CUA

THE CATHOLIC UNIVERSITY OF AMERICA

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SSS 947 - 948
Multivariate Statistics and Design I and II
Mary Jeanne Verdieck, Ph.D.
2009 – 2010

I. COURSE PURPOSE

The focus of this two semester course is on the multivariate statistics most commonly used in social work, as well as other social science, research. The overall goal of the course is to assist the students in becoming both informed consumers and competent producers of research. In addition, the student should gain an increased appreciation of the importance of research methods and statistical techniques in the development of knowledge and in the evaluation of programs and practice. Finally, he or she should appreciate both the strengths and the limitations of the statistical approach.

II. EDUCATIONAL OBJECTIVES

Upon completion of these courses the students should be able to:

1. formulate research questions and testable hypotheses;
2. identify the statistical analysis appropriate to test various hypotheses;
3. interpret the results of statistical analysis;
4. understand statistical analysis presented in social science literature.
5. carry out statistical analysis using SPSS.

III. COURSE REQUIREMENTS FOR SSS 948

A. Texts and Readings:

Required

Mertler, C. A. and Vannatta, R. A. (2002). *Advanced and Multivariate Statistical Methods: Practical Application and Interpretation* (2nd Ed.). Los Angeles: Pryzak Publishing.

Weinbach, R. W. & Grinnell, R. M., Jr. (2004). *Statistics for Social Workers, 6th Edition.* Needham Heights, MA: Allyn and Bacon.

OR

Other introductory statistics text.

SPSS Graduate Pack. Chicago: SPSS Inc.

Reference Texts

Campbell, D. T. and J. C. Stanley (1963). *Experimental and Quasi Experimental Design for Research*. Chicago: Rand McNally.

Jaeger, R. M. (1983). *Statistics: A Spectator Sport*. Beverly Hills, California: Sage Publications.

Kerlinger, F. N. and E. J. Pedhazur (1973). *Multiple Regression in Behavioral Research*. New York: Holt, Rinehart and Winston.

Rubin, A. and E. Babbie (1993). *Research Methods for Social Work* (4th Ed.). Pacific Grove, CA: Brooks/Cole Publishing Company.

Other Readings

Alperin, R. and T. H. Neidengard (1984). Effects of practitioners' professional affiliation, sex and warmth on changes in the attitudes of clients. *Social Work Research and* Abstracts, Vol. 20 (4) pp. 20-26.

Dorfman, L. T. and M. M. Moffett. 1987. Retirement satisfaction in married and widowed rural women. *The Gerontologist*, Vol. 27 (2), pp. 215-221.

Finch, S. J., D. Fanshel and J. F. Grundy (1986). Factors associated with the discharge of children from foster care. *Social Work Research and Abstracts*. Vol. 22 (1) pp. 10-18.

Koeske, G.F. and R. D. Koeske (1992) Parenting locus of control: Measurement, construct validation, and a proposed conceptual model. *Social Work Research and Abstracts, Vol. 28, pp. 37 – 46.*

Poertner, J. (1985). A scale for measuring clients' satisfaction with parent education. *Social Work Research and Abstracts*. Vol. 21 (3) pp. 23-28.

Verdieck, M. J. "Notes on the article by Finch, Fanshel and Grundy." Unpublished manuscript.

B. Course Assignments:

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1. Mid-term examination	(40%)
2. Assigned exercise problems	(no grade)
3. Other assignments	(20%)
4. Final examination	(40%)

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1. Proposal for final paper	(no grade)
2. First draft of paper	(20%)
3. Other assignments	(10%)
4. Mid-term examination	(25%)
5. Final paper	(20%)
6. Final examination	(25%)

C. Class Participation:

Students are expected to attend class, to raise appropriate questions, and to contribute to discussions using examples from their own experience in social work practice and research.

D. Grading Policy:

Full credit will **NOT** be given for assignments which are submitted late. **NO** credit will be given for assignments which are submitted after they have been reviewed in class.

E. Course and Instructor Evaluation

NCSSS requires electronic evaluation of this course and the instructor. At the end of the semester, the evaluation form may be accessed at

http://evaluations.cua.edu/evaluations

using your CUA username and password. Additional informal written or verbal feedback to the instructor during the semester is encouraged and attempts will be made to respond to requests.

IV. CLASS EXPECTATIONS

A. Scholastic Expectations

Please refer to NCSSS Announcements, or appropriate Program Handbook for Academic Requirements, including scholastic and behavioral requirements. All written work should reflect the original thinking of the writer, cite references where material is quoted or adapted from existing sources, adhere to APA format, and should be carefully proof read by the student before submission to the instructor for grading.

B. Academic Honesty

Joining the community of scholars at CUA entails accepting the standards, living by those standards, and upholding them. Please refer to University Policy and appropriate Program Handbooks.

C. Accommodations

Students with physical, learning, psychological or other disabilities wishing to request accommodations must identify with the Disability Support Services (DSS) and submit documentation of a disability. If you have documented such a disability to DSS that requires accommodations or an academic adjustment, please arrange a meeting with the instructor as soon as possible to discuss these accommodations.

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Multivariate Statistics and Design I
Fall 2008

Course Schedule

DATE **TOPIC**

9/3 **Overview and Introduction**
- course requirements
- overview of statistical analysis
- basic statistical concepts
- frequencies
- measures of central tendency: mean, median, mode
- measures of dispersion: variance, standard deviation

Weinbach and Grinnell
Chapter 1 "Introduction to Statistical Analysis"
Chapter 2 "Frequency Distributions and Graphs"
Chapter 3 "Central Tendency and Variability"

9/10 **The Normal Curve**
- z-scores
- the normal curve

Weinbach and Grinnell

Chapter 4 "Normal Distributions"

Verdieck pp. 1-3

9/17 **Hypothesis Testing and Bivariate Statistics**
- testing hypotheses
- t-tests
- analysis of variance

Weinbach and Grinnell
Chapter 11 "t Tests and Analysis of Variance"

Verdieck pp. 3 - 8

9/24 – 10/1 **Factorial Analysis of Variance**
- main effects
- interaction effects

Mertler & Vannatta
Chapter 4 "Factorial Analysis of Variance," pp. 67 – 74

10/8 - 10/15 **Linear Relationships**
- Pearson correlation coefficient
- the regression line

Weinbach and Grinnell
Chapter 8 "Uses of Correlation"
Chapter 9 "Regression Analyses"

10/29 **Mid Term**

10/22 11/19 **Multiple Regression**
- standardized *vs* unstandardized coefficients
- dummy variables
- interactions

Mertler & Vannatta
Chapter 7 Multiple Regression"

Dorfman & Moffat

11/26 **THANKSGIVING - No Class (Thank Goodness...)**

12/3 **Analysis of Covariance**
analysis of covariance

Mertler and Vannatta: Chapter 5

12/10 **Review**

12/17 **FINAL EXAMINATION**