

UNIVERSITY OF WISCONSIN - MILWAUKEE
HELEN BADER SCHOOL OF SOCIAL WELFARE,
Introduction to Statistical Methods in Social Work
Computing Laboratory (SW 961, Sec 801)

Term: Spring, 2008 (9/2/08 - 12/11/08)
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Time and location: Tuesdays, 11:00am - 11:50am, Enderis 1024 (SW computer lab)

Course Overview

This laboratory section is designed to introduce students to statistical computing using SAS and SPSS. The class will concentrate on techniques needed to read and write data, create and transform variables, restructure data, and the statistical techniques covered in the lecture portion of the course.

Prerequisites

Graduate standing and enrollment in SW 961.

Course Objectives

On completion of this course, the students will be able to:

- Perform statistical analyses using SAS and SPSS.
- Correctly interpret output from SAS and SPSS.

Texts / Readings

Lab text: A lab manual will be available on the D2L system for use in this class. It is extensive, covering the basics of SAS and SPSS. You can view it online or print sections as needed.

There are a number of excellent introductory level texts available that you also may find helpful.

Examples of these are:

- F. C. Dilorio: SAS Applications Programming: A Gentle Introduction. Duxbury Series in Statistics & Decision Sciences.
- R. H. Carver & J. Gradwohl Nash: Doing Data Analysis with SPSS: Version 14.0 (with CD-ROM) (Doing Data Analysis with SPSS).

These texts and others can be purchased online or through any book store and copies will be placed on reserve in the library.

Other materials are accessible through D2L at www.uwm.edu/UWM/Student/elearning.html.

Computing Labs

All students enrolled in social work courses have access to the Enderis computer lab located on the 10th floor Enderis Hall and computer labs located throughout campus. For specific locations/hours www3.uwm.edu/IMT/services/campus/ccls .

Course Policies

Campus policy information regarding participation by students with disabilities, accommodations for religious observances, academic conduct/misconduct, incomplete grading policies, complaint procedures, grade appeal procedures, sexual harassment and safety policies, final exam date requirements, and other standing policies/procedures is available on-line at: www.uwm.edu/Dept/SecU/SyllabusLinks.pdf.

Academic Misconduct: Academic misconduct is an act in which a student seeks to claim credit for the work or efforts of another without authorization or citation, uses unauthorized materials or fabricated data in any academic exercise, forges or falsifies academic documents or records, intentionally impedes or damages the academic work of others, engages in conduct aimed at making false representation of a student's academic performance, or assists other students in any of these acts.

Prohibited conduct includes cheating on an examination; collaborating with others in work to be presented, contrary to the stated rules of the course; submitting a paper or assignment as one's own work when a part or all of the paper or assignment is the work of another; submitting a paper or assignment that contains ideas or research of others without appropriately identifying the sources of those ideas; stealing examinations or course materials; submitting, if contrary to the rules of a course, work previously presented in another course; tampering with the laboratory experiment or computer program of another student; knowingly and intentionally assisting another student in any of the above, including assistance in an arrangement whereby any work, classroom performance, examination or other activity is submitted or performed by a person other than the student under whose name the work is submitted or performed.

Students' work must be in their own words except where appropriately cited. Excerpts from other authors may be used judiciously, but direct quotes involving even a few words must include the source, date, and page number(s) and must be indented or enclosed in quotations. Failure to comply with these requirements constitutes plagiarism and is grounds for a failing grade.

Late assignments and make-up policy: Students are expected to be present for examinations and *to turn in assignments on or before the due date* unless they contact the instructor in advance of the exam or due date. Alternatives such as make-up exams or substitute assignments may then be made available at the instructor's discretion, but these will only be offered as a result of circumstances beyond the student's control. Failure to comply with the above requirements will result in a grade of zero for the relevant assignment.

Attendance and class participation: Because the material will be covered at a rapid pace, attendance is mandatory for all labs unless prior arrangements have been made with the instructor. Students with unexcused absences will receive a one-third reduction in their final grade for each unexcused absence (e.g., a final grade of A will be reduced to a A- following one absence).

Participation by Students with Disabilities: If you need special accommodations in order to meet any of the requirements of this course, please contact me as soon as possible and I will make the necessary arrangements.

