

**GRADUATE SCHOOL OF SOCIAL WORK AND SOCIAL RESEARCH  
BRYN MAWR COLLEGE**

**Research Informed Practice**

**#134**

**Spring Semester 2012**

**Instructors**

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**Then click on: Data Analysis, SW134**

**Course Description**

This course prepares students to seek answers to fundamental questions about social work practice, social policy and social programs through the analysis of quantitative data. Along with the course in Research Informed Practice I (#133), this course enables students to become critical consumers of empirical research, as well as gain an appreciation for the use of statistics in evidence-based practice. Through an emphasis on the application of key statistical techniques and interpretation of results, students learn how to utilize statistics appropriately in their practice. Particular attention is paid to the legitimate and illegitimate use of statistical techniques and the misuse of data in support of discriminatory theories and practices toward vulnerable and at-risk populations. Familiarization with statistical methods used to examine issues related to poverty and other social and economic welfare issues assists students in examining research findings in light of social work values and ethics. Existing research is critiqued in terms of its relevance and generalizability with the implication that findings for more powerful groups (such as white males) may not be applicable to other diverse groups. In particular, students learn to be careful in how results are interpreted and applied specifically to women, racial, ethnic, and other minority groups, and to vulnerable and at-risk populations. This course reinforces the ongoing requirement that students expand their technological skills from the foundation year into their area of concentration. Students learn how to empirically test theories and hypotheses, and thus apply the content of this course in their social work theory and practice-based classes.

**Course Objectives**

Students will be expected to demonstrate the following competencies:

- (1) Understand the importance and utilization of statistics in evidence-based practice;
- (2) Effectively criticize existing research and utilize research findings to inform their professional practice;
- (3) Become aware of the ways in which statistics can be misapplied or misinterpreted to support discriminatory theories as well as permit false conclusions with respect to women and racial, ethnic, vulnerable and at-risk groups;
- (4) Understand that diverse populations may respond differently to particular conditions and that these variations need to be incorporated into research models;
- (5) Understand the limitations of generalizability and the caution of applying research findings across

groups differing in gender, race, ethnicity, and social class;

- (6) Conduct and interpret research on issues related to poverty, social welfare, and social justice through the design and completion of an original analysis of quantitative data;
- (7) Generate and test hypotheses and apply the findings to social work theory and practice;
- (8) Use the computer, statistical software, and basic statistics to perform univariate, bivariate, and simple multivariate analyses of quantitative data;
- (9) Write a scholarly research article applying the findings from a quantitative analysis to social work theory and practice.

### **Class Policies**

Students are expected to attend all class sessions and submit written assignments on time. The instructor should be notified in advance if the student expects to miss a class meeting or assignment due date. Class attendance is a routine expectation, and it is assumed that students will take an active role in class discussions.

Late submission of assignments must be negotiated in advance with the instructor. Failure to negotiate a late submission of an assignment will mean the loss of points for the final grade. Also, if assignments are handed in past the time of the negotiated date, points will be deducted for the final grade. It is assumed that all written and computer work will be done **independently**, unless otherwise specified by the instructor. Students may help each other with their computer assignments and in their analysis of data for their final research project. However, students may not do the same research project together or work on similar research projects together. Students who do not undertake independent work on the research paper will fail the class. All written work must be produced in MS Word.

Grades for this course are “Satisfactory” and “Unsatisfactory”, and include written and computer assignments, as well as class participation, in accordance with School policy. In order to achieve the intended outcomes for the course, the student must complete all work satisfactorily. Students who miss more than two class sessions will not pass the class unless they have discussed the reasons and received approval for such absences with their instructor.

Grades for the class will be determined on the basis of four factors:

1. Mid-term exam
2. Final Exam
3. Paper
4. Computer assignments.

Students must hand in all assignments and are expected to participate in class discussions.

Students may not proceed to the next semester or summer semester until all work from the previous semester or summer semester is complete or until a grade of Permanent Incomplete or Unsatisfactory is issued.

### **Assignments**

Students are expected to complete assigned readings in advance of class meetings. In addition to the required readings listed in the course outline below, other reading assignments will be made from time to time.

