single Case Evaluation Designs*  
  Appendix C. *Inferential Statistics and Single-Case Designs*
- **Stocks:** 6. *Frequency Distributions: Charts and Distribution Types.*
- **Bloom, Fischer & Orme:** 14. *The Experimental Single System Designs:*  
  15. *Multiple Designs for Single Systems*
  16. *Changing Intensity Designs and Successive Intervention Designs*

**Recommended Reading:**
- **Stocks:** Appendix III. *Mathematical Symbols and Operations*

SESSION 15: NOVEMBER 25  
**Single System Designs**

**Required Reading:**
- **Rubin & Babbie:** 12. *Single Case Evaluation Designs*  
  Appendix C. *Inferential Statistics and Single-Case Designs*
- **Stocks:** 6. *Frequency Distributions: Charts and Distribution Types.*
- **Bloom, Fischer & Orme:** 18. *Selecting a Design*
  20. *Visual Analysis of Single-System Data*

**Recommended Reading:**
- **Stocks:** Appendix III. *Mathematical Symbols and Operations*

SESSION 15: DECEMBER 2  
**Catch Up and Review**

TUESDAY, DECEMBER 9, 8:00 – 10:00 PM  **FINAL TEST**

**RANDOM IDENTIFICATION NUMBER** ___________________________