# The University of Texas at Austin School of Social Work

#### SOCIAL WORK STATISTICS

Course Number: SW 318 Instructor: Michael Bergman, Ph.D.

**Unique Number**: 62400 **Office Number**: SSW 1.214 (IT Classroom)

Semester: Spring 2011 Office Phone: none

**Meeting Time**: Tues., Thurs. 3:30-5 pm **E-mail**: young\_mike@mail.utexas.edu **Meeting Place**: SSW 1.214 (Information **Office Hours**: Tues. 5 - 5:30 pm, Thurs. 3 -

Technology 3:30, and by appt.

Classroom)

## **Course Description**

This course is one of the two courses in research for undergraduate social work majors. Completion of the liberal arts math requirement is a prerequisite for this course. This course provides a basic introduction to the conceptual and quantitative tools used to describe and interpret data in the conduct of social work and social psychological practice and research. Students learn how to select, calculate, and interpret appropriate statistics applicable to common data analysis situations related to direct practice, administration and planning, and policy making. The course provides students with the opportunity to acquire personal computer skills in Microsoft Excel and the Statistical Package for the Social Sciences (SPSS) to calculate statistics and present results. Students are required to complete SW 318 prior to entering the major. Students majoring in social work must earn a grade of C or better in this course.

## **Course Objectives**

By the end of the course, the student should be able to:

- 1. Explain the logic of the research process and its relationship to social work knowledge and practice;
- 2. Explain, calculate, and interpret descriptive statistics including: basic terminology, scales, notations, frequency distributions, measures of central tendency, measures of dispersion, and the normal distribution;
- 3. Read and analyze basic charts and graphs, contingency tables, and SPSS output results;
- 4. Explain, calculate, and interpret inferential statistics including probability and hypothesis tests;
- 5. Identify and apply the correct statistical technique to the research question;
- 6. Understand that statistics are value neutral, but can be used to support discriminatory and prejudicial value positions contrary to the values of social work, especially against special populations (e.g., women, people of color, people with disabilities, gays and lesbians);
- 7. Use computer technology to compute descriptive and inferential statistics; and
- 8. State several examples of how statistics are used as a tool in the "real world" by social service agencies to analyze client outcomes.

# **Required Materials**

The text for this course is:

Frankfort-Nachmias, C., & Leon-Geurrero, A. (2002). <u>Social statistics for a diverse</u> society, 5th edition. Thousand Oaks, CA: Pine Forge Press.

The text includes a student version of SPSS (Statistical Package for the Social Sciences) that can be installed on a PC computer. We will mainly use SPSS to do the statistical calculations needed for this course.

If you do not have a personal computer, the necessary hardware and software is available in the LRC computer lab, as well as many other computer labs on campus. There is a list of computer labs and the policies governing their use at the web site address: <a href="http://www.utexas.edu/computer/labs.html">http://www.utexas.edu/computer/labs.html</a>. You can complete homework assignments in the Learning Resource Center (LRC) on the first floor of the School of Social Work building. LRC schedules are posted in the computer lab.

In order to use the computers in campus computer labs you need an IF (Individually Funded) account. Details about IF accounts, including how to obtain one on-line are available at the web address: http://www.utexas.edu/cc/account/.

Many course materials, mainly lecture notes and homework assignments, will be done in BlackBoard. Through BlackBoard, the syllabus and any updates are available for downloading; datasets for problems are available for downloading; lecture notes and homework assignments will be made available and completed online; and your grades on homework will be available online to you. While the University has invested additional resources in support of BlackBoard, there are still periodic outages and slow-downs. If you wait until the last minute to complete assignments, you may encounter difficulties.