Computer exercises will be provided to familiarize students with basic statistical tools in both SPSS and Microsoft

Excel.

There will be a formal midterm and final exam.

Each student will develop and conduct an original analysis of data from the 1992 to 2009 Panel Study of Income Dynamics (PSID), the Child/Adolescent sample, or the 1997 to 2007 Child Development Supplement. The data will be available on the computers in the computing lab in the school. All three of these data sets originate from the Survey Research Center at the University of Michigan. We have extensively manipulated the data sets so that they contain variables of interest to social work students. The data sets were collected and are displayed in such a way so as to not identify those who partook in the sample. Value judgments were made by those at the Survey Research Center at the University of Michigan, who collected the data for the PSID, as to which groups would be oversampled so as to provide researchers with adequate sample sizes to better understand factors affecting particular groups. For this reason, African American and poor households were oversampled in the data so as to get relatively large sample sizes for these groups. The data is then weighted to make it representative of the U.S. population.

The first two data sets explained here come from the Panel Study of Income Dynamics (PSID). The PSID is a longitudinal data set that started in 1968 and has continued for 40 years, with the last version available for 2009. The PSID is a representative data set of the U.S. population when weighted (the sample is a disproportionate stratified sample -- we'll talk more about weighting later). The first data set, the Panel Study of Income Dynamics 1992 to 2009, includes around 17,000 adults from the United States. The data include information on such characteristics as income, race, psychological well-being, body mass index, education, economic situation while growing up, health status, religious preferences, housing status, whether the person was born with low birth weight, and government income assistance. The variables from 1999 onward contain information on such health conditions as whether the individual has cancer, heart disease, has ever had a stroke or a heart attack, has mental loss or emotional problems, or has a learning disability, and the number of years the person has had these conditions. You will be able to determine the relationship between variables for the entire sample or for particular subgroups (such as the elderly, the poor, single mothers, people of different races, husbands, wives, single adults, or those with little education). The PSID is used by a great number of researchers throughout the country because it provides a wealth of information on a nationally representative group of individuals and families.

The Child/Adolescent Sample comes from the 1968 to 2007 panels of the PSID. We examine variables for children aged 10-14 (generally – some variables are from when the child was born) and then examine these same children when they become adults. For example, we examine such childhood/adolescent variables as parental level of education, whether parents are married or not, marital status of the child's mother when the child was born, birth weight, income, wealth, and government assistance. Also included in the data are adult variables such as age when first married, number of marriages, number of children, health status, religious preference, level of education, income, occupation, wealth and government assistance received (such as welfare). From this data, you can determine which childhood/adolescent factors help predict adult outcomes. There are nearly 4,000 individuals in this child/adolescent sample.

The third data set is called the Child Development Supplement (CDS). It is a supplement to the Panel Study of Income Dynamics. These data contain information on children, aged 0 to 12 in 1997, ages 5 to 17 in 2002, and ages 10 to 22 in 2007, along with information about their primary caregivers. From these data, you can help determine what factors affect children's health, behavior, cognitive ability, and a great variety of other outcomes. For example, you can determine how family circumstances while growing up, such as the mother's emotional state, parental expectations of the child, parental disciplinary practices, whether the child comes from an immigrant family, the level of cognitive stimulation for the child, child's perception of self, family income, perceived neighborhood safety, race, wealth, family composition, welfare receipt, religious practices, and many other variables, affect how children fare. Some of the principle outcome variables for these data include reading and math abilities, both internal and external behavioral problems as well as overall behavioral problems, health issues, including a great variety of problems, and many other possibilities.

Warning: All data used in this class are the property of Professor Thomas Vartanian. Under no conditions can any student claim title to any of these data or publish without the written consent of Professor Vartanian.

