SW 430: Research Methods in Social Work I

I. NUMBER OF CREDITS: 4

II. PREREQUISITES

Completion of University Mathematics Requirement: MTH 104 or MTH 132 or MTH 110 or MTH 201 or MTH 116 or STT 200 or MTH 124 or MTH 120 or STT 201 or MTH 152H

III. COURSE DESCRIPTION

This course is the first in a two-part sequence that is designed to provide foundation knowledge of research methods used in social work. This course will cover research processes employing quantitative methods as applicable to the measurement of outcomes of social work interventions.

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 timhai@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 online at class Web site:

<http://www.msu.edu/course/sw/430/stocks/>

**Adobe Acrobat Reader:** Freeware available online at


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:

- the ability to use inductive and deductive methods in evaluation of theory and practice;
- an understanding of and the ability to apply the principles for the ethical conduct of research;
- an understanding of the impact of research on participants and relevant groups, especially oppressed populations;
- knowledge and skills needed to measure social work and other social science concepts;
- an understanding of the importance of and the ability to construct visual displays of data (tabulation, charting, graphing);
- the ability to describe univariate distributions in terms of shape, center, and spread;
- an understanding of and ability to use the basic principles of probability and sampling to make inferences;
- the ability to appropriately use data analytic techniques such as contingency tables, linear regression, and parametric and nonparametric statistical hypothesis tests for designs used in the evaluation of single samples, two dependent samples, and two or more independent samples (including crossed factor designs) to investigate practical and theoretical issues related to social work practice;
- the ability to carry out power analyses to determine appropriate sample sizes for parametric and nonparametric statistical hypothesis tests.
- the ability to read and interpret output from statistical software packages;
- the ability to reason statistically and to apply this skill to one’s practice and to the evaluation of the professional literature in social work and related disciplines.

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.
C. Academic Integrity (continued)
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 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.

10%  3. Assignments:
Some of these will require that you use SPSS for Windows (the program is on the computers in the MSU Microcomputer Labs).

15%  4. Class Participation:
Your performance in the classroom as well as your participation in the class Internet discussion group – TIMHAI – will be evaluated.

25%  5. First Test

40%  6. Second Test (Cumulative)
G. Grade Assignment

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</tr>
<tr>
<td>3.5</td>
<td>86 - &lt;93</td>
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<tr>
<td>3.0</td>
<td>79 - &lt;86</td>
</tr>
<tr>
<td>2.5</td>
<td>72 - &lt;79</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
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<td>2.0</td>
<td>65 - &lt;72</td>
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<tr>
<td>1.5</td>
<td>58 - &lt;65</td>
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<td>1.0</td>
<td>51 - &lt;58</td>
</tr>
<tr>
<td>0.0</td>
<td>0 - &lt;51</td>
</tr>
</tbody>
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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: MAY 12  Course Overview
Knowledge Construction: Research, Ethics, and Argument

SESSION 2: MAY 14  Knowledge Construction: Research, Ethics, and Argument/
Describing Data: Levels of Measurement / Frequency, Percentage & Cumulative Distributions / Graphing / Types of Distributions

Required Reading:
Stocks:
1. The Construction of Knowledge: Evidence I
2. The Construction of Knowledge: Evidence II
3. The Construction of Knowledge: Causation and Theory
4. Measurement
5. Frequency Distributions: Tables
Appendix III. Mathematical Symbols and Operations

Recommended Reading:
Stocks: Appendix I. Formal Argument

Required Reading:
Stocks:  6. Frequency Distributions: Charts and Distribution Types
         7. Probability and Sampling

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


Required Reading:
Stocks:  8. Descriptive Statistics – I
         9. Descriptive Statistics – II
         (You will not be responsible for the index of skewness \( g_1 \) or the index of kurtosis \( g_2 \).)

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

SESSION 5: MAY 26  MEMORIAL DAY – NO CLASS MEETING


Required Reading:
Stocks  10. Descriptive Statistics – III
Stocks  Appendix IV. Applied Measurement Theory

Recommended Reading:
Stocks:  Appendix III. Mathematical Symbols and Operations
SESSION 7: JUNE 2  
Reliability and Validity: \( Y = T + E \) / Retest, Parallel Forms & Interval Consistency / Reliability Coefficients / Standard Error of Measurement / Content Validity, Criterion-Related Validity & Construct Validity

Inferential Statistics: Standard Error of the Mean / Confidence Interval for the Mean / Standard Error of Estimate / Confidence Interval for Bivariate Statistics

Required Reading:
Stocks: 11. *Univariate and Bivariate Inferential Statistics*: Section I, Section II, Section III & Section IV-A.

12. *The Rationale for Statistical Hypothesis Testing*

Recommended Reading:
Stocks: 11. *Univariate and Bivariate Inferential Statistics*: Section IV-B, IV-C & IV-D.

Stocks: *Appendix III. Mathematical Symbols and Operations*

SESSION 8: JUNE 4  
**FIRST TEST (1st half of the class period)**

Hypothesis Testing: Null And Alternative Hypotheses / Effect Size / \( \alpha \) level, \( \beta \) level, and Power / Type I and Type II Errors / Directional and Nondirectional Tests

Single Sample Tests: Goodness of Fit Chi Square Test; Kolmogorov-Smirnov Single Sample Test; Single Sample Student t Test

Required Reading:
Stocks: 12. *The Rationale for Statistical Hypothesis Testing*

Stocks: 13. *Single Sample Tests*

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

SESSION 9: JUNE 9
Two Dependent Samples Tests: McNemar Change Test; Wilcoxon Matched-Pair Signed Rank Test; Dependent (Correlated) Samples Student t Test / Effect Size

Two Independent Samples Tests: Chi Square Test of Independence; Wilcoxon/Mann-Whitney Test; Independent Samples Student t Test / Effect Size

Required Reading:
Stocks: 14. *Tests of Two Dependent (Related) Samples*

15. *Tests of Two Independent Samples*

Recommended Reading:
Stocks: *Appendix III. Mathematical Symbols and Operations*
SESSION 10: JUNE 11
Two Independent Samples Tests: Chi Square Test of Independence; Wilcoxon/Mann-Whitney Test; Independent Samples Student t Test / Effect Size
Bivariate Correlation Tests: Chi Square Test of Independence; Student t Test for Correlation/ Effect Size

Required Reading:
Stocks: 15. Tests of Two Independent Samples
16. Tests of Correlation between Two Variables

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

SESSION 11: JUNE 16
Screening Tests for More Than Two Independent Samples: Chi Square Test of Independence; Kruskal-Wallis Test; One-Way Analysis of Variance (ANOVA) / Effect Size / Levene’s Test for Homogeneity of Variance
Post Hoc Pairwise Comparisons: Least Significant Difference Test; Scheffé’s Test

Required Reading:

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

SESSION 12: JUNE 18
Factorial ANOVA: Main Effects / Interaction Effects / Effect Size / Levene’s Test for Homogeneity of Variance
Post Hoc Multiple Pairwise Comparisons: Least Significant Difference Test; Scheffé’s Test

Required Reading:
Stocks 18. Factorial Analysis of Variance

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

SESSION 13: JUNE 23
Factorial ANOVA: Main Effects / Interaction Effects / Effect Size / Levene’s Test for Homogeneity of Variance
Post Hoc Multiple Pairwise Comparisons: Least Significant Difference Test; Scheffé’s Test

Required Reading:
Stocks 18. Factorial Analysis of Variance

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

SESSION 14: JUNE 25 FINAL TEST

RANDOM IDENTIFICATION NUMBER