

Advanced Survey Data Analysis for Categorical and Rating Scale Data
EPSY 5245
Spring Semester, March 31 – May 5, 2014
Monday, 10:10-12:40

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Classroom: 325 Peik Hall
Office: 170 Education Sciences
Office Hours: Monday before or after class
Or by appointment

Course Goals

Students will be able to:

- Understand the unique characteristics of survey data;
- Distinguish between the statistical characteristics of interval and ordinal/nominal data;
- Analyze ordinal and nominal data in appropriate ways;
- Interpret results from survey data analyses appropriately;
- Develop reasonable and useful analysis plans for future survey projects;
- Identify appropriate and inappropriate uses and interpretations of survey data analysis results.

Course Outline, Topics & Assignments

March 31:	A basis for survey data analysis Levels of measurement and intended inferences Nominal & Ordinal Data	Nardi, Chapters 3, 5-7 Dowd & Duggan SPSS Complex Surveys
<i>April 7</i>	<i>AERA/NCME</i>	
April 14:	Multivariate Methods, Factor Analysis, Cluster Analysis Assignment 1 Due	SPSS Survey Data Tsikriktsis
April 21:	Rasch Scaling of Ordinal Data Assignment 2 Due	Bode Reeve & Fayers
April 28:	Multilevel modeling for survey data Continuous Data Assignment 3 Due	Goldstein Nardi, Chapters 8, 9
May 5:	Presenting Results, Appropriate Inferences AERA Standards	Nardi, Chapter 10 Standards Statements

Readings:

- Bode, R.K. (1995, April). *Using Rasch to create measures from survey data*. Paper presented at the annual meeting of the AERA, San Francisco.
- Dowd, A.C., & Duggan, M.B. (2001, March). *Computing variances from data with complex sampling designs: A comparison of Stata and SPSS*. Paper presented to the North American Stata Users Group.
- Goldstein, H. (1991). Multilevel modeling of survey data. *The Statistician*, 40, 235-244.
- Nardi, P.M. (2003). *Doing Survey Research: A Guide to Quantitative Methods*. Boston, MA: Allyn & Bacon.
- Reeve, B.B., & Fayers, P. (2005). Applying item response theory modeling for evaluating questionnaire item and scale properties. In P.M. Fayers & R.D. Hays (Eds.), *Assessing quality of life in clinical trials: Methods and practice* (2nd ed.). New York: Oxford University Press.
- SPSS. (2003). *How to get more value from your survey data*. Chicago, IL: Author.
- SPSS. (2007). *Correctly compute complex samples statistics: SPSS Complex Samples 16.0 Specifications*. Chicago, IL: Author.
- Tsikriktsis, N. (2005). A review of techniques for treating missing data in OM survey research. *Journal of Operations Management*, 24, 53-62.

Course Description

This course will enable students to understand the principles and methods of survey data analysis. It is designed as an extension of the Survey Design course (EPSY 5244), as well as the statistics course which introduces ordinal data analysis (e.g., chi-square tests). Students will engage in survey data analysis exercises, use real data from several large survey programs, and review current literature on survey data analysis.

The course will include a mix of instructional strategies, including lecture, small group work, and computer demonstrations. Small group and individual exercises will be used to practice methods learned in the course, as described below.

Evaluation of Student Performance

Several projects will be required to assess student achievement of the above objectives. These projects include the following: (1) Analysis of nominal and ordinal data; (2) Examining relations among multiple indicators; (3) Rasch scaling exercise; and (4) Final project. A more detailed description of each task will be provided on the day each assignment is assigned. Data will be provided for the exercises but students are encouraged to use their own data. The first three assignments can be done with a partner, no more than 2 persons in a single group. Each assignment (tasks 1-3) is worth 20 points; the final project is worth 40 points. The total number of points is 100 for the course.

A detailed final project description will be provided in class. It will include the description of an analysis plan, the methods section of a report describing the analysis methods, and an analysis of existing data or the student's own data with appropriate graphical displays. Final Projects must be completed within one week following the final class session.