Each student is advised to take a close look at the codebooks for each of the data sets to get a more complete picture of what each set of data contains. Students will use one of these three data sets for the rest of the semester. Each student will select variables to use in hypothesis testing and use SPSS for Windows to execute appropriate analyses of the relationships between these variables. Four written assignments will be produced with particular objectives:

- #1 The first paper is a two to three page paper containing a problem statement, significance for social work, and the hypothesis to be tested. This assignment is due in the fourth week of class. The objectives for this first paper include:
  - a. Listing of the independent, dependent, and control variables and their SPSS names.
  - b. Listing of the level of measurement of each of these variables.
  - c. Listing of the hypotheses to be tested
  - d. Explaining the significance of the research to social work, in general, or to specific fields of social work
- #2 The second paper is a two to three page review of relevant literature for your research topic. For the literature review, papers cannot exceed three pages. (Please also include your problem statement from the first paper, with revisions, as needed.) It is important for you to concisely state what factors have been found to affect the outcome you are examining. This assignment is due in the eighth class session. The objectives of this second assignment include:
  - a. Understanding what factors others have found to affect the outcome variable.
  - b. Determining whether there are differences in outcomes for particular groups, especially vulnerable groups
  - c. Determining which factors, if any, have not been used to examine the outcome variable.
- #3 The SPSS output from the analysis you will be running for your term paper. You will hand in both descriptive statistics (the mean and standard deviation) as well as regression results. You will thus have two tables – one with means and standard deviations and another with regression results. If you are using an interval or ratio scale dependent variable, you will use ordinary least squares regression analysis. If you are using a nominal scale dependent variable, you will use logistic regression analysis. This assignment is due in the 10<sup>th</sup> week of class.
- #4 A term paper including a statement of the research problem, a review of relevant literature, a description of the data and research methods, presentation of the findings, and a discussion of the implication of the findings for social work practice. This paper should be written in the form of a journal article (10-12 pages plus a bibliography). This assignment is due in the 12th class session. The objectives of this third assignment include:
  - a. Understanding and accurately describing the results from the statistical analyses
  - b. Linking the results to the findings in published research
  - c. Understanding how variables left out of the analysis may affect the final results

Students will be evaluated in each of these papers by their ability to meet the stated objectives.

**All four of these assignments are explained in further detail on the web page for the class.**

<http://www.brynmawr.edu/Acads/GSSW/Vartanian/PaperAsg.htm>

**Note on electronic devices:** No texting, phoning, or using computers for anything other than class material is allowed.

### Texts

Weinbach, R. W., & Grinnell, R. M., Jr. (2004). *Statistics for social workers* (8<sup>th</sup> edition). New York: Longman.

**Topic Outline**

<b><u>Session Number</u></b>	<b><u>Dates</u></b>	<b><u>Topic and Assignments</u></b>
1	Jan. 17-18	<p>We will go over course objectives and the generally discuss how we'll meet those objectives. We will then discuss variable scales and levels of measurement, frequency distributions and graphs.</p> <p><b>Readings:</b> Weinbach and Grinnell, Chapters 1 and 2</p> <p>Computer assignment #1, available on the web page for the course. Due in week 2.</p>
2	Jan. 23-25	<p>CENTRAL TENDENCY AND VARIABILITY</p> <p>We will learn why measures of central tendency are important and how to use them. Measures of central tendency include the mean, median and mode. Measures of dispersion include the standard deviation and the variance.</p> <p><b>Readings:</b> Weinbach and Grinnell, Chapter 3</p> <p>Computer assignment #2, available on the web page for the course. Due in week 3.</p>
3	Jan. 30-31, Feb 1	<p>NORMAL DISTRIBUTIONS AND Z-SCORES</p> <p>We will be analyzing how hidden family factors may affect poverty among African American teenagers.</p> <p><b>Readings:</b> Weinbach and Grinnell, Chapter 4 Corcoran, M. &amp; Kunz, J. (1997). Do unmarried births among African-American teens lead to adult poverty. <i>Social Service Review</i>, 71, 2, 274-287. On Blackboard.</p>
4	Feb. 6-8	<p>INTRODUCTION TO HYPOTHESIS TESTING</p> <p>We will learn about the logic of hypothesis testing and the meaning of statistical significance.</p> <p><b>Readings:</b> Weinbach and Grinnell, Chapters 5 and 6</p> <p>Due: <u>Written assignment #1 (2-3 page paper) due</u></p>
5	Feb. 13-15	<p>CROSS-TABULATION AND CHI-SQUARE</p> <p>We will learn how to conduct significance tests when using two nominal scale variables.</p> <p><b>Readings:</b> Weinbach and Grinnell, Chapter 8 Neale, Joanne (2004). "Gender and Illicit Drug Use," <i>British Journal of Social Work.</i>" On Blackboard.</p>

Computer assignment #3, available on the web page for the course.  
Due in week 6.