#### **Class Policies**

The University of Texas at Austin is proud of its students' commitment to academic integrity and their pledge to abide by it's policy on scholastic dishonesty. The tradition of scholastic honesty is maintained by the cooperation of students and faculty members. Official University policies on scholastic dishonesty are stated in Appendix C, Chapter 11 of The Institutional Rules on Student Services and Activities. These policies may be found in General Information, and may also be accessed from the Student Judicial Services web site. If a student has any questions concerning the application of the rules prohibiting scholastic dishonesty in regard to a particular assignment, it is the responsibility of that student to seek clarification from the instructor of the course. Violations of the University's policy on scholastic dishonesty will result in a grade of F for the course and may result in reporting to the Dean of the School of Social Work.

As part of professional social work education, students may have assignments that involve working in agency settings and/or the community. As such, these assignments may present some risks. Sound choices and caution may lower risks inherent to the profession. It is the student's responsibility to be aware of and adhere to policies and practices related to agency and/or community safety. Students should also notify instructors regarding any safety concerns.

The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-4641 TTY.

#### **Homework Assignments**

There are 17 homework assignments scheduled that each student will need to complete during the semester, and your answers will be entered in BlackBoard on a computer. The purpose of the homework assignments is to give you practice solving problems with data.

Weekly homework assignments will consist of statistical questions asked about a dataset. The homework assignments will require you to use SPSS to answer the questions. When you have computed your answer, you will enter the answer to the question in BlackBoard. When you have finished the assignment and submitted it for grading, it will be graded immediately and you will receive feedback for each question on the homework.

Homework assignments will be available on the course web page at the conclusion of the class in which they are assigned and must be completed by the date of the next exam, at which time access to the homework assignment expires.

Each student's homework assignment will be drawn randomly from a test bank of questions. Each student's homework will contain comparable, but not identical questions. The homework assignment may be redone as many times as you wish. You will be given a different selection of questions each time you redo the assignment. BlackBoard will record your grade for the last attempt, so if you retake a homework assignment, BlackBoard will record your most recent attempt, not your highest score.

NOTE: BlackBoard does not save your answers until you have "Submitted" the assignment. If your computer malfunctions or you become disconnected, you will have to redo the assignment. Furthermore, if you click out of the assignment without saving or submitting your answers, BlackBoard may freeze up and prevent you from accessing the questions for that homework assignment. Please have all of the PowerPoint files and SPSS data sets open before you begin taking the homework assignment, and be sure to save your answers before clicking out of the assignment to try to prevent this from occurring.

Each student is expected to complete their homework assignments individually. I do not have any mechanism to be certain that this expectation for individual work is satisfied; however, the format and problems on exams will be the same format as the homework problems. The homework is designed to prepare you to do well on the exams, both in terms of content and the process of entering the information into the computer. If you have a difficult time answering homework questions or using SPSS or BlackBoard, your performance on exams will likely suffer.

#### Exams

There are four exams in this course. Exams will focus on the content in the classes since the previous exam. However, since the content in a statistics course is cumulative, there are inevitably cumulative elements to exam questions. In preparing for exams, students should focus on the content since the last exam and review the material from the previous classes, which will be the foundation for the current topics.

Many exam questions will be in the same format as homework assignments, and will include conceptual questions from the text as well as statistical problems to solve. Exams will be time-limited to the 80 minute class period.

Exams are to be taken at the scheduled time. Please note the dates of the exams and do not miss those dates. To be given a make up date for an exam, a doctor's note will be required.

#### **Class Attendance**

Class attendance is required, and there is a class participation component to your grade. Role will not, however, be taken in class. It is expected that students will attend class, where many topics are stressed or explained in better detail than text offers, and it is expected that students will participate in class by asking questions, answering questions posed by the lecturer, and participating in group projects. Furthermore, it is expected that students will only miss class for medical emergencies, doctor's appointments, and university sanctioned activities that may occur during the semester. Failure to attend class lectures will likely hurt your chances of receiving a high grade in this class.

