The University of Texas at Austin
School of Social Work

Data Analysis II

Course Number: SW 388R7   Faculty: Jim Schwab
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TA:

I. Course Description

This course is designed to build upon the concepts and procedures introduced in Data Analysis I, to enable students to do a more thorough job of data analysis by introducing multivariate statistical procedures into their repertoire of statistical techniques. The primary focus is on using the SPSS statistical package for calculating multivariate statistics, and the utilization of the statistical output in research findings.

II. Course Objectives

1. To understand how the analysis of data derives from the statement of a research problem or hypothesis and the availability of empirical data.
2. To understand how to conduct a variety of statistical analyses, including testing of statistical assumptions, data transformations, and validation of statistical findings.
3. To understand how to present and interpret the results of statistical analyses.
4. To be able to design a data analysis strategy that answers a research question or hypothesis, including specifications for data elements, requirements of the statistic, and limitations to the interpretation.

III. Teaching Methods

This course is structured as a "flipped" class. Students will be expected to read text chapters and be quizzed on these materials at the start of the following class. This frees up class time to work on solving problems and practicing statistical tasks. Following a class quiz, individual students will be asked to present the statistical problems from the chapter in the textbook. While one student will lead the presentation, all students are expected to participate in the discussion. Successful understanding of this problem is a critical component of the written assignment due the following week on the utilization of the statistic with your chosen data.

It is anticipated that each student will have their own data to use for written assignments and, if necessary, to secure permission to use the data from its owner. Since this course does not expect or require any reporting of analyses or findings outside the course context, IRB approval should not be required for work in this course. However, if the analysis of this data meets requirements for other courses or future activity involving publication and dissemination, an IRB application

should be submitted. See http://www.utexas.edu/research/rsc/humansubjects/class_project.html for detailed information.

If a student does not have a data set with sufficient quantitative variables to support analysis, he or she should meet with the instructor to identify appropriate data alternatives.

Course materials, assignments, the syllabus and schedule, and announcements will be available on the Canvas web site for the course.

To request help, send me an email. Usually you may anticipate a response within 24 hours. My email address is listed at the top of this syllabus. If I think your question is of general interest to the class, I may post it as an announcement unless you explicitly request that I do not post it. If you need to meet with me individually, the best method for setting an appointment is via email.

The primary responsibility of the TA for this course is to provide you with feedback on the written analysis assignments. While you can certainly ask her questions about her feedback and how you might have presented your findings more effectively, it is not her role to tutor students individually. She will access your papers in Canvas and incorporate her feedback in your paper in Canvas.

IV. Required and Recommended Texts and Materials

The required text for the course is:

Hair, Joseph F., Jr; Black, William C.; Babin, Barry J.; and Anderson, Rolph E. *Multivariate Data Analysis*, Seventh Edition. Upper Saddle River, New Jersey: Prentice Hall. ISBN 0-13-813263-1.

In addition, you will need access to a recent version of SPSS and access to the Internet. If you do not have a personal computer, the necessary hardware and software are available in the LRC computer lab in the School of Social Work, and you can check out a laptop for use in class. Students should be prepared to actively work with their data during the class period.

All data sets used in this course will be available as SPSS system data files (".SAV") for downloading via the course web page in Canvas.

V. Course Requirements and Assignments

Course requirements will consist of chapter quizzes, class presentations, written analysis assignments for each statistical technique and a final paper. In addition, regular on-time class attendance is expected and students should come to class prepared to actively participate in the class. Specific course assignments and due dates are listed in the schedule below and in the Canvas calendar. The contribution of each assignment to the final grade is summarized below and in the Canvas gradebook:

Quizzes	20%
Class Presentations on Textbook Topics	20%

Analysis Assignments	30%		
Analysis Presentations	30%		

Final grades for this course will be assigned using the following +/- scale.