- 6 Feb. 20-21 **WRITING AND EVALUATING RESEARCH REPORTS**  
We will learn how to write a research paper with statistical analysis, including narrative presentation of data, table, graph, and chart construction, and the appropriate and accurate representation of subgroups such as women, minority populations, and other potentially disadvantaged groups.  
**Readings:** Weinbach and Grinnell (not the textbook), Chapters 17, “Writing Research Reports”. On Bb.
- 7 Feb. 27-29 **MIDTERM EXAM**  
March 5-7 **SPRING BREAK**
- 8 March 12-14 **CORRELATION AND SIMPLE REGRESSION**  
We will learn how simple regression and correlation are used to study issues related to poverty and social welfare. Examples from the Panel Study of Income Dynamics and the Child Development Supplement to the PSID will be used to examine factors affecting poverty for ethnic minority populations and women.  
**Readings:** Weinbach and Grinnell, Chapters 9 and 10  
Computer assignment #4, available on the web page for the course.  
Due in week 9.  
**Due:** Written assignment #2 (2-3 pages. Research questions, hypotheses, and literature review.)
- 9 Mar. 19-21 **MULTIVARIATE OPTIONS**  
We will examine how bivariate regression and correlation may misrepresent relationships. We will learn how to use control variables to partial out factors and find true relationships. We will also learn how to use nominal scale variables as independent variables within regression models. From the PSID and CDS, we will examine the differential effects of economic conditions (such as state level unemployment rates and welfare availability) and family factors (such as marital status) on minority populations and women.  
**Readings:** Ozawa, M.N. and Huan-yui, T. (2000). Differences in net worth between elderly black people and elderly white people. *Social Work Research* 24, 2, 96-108. On Blackboard.  
Computer assignment #5, available on the web page for the course.  
Due in week 10.
- 10 March 26-28 **LOGISTIC REGRESSION**  
We will focus on how to use regression analysis with a nominal scale dependent variable. We will examine such issues as how childhood factors

affect poverty status as an adult for different groups, including African Americans, Whites, men and women. We will also focus on how condom availability affects the likelihood of sexual activity for kids in high school in New York and Chicago. We will learn about how we can and cannot generalize these results.

**Readings:** Guttmacher, S., Lieberman, L. Ward, D., Freudenberg, N. & Radosh, A. (1997). Condom availability in New York City public high schools: Relationships to condom use and sexual behavior. *American Journal of Public Health*, 87, 9, 1427-1433. On Blackboard.

**Due:** Written assignment #3, SPSS output for your final paper.

Computer assignment #6, available on the web page for the course.  
Due in week 11.

11            April 2- 4            LOGISTIC REGRESSION  
Continuation of logistic regression focusing on interpretation of results to various at-risk and vulnerable populations

**Readings:** Smith, Carolyn (1996). "The Link Between Childhood Maltreatment and Teenage Pregnancy," *Social Work Research*, 131-141.

12            April 9-11            GROUP T-TESTS AND ANALYSIS OF VARIANCE

We will learn how to conduct research on groups as independent variables, for interval/ratio scale dependent variables. We will be examining issues related to differences in racial, ethnic and gender groups, for factors such as income, education and welfare. We will also examine how people of different racial groups assess whether a child has been maltreated or not.

**Due:** Written Assignment #4, Term paper

**Readings:** Weinbach and Grinnell, Chapter 7  
Dulmus, Catherine & Hilarski, Carolyn (2006). "Significance of Gender and Age in African American Children's Response to Parental Victimization", *Health & Social Work*. On Blackboard.

Computer assignment #7, available on the web page for the course.  
Due in week 13.

13            April 16-18            GROUP T-TESTS AND ANALYSIS OF VARIANCE and REVIEW  
We will learn how to conduct difference in means test for more than two groups.

14            April 23-25            FINAL EXAM