Letter Grade	Percentage
A	95-100%
A-	90-94.99%
B+	85-89.99%
B	80-84.99%
B-	75-79.99%
C+	70-74.99%

Late Work and Incompletes

Late work will be accepted only if I am previously notified – no points will be deducted for late work that was previously agreed upon. It is up to you to stay on track. An incomplete (“I”) will be assigned only if agreed to prior to the last week of class. If course work is incomplete and no prior notification has been given, the grade based on points obtained will be awarded. No options will be given at that point to submit incomplete work.

Returning Papers and Projects

Given the size of the class and the extensiveness of student projects, I will try to return work by the following class session, but can't guarantee anything! If, at the end of the semester, you would like to receive remaining work through U.S. mail, submit a self-addressed stamped envelope. Otherwise, you may pick up final projects once grades are submitted in the Educational Psychology Department office in the Education Sciences Building with an ID. Papers will be available there until June. Uncollected papers will be destroyed just prior to fall semester the following year.

Evaluation (http://www1.umn.edu/usenate/u_senate/usenpol.html):

- A -- achievement that is outstanding relative to the level necessary to meet course requirements.
- B -- achievement that is significantly above the level necessary to meet course requirements.
- C -- achievement that meets the course requirements in every respect.
- D -- achievement that is worthy of credit even though it fails to meet fully the course requirements.
- S -- achievement that is satisfactory, which is equivalent to a C- or better (achievement required for an S is at the discretion of the instructor but may be no lower than a C-).
- F (or N) -- Represents failure (or no credit) and signifies that the work was either (1) completed but at a level of achievement that is not worthy of credit or (2) was not completed and there was no agreement between the instructor and the student that the student would be awarded an I (see also I)
- I -- (Incomplete) Assigned at the discretion of the instructor when, due to extraordinary circumstances, e.g., hospitalization, a student is prevented from completing the work of the course on time. Requires a written agreement between instructor and student.

How to Access Your Grades

You may view your grades online at www.onestop.umn.edu. To access your grades via telephone, call the Gopher Student Line at 612-624-5200.

The Senate affirms the standard (first adopted by the University Senate on February 16, 1922, and reaffirmed 1993) that one semester credit is to represent, for the average University of Minnesota undergraduate student, three hours of academic work per week (including lectures, laboratories, recitations, discussion groups, field work, study, and so on), or approximately 45 hours of work over the course of an enrollment period. Expectations of faculty and students will be made clear. It is expected that the academic work required of graduate and professional students will exceed three hours per credit per week or 45 hours per semester.

University of Minnesota Policy on Scholastic Misconduct

Scholastic misconduct is broadly defined as "any act that violates the rights of another student in academic work or that involves misrepresentation of your own work." **Scholastic dishonesty** includes, (but is not necessarily limited to): cheating on assignments or examinations; plagiarizing, which means misrepresenting as you own work any part of work done by another; submitting the same paper, or substantially similar papers, to meet the requirements of more than one course without the approval and consent of all instructors concerned; depriving another student of necessary course materials; or interfering with another student's work. Scholastic dishonesty in any portion of the academic work for a course shall be grounds for awarding a grade of F or N for the entire course.

Citations/Avoiding Plagiarism

<http://swc.umn.edu/writinglinks.htm>

From the UM's Student Writing Center. Scroll down to find "Citations/Avoiding Plagiarism."

Avoiding Plagiarism

<http://ollie.dcccd.edu/library/module4/M4-VII/plagar.htm>

Details what plagiarism is, illustrates with examples of "what not to do", and links to other sites that "further define plagiarism"

The Correct Use of Borrowed Information

<http://www.winthrop.edu/wcenter/WritingProgram/plagiar.htm>

As the title suggests, this helpful site from the Winthrop University Writing Center features various examples of correct in-text citation for research papers. Writers are shown the proper citation formats for paraphrases, direct quotes, summaries, etc.

Technology

Technology is becoming increasingly important in education and we will pursue learning with the aid of technology in several ways. Students will be allowed to submit projects electronically. Students are encouraged to investigate equating and test-design related web sites to support their reading and project work. A page of links to additional readings and resources is provided at the class website. During discussions of equating design and data analysis, computer demonstrations will be conducted in class to illustrate various methods.