Accommodation for Religious Observances: Students will be allowed to complete examinations or other requirements in advance of a religious observance.

Assignments/Grading

Weekly assignments: Students will be assigned weekly computer-based assignments. These assignments will count for 100% of your total lab score.

Determination of Student Grade

Letter grades will not be assigned on individual assignments or exams. Rather, each assignment and exam will be allotted a specific number of points. Points earned will be summed into a final point total and letter grades assigned based on these final point totals by the percents listed below.

94 – 100% = A	80 – 82% = B-	67 – 69% = D+
90 – 93% = A-	77 – 79% = C+	63 – 66% = D
87 – 89% = B+	73 – 76% = C	60 – 62% = D-
83 – 86% = B	70 – 72% = C-	0 – 59% = F

Topics

Week 1: Introduction and overview: SAS and SPSS

- Configuring the software
- General program structure SAS and SPSS
- Batch processing
 - Fixed and Free input formats
 - Handling missing data
 - Assigning data formats at input

Week 2: Reading and writing data cont., Variable and Value labels, Merging data

- External data sources
 - SPSS Get and Write statements
 - SAS Filename, Libname, Data, and Set statements - two-level names. etc.

- Data formats
- Variable labels, value labels, and comments - documenting programs

- Horizontal concatenation (Merge files SPSS and SAS)
 - One to one merge
 - Match merge

- Vertical concatenation (Add files SPSS, Set statement SAS)

HW #1

Week 3: Comments, assignment, missing value, recode and conditional statements

- Assignment statements
 - Creating and transforming values
 - Arithmetic operators, order of precedence, using parentheses
 - Issues surrounding missing values

- Recoding data
 - SPSS Recode statement

SAS reflexing and conditional processing

Conditional statements

- If, then, else keywords
- Logical operators
- Simple and complex statements
- Do if, end if constructions

HW #2

Week 4: Subsetting cases, by group processing, renaming variables and functions

Subsetting "if" statements

- SPSS select if, temporary statement, delete vs. filter
- SAS if (argument), if (argument) then delete;

By group processing

- SPSS split file
- SAS by statement

Renaming variables

- SPSS Rename Variables command
- SAS Rename command

Functions

- Arithmetic
- Statistical
- Date and Time
- String
- Random number

HW #3

Week 5-6. Descriptive procedures and Graphing

- SPSS - descriptives, frequencies, list
- SAS - univariate, means, and freq

Bar charts, histograms, stem and leaf, box plots, scatterplots, etc.

HW #4

Independent and related samples t-test

Bivariate correlations

- Pearson r, phi, rho, point-biserial, tetrachoric
- Dealing with tied ranks and small sample sizes

Obtaining confidence intervals

HW #5

Weeks 7-11: ANOVA

1. Completely randomized design (One-way ANOVA)

- GLM approach to ANOVA
- Type I, II, and III sums of squares
- Testing model assumptions
- Normalizing transformations
- User defined contrasts

Post hoc tests
Line graphs
Effect size - eta, intraclass corr, Power

HW #6

2. Completely randomized factorial design (2-way and beyond)
3. Simple repeated measures ANOVA
Test for additivity

HW #7

4. Split-plot design
Multivariate and univariate formats, stringing and unstringing data

HW #8

Weeks 12-13: Nonparamteric analyses

Goodness of fit tests
Binomial test
Chi-Square Goodness-of-Fit test
Kolmogorov-Smirnov One- and Two-sample tests

Tests for related samples:
McNemar
Sign test
Wilcoxon Signed Ranks Test
Friedman's test

HW #9

Tests for independent samples
Fisher Exact Test
Chi-square test for equiprobability and for independence
Kruskal-Wallis
Wilcoxon-Mann-Whitney test

HW #10

Stratification tests
Cochran, Mantel, Haenszel - Odds and odds ratios

Stratification tests
Cochran, Mantel, Haenszel
Odds and odds ratios

Permutation tests (especially randomization tests used in the context of Single System Designs)

HW #11

Week 14: Missing data

Approaches to imputation
Hot deck, cold deck, simple mean, multiple
Specialized software for MI
Combining Results in MI