#### Grading

Each student's final grade in the course will be based on homework/exam grades and class attendance.

| Activity            | Percent of Homework/Exam Grade |
|---------------------|--------------------------------|
| Homework            | 15%                            |
| Exam 1              | 20%                            |
| Exam 2              | 20%                            |
| Exam 3              | 20%                            |
| Exam 4              | 20%                            |
| Class participation | 5%                             |

Letter grades will be assigned according to the following scale:

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A = 93.00% - 100.00% of total possible points

A-= 90.00% - 92.99% of total possible points

B+= 87.00% - 89.99% of total possible points

B = 83.00% - 87.00% of total possible points

B-= 80.00% - 82.99% of total possible points

C+= 77.00% - 79.99% of total possible points

C= 73.00% - 77.00% of total possible points

C-= 70.00% - 72.99% of total possible points

D= 60.00% - 69.99% of total possible points

F= 59.99% or less of total possible points
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Point totals will not be rounded up to a higher grade. Since students have the opportunity to repeat homework assignments to improve their grade, there is ample opportunity to assure that they have sufficient extra points to secure a desired grade.

# **Class Schedule**

The anticipated schedule of activities for this course follows. The instructor reserves the option to modify the schedule if deemed necessary. References to chapters are the chapters in the textbook.

| Date                               | Readings from Text<br>to Prepare for Class                      | Class Activities  | Homework<br>Assignment                               |
|------------------------------------|---|---|--|
| Class 1<br>Tuesday, January 18     |   | Discuss syllabus and class expectations   |  |
| Class 2<br>Thursday,<br>January 20 | Chapter 1. The What and Why of Statistics                       | • Lecture on chapter 1  | Homework 1: Level of measurement problems            |
| Class 3<br>Tuesday,<br>January 25  | Chapter 1, Continued  | • Introduction to SPSS  | Continue working on<br>Homework 1                    |
| Class 4<br>Thursday,<br>January 27 | Chapter 2. Organization of Information: Frequency Distributions | <ul> <li>Lecture on<br/>Chapter 2</li> <li>Practice</li> <li>Frequency</li> <li>Distribution</li> <li>Problems</li> </ul> | Homework 2: Frequency distributions (reading tables) |
| Class 5<br>Tuesday,<br>February 1  | Chapter 3. Graphic Presentation                                 | <ul> <li>Lecture on<br/>Chapter 3</li> <li>Practice<br/>Frequency<br/>Distribution<br/>Problems</li> </ul>                | Homework 3: Frequency distributions (interpretation) |
| Class 6<br>Thursday,<br>February 3 | Chapter 4. Measures of<br>Central Tendency                      | <ul> <li>Lecture on<br/>Chapters 4</li> <li>Practice Central<br/>Tendency Problems</li> </ul>                             | Homework 4: Central tendency problems                |

| Class 7       | Chapter 5. M | leasures of    | • Lecture   | on       | Homework 5:          |
|---------------|--------------|----------------|-------------|----------|----------------------|
| Tuesday,      | Variabilit   | y              | Chapter 5   |          | Variability problems |
| February 8    |              |                | • Practice  |          |                      |
|               |              |                | Variability | y Probs  |                      |
| Class 8       |              | In class revie | ew          |          |                      |
| Thursday, Fel | oruary 10    |                |             | • Review | for Exam 1           |
|               |              |                |             |          |                      |
| Class 9       |              |                |             |          |                      |
|               |              | Exam 1         |             |          |                      |
| Tuesday, Feb  | ruary 15     |                |             |          |                      |