94. 0 and Above	A	74.0 to 76.999	C
90.0 to 93.999	A-	70.0 to 73.999	C-
87.0 to 89.999	B+	67.0 to 69.999	D+
84.0 to 86.999	B	64.0 to 66.999	D
80.0 to 83.999	B-	60.0 to 63.999	D-
77.0 to 79.999	C+	Below 60.0	F

Quizzes

There will be seven quizzes on the chapters from the textbook and supplementary readings that will be our focus in this semester. Each quiz contains 20 multiple choice questions, primarily focused on the conceptual content from the chapter and related rules of thumb. Quizzes will not include questions on the illustrative statistical examples in the chapter. Make-up quizzes will not be provided. In the event that a student must miss a class when a quiz is due, they may obtain email permission from the instructor to complete the quiz remotely.

Textbook Presentations
I have identified seven textbook examples of data analyses. Each student will lead one presentation in the classes after the chapter quizzes. The dates for the presentations are listed in the Semester Schedule. Students can volunteer for specific presentations. Students who do not volunteer will be randomly assigned to the remaining topics.

Written Assignments
There will be eight brief written assignments on the application of each statistical technique to your data. A written assignment sheet with detailed specifications will be provided for each assignment on the Canvas website. The assignment will require a statement of a research question answerable by the specific statistical technique, and a brief narrative summary of findings.

Students should be prepared to present their papers in class for discussion and critique. Review of papers prior to the class in which they are due by either the instructor or the TA is not available. In addition, the grade assigned to the paper will be based on the original version submitted and not on any additional versions submitted after the class.

Papers and supporting SPSS output will be submitted electronically in Canvas.

Presentations of Written Assignments
In the class in which the written assignment is due, each student will present their assignment to the class, emphasizing problems and issues encountered in completing the analysis presented in the written assignment. To develop skill in conference presentations, students are expected to use

the ePoster format as outlined by the Society for Social Work Research (SSWR), found on the web page http://secure.sswr.org/2015-conference-home/eposter-presentations-guidelines. There are numerous sites on the web which offer guidance and suggestions for producing ePosgers.

ePosters will be submitted electronically in Canvas.

Additional multivariate techniques
In the final class of the semester, we will explore additional multivariate techniques found in the text that have applications for specific research questions, but are found less frequently in the literature. Teams (pairs) of students will present the content to the class. An anticipated list of topics is presented in the course schedule, but students may recommend alternatives.

Teams should submit a combined PowerPoint presentation that facilitates understanding of the topic, including an example from the social work research literature, if possible.

Presentation PowerPoints will be submitted electronically in Canvas.

VI. Class Policies

The University of Texas and the School of Social Work have policies that are required to be in all syllabi. A comprehensive listing of policies is provided below.

THE UNIVERSITY OF TEXAS HONOR CODE. The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the university is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community.

PROFESSIONAL CONDUCT IN CLASS. The professor expects students to act as professionals in class. This means students should arrive on time for class, be prepared to participate in the class discussion, and show respect for one another's opinions. We will not, nor should we, always agree with one another. In this environment we should be exposed to diverse ideas and opinions, and sometime we will not agree with the ideas expressed by others. However, the professor does require that students engage one another with respect and professionalism.

CLASSROOM CIVILITY. A course brings together a group of diverse individuals with various backgrounds. Students are influenced and shaped by such factors as ethnicity, gender, sex, physical abilities, religious and political beliefs, national origins, and sexual orientations, among others. We expect to learn from each other in an atmosphere of positive engagement and mutual respect. Social Work deals with complex and controversial issues. These issues may be challenging and uncomfortable, and it would be impossible to offer a substantive classroom experience that did not include potentially difficult conversations relating to challenging issues.

UNANTICIPATED DISTRESS. Students may experience unexpected and/or distressing reactions to course readings, videos, conversations, and assignments. If so, students are encouraged to inform the instructor. The instructor can be responsive and supportive regarding

students' participation in course assignments and activities, but students are responsible for communicating clearly what kind of support is desired. If counseling is needed, students can contact a service provider of their choosing, including the UT Counseling Center at 512-471-3515 or online at www.utexas.edu/student/cmhc/.

