HUDM 5059
Psychological Measurement

Spring, 2011	Thursday, 5:10-6:50, ZB 408
Instructor:	Lawrence T. DeCarlo, Ph.D.
Office:	Grace Dodge Hall, 453h
Office hours:	Tuesday 2:30-4:00, Thursday 1:30-3:00, and by appointment
Phone:	212-678-4037
Fax:	212-678-3837
Email:	decarlo@tc.edu
Webpage:	http://www.columbia.edu/~ld208/

Required Text: *Introduction to Measurement Theory*.(1979/2002). Mary J. Allen & Wendy M. Yen. Prospect Heights, IL: Waveland Press.

Objectives

An introduction to basic concepts and methods of measurement as applied to psychology and education. Practical and statistical aspects of measurement will be discussed and illustrated. Topics covered include classical test theory, reliability, validity, multitrait-multimethod analysis, factor analysis, structural equation modeling, and item response theory.

Additional References

The text by Allen and Yen covers the material I will present fairly closely. Also recommended are the following, arranged in terms of the appropriate level. The first text is used in my introductory measurement class.

Introductory:

Thorndike, Robert. M. (2009). *Measurement and evaluation in psychology and education*. 8th ed. NJ: Prentice-Hall.

Anastasi, Anne, & Urbina, Susana (1997). *Psychological Testing* (7th ed.). Upper Saddle River, NJ: Prentice-Hall Inc.

American Psychological Association (1999). *The standards for educational and psychological testing*. Washington, D.C.:Author. (www.apa.org/science/standards.html)

Intermediate:

Crocker, Linda M., & Algina, James. (1986). *Introduction to classical and modern test theory*. NY: Holt, Rinehart, & Winston.

Nunnally, Jum C. (1994). *Psychometric theory*. 3rd ed. NY: McGraw-Hill.

Suen, Hok. K. (1990). *Principles of test theories*. NJ: Lawrence Erlbaum.

Advanced:

Novick, M. R., & Lord, F. M. (1968). *Statistical theories of mental test scores*. Reading, MA: Addison-Wesley.

McDonald, R. P. (1999). *Test theory: A unified treatment*. Mahwah, NJ: Lawrence Erlbaum Associates.

Specialized Texts: Item response theory

Introductory:

Embretson, S. E., & Reise, S. P. (2000). *Item response theory for psychologists*. Mahwah, NJ: Lawrence Erlbaum Associates.

Hambleton, R. K., & Swaminathan, H. (1984). *Item response theory*. Boston, MA: Kluwer-Nijhoff.

Advanced:

Baker, F. B. (1992). *Item response theory: Parameter estimation techniques*. New York: Marcel Dekker.

Boomsma, A., van Duijn, M. A. J., & Snijders, T. A. B. (Eds.). (2001). *Essays on item response theory*. New York: Springer.

Van der Linden, W. J., & Hambleton, R. K. *Handbook of modern item response theory*. New York: Springer-Verlag.

Schedule of Topics

Nature and essentials of measurement
Statistics
Units, scales, and norms
Reliability
Validity
Conventional item analysis & item response theory
Ideas underlying factor analysis & path models

Readings

Chapters in Allen & Yen corresponding to the topics shown above are given below.

Chapter 1	Functions and origins of testing	
Chapters 2, 8	Statistics and scaling HW: p.52 Problems 1-5	(pp. 6-23, pp. 42-49)
Chapter 7	Norms	(pp. 148-165)
Chapters 3, 4	Reliability and classical test theory HW: p.71, Problems 1, 2, 3, 4, 6, 8	(plus pp. 23-36)
Chapter 5	Validity HW: p.116, Problem 1	(skip 5.6 & 5.7)
Chapter 6	Item analysis HW: p.145, Problem 1	

Grades

Grades will be based on three exams and on homework. The three exams will be weighted equally and will comprise 90% of your grade, the average homework grade will count as 10%. Please note the dates of the exams: **February 24**, **March 31**, and **May 5.** The exams will be open book with free access to text and notes. If you cannot make an exam or need to re-schedule you must have a valid reason and notify me two weeks before the scheduled exam.

Services for Students with Disabilities

The College will make reasonable accommodations for persons with documented disabilities. Students are encouraged to contact the Office of Access and Services for Individuals with Disabilities for information about registration (166 Thorndike Hall).

Services are available only to students who are registered and submit appropriate documentation." As your instructor, I am happy to discuss specific needs with you as well.

IN Incomplete

The grade of Incomplete is to be assigned only when the course attendance requirement has been met but, for reasons satisfactory to the instructor, the granting of a final grade has been postponed because certain course assignments are outstanding. If the outstanding assignments are completed within one calendar year from the date of the close of term in which the grade of Incomplete was received and a final grade submitted, the final grade will be recorded on the permanent transcript, replacing the grade of Incomplete, with a transcript notation indicating the date that the grade of Incomplete was replaced by a final grade.

If the outstanding work is not completed within one calendar year from the date of the close of term in which the grade of Incomplete was received, the grade will remain as a permanent Incomplete on the transcript. In such instances, if the course is a required course or part of an approved program of study, students will be required to re-enroll in the course including repayment of all tuition and fee charges for the new registration and satisfactorily complete all course requirements. If the required course is not offered in subsequent terms, the student should speak with the faculty advisor or Program Coordinator about their options for fulfilling the degree requirement. Doctoral students with six or more credits with grades of Incomplete included on their program of study will not be allowed to sit for the certification exam.