Diversity

The College of Education and Human Development is committed to have every course contribute to our understanding of diversity, including but not limited to: age, creed, disability, ethnicity, gender, global perspectives, international background, language background, learning differences, marital status, multicultural perspectives, national origin, public assistance status, race, religion, sex, sexual orientation, and veteran status. Each of these characteristics plays a role in educational and psychological measurement and research. They are factors that contribute to individual and group differences -- they (may) affect the constructs we set out to measure and the way we interpret and report test results. These issues will be addressed throughout the course and will be used as topics of debate and considerations of selecting equating methods to understand the role of group differences in evaluating test results.

It is the University Policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Students with disabilities are encouraged to contact me when possible to discuss their individual needs for accommodations.

University Policies

(See <http://onestop.umn.edu/onestop/faculty/Teaching/Policies.html> for a list of policies related to teaching with links to those policies. Also see <http://www1.umn.edu/usenate/usen/policies.html> for University Senate policies related to Teaching/Education.)

Statement on accommodations

It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Students with disabilities are encouraged to contact their instructors to discuss their individual needs for accommodations.

Statement on classroom conduct (<http://www1.umn.edu/usenate/policies/classexpectguide.html> and/or <http://www1.umn.edu/regents/policies/academic/StudentConductCode.pdf>)

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Statement on academic misconduct

(http://www1.umn.edu/regents/policies/humanresources/Academic_Misconduct.pdf)

Scholastic misconduct is broadly defined as "any act that violates the rights of another student in academic work or that involves misrepresentation of your own work." Scholastic dishonesty includes, (but is not necessarily limited to): cheating on assignments or examinations; plagiarizing, which means misrepresenting as you own work any part of work done by another; submitting the same paper, or substantially similar papers, to meet the requirements of more than one course without the approval and consent of all instructors concerned; depriving another student of necessary course materials; or interfering with another student's work.

Statement regarding sexual harassment

(<http://www1.umn.edu/regents/policies/humanresources/SexHarassment.pdf>)

Add text here. ("Sexual harassment" means unwelcome sexual advances, requests for sexual favors, and/or other verbal or physical conduct of a sexual nature when: (1) submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or academic advancement in any University activity or program; (2) submission to or rejection of such conduct by an individual is used as the basis of employment or academic decisions affecting this individual in any University activity or program; or (3) such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive working or academic environment in any University activity or program. University policy prohibits sexual harassment. Complaints about sexual harassment should be reported to the University Office of Equal Opportunity, 419 Morrill Hall.)

Support Services

This publication/material is available in alternative formats upon request. Please see the course website: www.edmeasurement.net

The University of Minnesota is an equal opportunity employer and educator.

QME Mission Statement

To prepare students to become cutting-edge professionals in educational measurement, evaluation, statistics, and statistics education, through excellence in teaching, research, and service; and through investigating and developing research methodology in education.

Department of Educational Psychology Mission Statement

The broad mission of the Department of Educational Psychology is to:
create and disseminate new knowledge about successful educational practices.

- preserve the established and time honored practices of the past.
- promote the welfare and development of all students from all abilities and backgrounds.

Within this mission, the department's priorities are to:

prepare graduate students to take leadership in research, teaching, professional practice, and service.

- train new and practicing teachers in the instructional applications of psychological theory.
- foster an appreciation of the role that educational psychology can play in solving educational problems.
- work with schools and individuals to help them achieve their goals.

College of Education & Human Development Mission Statement

The new College of Education and Human Development is a world leader in discovering, creating, sharing, and applying principles and practices of multiculturalism and multidisciplinary scholarship to advance teaching and learning and to enhance the psychological, physical, and social development of children, youth, and adults across the lifespan in families, organizations, and communities.

Six Intellectual Principles of Ph.D./Ed.D./Master's Research Education

(Currently under review at the U of M)

1. *Scholarly Formation*
2. *Communication*
3. *Leadership and Collaborative Skills*
4. *Global Context*
5. *Professional Responsibility*
6. *Personal and Professional Management Skills*