POLICY ON SOCIAL MEDIA AND PROFESSIONAL COMMUNICATION. Public social networks are not private. Even when open only to approved or invited members, users cannot be certain that privacy will exist among the general membership of sites. If social work students choose to participate in such forums, please assume that anything posted can be seen, read, and critiqued. What is said, posted, linked to, commented on, uploaded, subscribed to, etc., can be accessed and archived, posing potential harm to professional reputations and prospective careers.

Social work students who use social media (i.e. Facebook, Twitter, etc.) and other forms of electronic communication (i.e. blogs, etc.) must be mindful of how their communication may be perceived by clients, colleagues, faculty, and others. Social work students are expected to make every effort to minimize material which could be considered inappropriate for a professional social worker in training. Because of this, social work students are advised to manage security settings at their most private levels and avoid posting information/photos or using any language that could jeopardize their professional image. Students are asked to consider the amount of personal information posted on these sites and are obliged to block any client access to involvement in the students' social networks. Client material should not be referred to in any form of electronic media, including *any* information that might lead to the identification of a client or compromise client confidentiality in *any* way. Additionally, students must critically evaluate any material that is posted regarding community agencies and professional relationships, as certain material could violate the standards set by the School of Social Work, the Texas Code of Conduct for Social Workers, and/or the NASW Code of Ethics.

Social work students should consider that they will be representing professional social work practice as well as the University of Texas at Austin School of Social Work program while in the classroom, the university community, and the broader area communities.

POLICY ON SCHOLASTIC DISHONESTY. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced. For further information, the student may refer to the Web Site of the Student Judicial Services, Office of the Dean of Students (http://deanofstudents.utexas.edu/sjs/).

USE OF CLASS MATERIALS. The materials used in this class, including, but not limited to, exams, quizzes, and homework assignments are copyright protected works. Any unauthorized copying of the class materials is a violation of federal law and may result in disciplinary actions being taken against the student. Additionally, the sharing of class materials without the specific, express approval of the instructor may be a violation of the University's Student Honor Code and an act of academic dishonesty, which could result in further disciplinary action. This includes, among other things, uploading class materials to websites for the purpose of sharing those materials with other current or future students.

DOCUMENTED DISABILITY STATEMENT. Any student who requires special accommodations must obtain a letter that documents the disability from the Services for Students with Disabilities area of the Division of Diversity and Community Engagement (471- 6259 voice or 471-4641 TTY for users who are deaf or hard of hearing). Present the letter to the professor at the beginning of the semester so that needed accommodations can be discussed. The student should remind the professor of any testing accommodations no later than five business days before an exam. For more information, visithttp://www.utexas.edu/diversity/ddce/ssd/.

RELIGIOUS HOLIDAYS. By UT Austin policy, students must notify the professor of a pending absence at least fourteen days prior to the date of observance of a religious holy day. If the student must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, the professor will give the student an opportunity to complete the missed work within a reasonable time after the absence.

USE OF E-MAIL FOR OFFICIAL CORRESPONDENCE TO STUDENTS. Email is recognized as an official mode of university correspondence; therefore, students are responsible for reading their email for university and course-related information and announcements. Students are responsible to keep the university informed about changes to their e-mail address. Students should check their e-mail regularly and frequently—daily, but at minimum twice a week—to stay current with university-related communications, some of which may be time-sensitive. Students can find UT Austin's policies and instructions for updating their e-mail address at http://www.utexas.edu/its/policies/emailnotify.php.

SAFETY. 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 notify the professor regarding any safety concerns.

BEHAVIOR CONCERNS ADVICE LINE (BCAL). If students are worried about someone who is acting differently, they may use the Behavior Concerns Advice Line to discuss by phone their concerns about another individual's behavior. This service is provided through a partnership among the Office of the Dean of Students, the Counseling and Mental Health Center (CMHC), the Employee Assistance Program (EAP), and The University of Texas Police Department (UTPD). Call 512-232-5050 or visithttp://www.utexas.edu/safety/bcal.

EMERGENCY EVACUATION POLICY. Occupants of buildings on the UT Austin campus are required to evacuate and assemble outside when a fire alarm is activated or an announcement is made. Please be aware of the following policies regarding evacuation:

- Familiarize yourself with all exit doors of the classroom and the building. Remember that the nearest exit door may not be the one you used when you entered the building.
- If you require assistance to evacuate, inform the professor in writing during the first week of class.
- In the event of an evacuation, follow the professor's instructions.
- Do not re-enter a building unless you are given instructions by the Austin Fire Department, the UT Austin Police Department, or the Fire Prevention Services office.

