

## **ERSH 8610: Educational Measurement Theory**

**Fall Semester, 2003, Thurs 5: 00-7:45**

**Instructor:** Dr. Deborah L. Bandalos

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**Office Hours:** Tues. & Thurs 2:00-3:15 and by appointment.

**Course Prerequisite:** ERSH 8320

**Required Text:** Crocker, L. & Algina, J. (1986).

### **COURSE DESCRIPTION**

This course is designed for graduate students with a strong interest in educational and psychological measurement, measurement theory, and the role of measurement in quantitative research. The theoretical basis of the course will be classical measurement theory with primary emphasis on the topics of instrument development, reliability, and validity. ERSH 8320 is a prerequisite for this course. It will be assumed that all students have an understanding of the topics covered in that course

### **COURSE OUTLINE \*:**

<b>Date</b>	<b>Topic</b>	<b>Reading</b>	<b>Assignment</b>
8/21	Course Introduction		
	Role of Measurement in Research	Ch. 1 & 2	
8/28	Measurement Scales	Ch.3	
9/4	Test Construction	Ch. 4; Benson, & Clark, 1982	
9/11	Reliability	Ch. 6	
9/18	Reliability, con't	Ch. 7; Feldt & Brennan, 1989	
9/25	Reliability, con't		
10/2	Validity Overview	Ch. 10	1
10/9	Predictive and Concurrent Validation		
10/16	Perspectives on Measurement Validity	Shepard, 1993; Kane, 1992	
10/23	Validity perspectives, con't	Messick, 1989	2
10/30	FALL BREAK - NO CLASS!		
11/6	Factor Analysis	Hetzl, 1996; Comrey, 1988	
11/13	Item Analysis	Ch. 14; Jackson, 1970	3
<b>Date</b>	<b>Topic</b>	<b>Reading</b>	<b>Assignment</b>

11/20	Recent Developments	Hambleton, 1996	4
11/27	THANKSGIVING BREAK - NO CLASS!		
12/4	Item Bias	Ch. 16; Cole & Moss, 1989; Hui & Triandis, 1985	

\* The above schedule will be followed as closely as possible, but because of the interactive nature of the class some deviations may be necessary. I reserve the right to change readings or to add additional readings as I become aware of them.

### ***GRADING***

Course grades will be based on a weighted average of your grades on computer assignments, exams, and a final project.

Weights for your final grade will be as follows:

Exams: 50%

Computer assignments: 24%

Group Project: 26%

ALL assignments must be completed in order to achieve a grade of A in the class.

All computer assignments are due at the beginning of class on the day specified in this syllabus. Late assignments will not be accepted for credit. Class attendance is not mandatory. However, class lectures will cover material that is not in the text, and all students are responsible for this material.

### ***GENERAL COURSE GUIDELINES***

#### **CHEATING**

Cheating will not be tolerated. Cheating is defined as representing work done by another person, either wholly or in part, as one's own work, or knowingly allowing another person to do so. Having said this, students are encouraged to work in groups and to discuss their work on computer assignments and, of course, the group project, with other students in the class. However, the final products turned in for computer assignments and exams must be in your own words and must have been produced entirely by you.

## **CLASS WEBSITE**

I have set up a class website on WebCT that will be an integral part of the course. On the website I will have copies of class notes, examples, and links to data bases and other useful websites. Each class member will be given a user name and password that will allow them to enter and use the website.

## **COMPUTER ASSIGNMENTS**

Computer assignments will require the use of the SPSS computer package, version 11 for the PC. This program is available in room 618 Aderhold and in rooms 143 and 156 River's Crossing. All necessary commands will be given and explained in class. However, you may wish to purchase a manual for your own use. All class members will be given sufficient instruction to use the program to run their assignments.

Computer assignments have been chosen to illustrate the concepts discussed in class. Illustrative computer runs will be available on the class website. Datasets for computer assignments will be posted on the class website and can be downloaded either to a disk or to your own computer. For each assignment, guidelines will be given for whatever writeup is to accompany the computer output.

When turning in your output, remove all unnecessary pages, circle or highlight important values, and staple the pages together at the upper left hand corner, along with the writeup. Be sure to write your name and social security number on the front page.

## **FINAL PROJECT**

Final projects can be one of four types:

1. Analysis of data on a psychometric scale.

2. Review of the literature on a measurement topic of interest to you.
3. Review of the literature on a particular measurement instrument.
4. Review of the literature on a particular construct and its measurement.

Topics for the final project must be approved by the instructor before the end of October.

### **Articles**

Benson, J. & Clark, F. (1982). A guide for instrument development and validation. *The American Journal of Occupational Therapy, 36(12)*, 789-801.

- Comrey, A.L. (1988). Factor-analytic methods of scale development in personality and clinical psychology. *Journal of Consulting and Clinical Psychology, 56*(5), 754-761.
- Cole, N.S. & Moss, P.A. (1989). Bias in test use. In R.L. Linn (ed.), *Educational Measurement, 3<sup>rd</sup> Edition*, pp. 201-219. Phoenix, AZ: Oryx Press.
- Feldt, L.S. & Brennan, R.L. (1989). Reliability. Cole, N.S. & Moss, P.A. (1989). Bias in test use. In R.L. Linn (ed.), *Educational Measurement, 3<sup>rd</sup> Edition*, pp. 105 - 146. Phoenix, AZ: Oryx Press.
- Hambleton, R.K. (1996). Advances in assessment model, methods, and practices. In D.C. Berliner and R.C. Calfee (Eds.), *Handbook of Educational Psychology*, pp. 899-925. New York: MacMillan.
- Hetzl, R.D. (1996). A primer on factor analysis with comments on patterns of reporting and practice. *Advances in Social Science Methodology, 4*, 175-206.
- Hui, C.H. & Triandis, H.C. (1985). Measurement in cross-cultural psychology. *Journal of Cross-Cultural Psychology, 16*(2), 131-152.
- Jackson, D.N. (1970). A sequential system for personality scale development. In C.D. Spielberger (ed.), *Current topics in Clinical and Community Psychology*, vol. 2., pp. 61-81. New York: Academic Press.
- Kane, M.T. (1992). An argument-based approach to validity. *Psychological Bulletin, 112*(3), 527-535.
- Messick, S. (1989). Validity. In R.L. Linn (ed.), *Educational Measurement, 3<sup>rd</sup> Edition*, pp. 13-103. Phoenix, AZ: Oryx Press.
- Shepard, L.A. (1993). Evaluating test validity. *Review of Research in Education, 19*, 405-450.