| Thursday,<br>February 17             | NO CLASS DAY:<br>Dr. Bergman out of town                               |   |  |
|--------------------------------------|--|---|--|
| Class 10<br>Tuesday,<br>February 22  | Chapter 10: Relationship<br>between two variables<br>(crosstabulation) | <ul><li>Lecture on<br/>Chapter 10</li><li>Practice<br/>Crosstabulation<br/>Problems</li></ul>                                   | Homework 6:<br>Crosstabulation           |
| Class 11<br>Thursday,<br>February 24 | Chapter 10: Relationship<br>between two variables<br>(elaboration)     | <ul><li>Lecture on<br/>Chapter 10</li><li>Practice<br/>Elaboration<br/>Problems</li></ul>                                       | Homework 7:<br>Elaboration               |
| Class 12<br>Tuesday,<br>March 1      | Chapter 13: Bivariate<br>Regression and<br>Correlation                 | <ul> <li>Lecture on Group<br/>Differences</li> <li>Practice group<br/>differences</li> <li>Lecture on<br/>Chapter 13</li> </ul> | Homework 8: Describing Group Differences |
| Class 13<br>Thursday,<br>March 3     | Comparing groups on measures of central tendency and dispersion        | <ul> <li>Lecture on<br/>Chapter 13 (cont'd)</li> <li>Practice<br/>regression and<br/>correlation</li> </ul>                     | Homework 9: r and r <sup>2</sup>         |

| Date                              | Readings and Class Activite  | Homework   |   |
|-----------------------------------|--|--|---|
| Class 14<br>Tuesday,<br>March 8   | In class review  | • Review for Exam 2  |   |
| Class 15<br>Thursday,<br>March 10 |  |  |   |
| Tuesday, Mar                      | rch 15 & Thursday, March   | No classes- Spring B   | reak  |
| Class 16<br>Tuesday,<br>March 22  | Chapter 6: The Normal Distribution                                 | • Lecture on<br>Chapter 6  | Homework 10: Z-<br>scores and<br>percentiles          |
| Class 17<br>Thursday,<br>March 24 | Chapter 6, Continued   | Practice Z-scores<br>and percentiles   | Continue working on<br>Homework 10                    |
| Class 18<br>Tuesday,<br>March 29  | Chapter 7:Sampling and Sampling Distributions                      | <ul><li>Lecture on<br/>Chapter 7</li><li>Practice Sampling<br/>Distributions</li></ul> | Homework 11: Sampling Distributions                   |
| Class 19<br>Thursday,<br>March 31 | Chapter 8: Estimation  | <ul><li>Lecture on chapter 8</li><li>Practice estimation</li></ul>                     | Homework 12: Point estimates and confidence intervals |
| Class 20<br>Tuesday,<br>April 5   | Chapter 9: Testing Hypotheses About Two Samples (read thru p. 278) | • Lecture on Logic of Hypothesis testing   | Homework 13:<br>Hypothesis testing                    |

| Class 21<br>Thursday,<br>April 7 | In class review                                       |                                       | • Review for Exam 3                           |
|----------------------------------|---|---------------------------------------|---|
| Class 22<br>Tuesday,<br>April 12 |   | Exam 3                                |   |
| Thursday,<br>April 14            | NO CLASS DAY:<br>Dr. Bergman out of town              |                                       |   |
| Class 23<br>Tuesday,<br>April 19 | Chapter 9, Continued<br>(p. 278 to end of<br>chapter) | • Lecture on testing mean differences | Homework 14:<br>Independent samples<br>t-test |

| Class 24<br>Thursday,<br>April 21 | Chapter 11:The Chi-<br>Square Test                  | <ul><li>Lecture on Chapter</li><li>11</li><li>Practice Chi-square problems</li></ul>              | Homework 15: Chi-square test of independence                |
|-----------------------------------|---|---|---|
| Class 25<br>Tuesday,<br>April 26  | Chapter 14: Analysis of Variance                    | <ul><li>Lecture on Chapter</li><li>14</li><li>Practice Oneway</li><li>ANOVA</li></ul>             | Homework 16: Oneway<br>ANOVA                                |
| Class 26<br>Thursday,<br>April 28 | Review Chapter 13:<br>Regression and<br>Correlation | Hypothesis tests in regression and correlation     Practice correlation coefficient (Pearson's r) | Homework 17: Hypothesis tests in regression and correlation |
| Class 27<br>Tuesday,<br>May 3     | In class review                                     |   | • Review for Exam 4   |
| Class 28<br>Thursday,<br>May 5    |   | Exam 4  |   |