VII. Semester Schedule

The following schedule is the weekly sequence of topics for the semester. The instructor reserves the right to make adjustments to the topic sequence if deemed necessary. Any changes will be made prior to the date of the class. The schedule of assignments and quizzes can also be found in the Canvas Calendar.

Class 1: January 20, 2016

1. Develop framework for data analysis in a refereed research article context
2. Exploration of your datasets and research questions

Class 2: January 27, 2016

1. Quiz on Chapter 2 "Examining Your Data"
2. Presentation of textbook example 1: *An Illustration of Missing Data Diagnosis with the Four-Step Process*, pages 54-64
3. Presentation of textbook example 2: *An Illustrative Example of Analyzing Outliers*, pages 68-70 and
4. Presentation of textbook example 3: *An Illustration of Testing the Assumptions Underlying Multivariate Analysis*, pages 79-86

Class 3: February 3, 2016

1. Assignment 1: Examining Your Data
2. Presentations of Assignment 1

Class 4: February 10, 2016

1. Quiz on Chapter 3 "Exploratory Factor Analysis"
2. Presentation of textbook example 4: *An Illustrative Example* (component factor analysis), pages 129-132; 132-144
3. Presentation of textbook example 5: *An Illustrative Example* (common factor analysis) , pages 129-132; 144-147

Class 5: February 17, 2016

1. Assignment 2: Exploratory Factor Analysis
2. Presentations of Assignment 2

Class 6: February 24, 2016

1. Quiz on Chapter 4 "Multiple Regression Analysis"
2. Presentation of textbook example 6: *An Example of Simple and Multiple Regression*, page 162-167
3. Presentation of textbook example 7: *Illustration of a Regression Analysis*, pages 207-231

Class 7: March 2, 2016

1. Assignment 3: Multiple Regression
2. Presentations of Assignment 3

Class 8: March 9, 2016

1. Quiz on Chapter 5 "Multiple Discriminant Analysis"
2. Presentation of textbook example 8: *A Two-Group Illustrative Example*, pages 274-290
3. Presentation of textbook example 9: *A Three-Group Illustrative Example*, pages 290-312

Spring Break: March 16, 2016

Class 9: March 23, 2016

1. Quiz on Chapter 6 "Logistic Regression: Regression with a Binary Dependent Variable"
2. Presentation of textbook example 10: *An Illustrative Example of Logistic Regression*, pages 333-342

Class 10: March 30, 2016

1. Assignment 4: Logistic Regression
2. Presentations of Assignment 4

Class 11 April 6, 2016

1. Quiz on: "A Primer for Social Worker Researchers on How to Conduct a Multinomial Logistic Regression" and "Regression with a Polytomous Dependent Variable" in *Multiple Regression with Discrete Dependent Variables* by Orme, John G. and Combs-Orme, Terry. pages 91-122.
2. Presentation of textbook example 11: *A Three-Group Illustrative Example*, pages 290-312, analyzed as a Multinomial Logistic Regression Problem
3. Presentation of example problem 12 in "Regression with a Polytomous Dependent Variable" in *Multiple Regression with Discrete Dependent Variables* by Orme, John G. and Combs-Orme, Terry. pages 91-122.

<u>Class 12 April 13, 2016</u>

1. Assignment 5: Multinomial Logistic Regression
2. Presentations of Assignment 5

<u>Class 13: April 20, 2016</u>

1. Quiz on Chapter 12 "Structural Equations Modeling Overview"

<u>Class 14: April 27, 2016</u>

1. Assignment 6: Path Analysis Assignment Due
2. Presentations of Assignment 6

<u>Class 15: May 4, 2016</u>

Additional multivariate techniques:
1. Presentation of Cluster Analysis
2. Presentation of Multidimensional Scaling
3. Presentation of Analyzing Nominal Data with Correspondence Analysis