# HUDM 5059 Psychological Measurement

Fall, 2016	Wednesday, 3:00-4:40, Macy 130		
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Required Text:	Introduction to Measurement Theory.(1979/2002). Mary J. Allen &		

## **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.

Wendy M. Yen. Prospect Heights, IL: Waveland Press.

## **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*. 8<sup>th</sup> ed. NJ: Prentice-Hall.

Anastasi, Anne, & Urbina, Susana (1997). *Psychological Testing* (7<sup>th</sup> 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*. 3<sup>rd</sup> 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. The problems listed below are recommended exercises. They will not be collected or graded, because the answers are given in the back of the book. Additional homework problems that I will provide as handouts will be collected and graded.

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 and 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 85% of your grade, the average homework grade will count as 15%. Please note the dates of the exams: **October 12**, **November16**, and **December 21**. 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 at least 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.

## Incomplete

The grade of Incomplete will 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.

#### Email

Teachers College students have the responsibility for activating the Columbia University Network ID (UNI) and a free TC Gmail account. As official communications from the College – e.g., information on graduation, announcements of closing due to severe storm, flu epidemic, transportation disruption, etc. – will be sent to the student's TC Gmail account, students are responsible for either reading email there, or, for utilizing the mail forwarding option to forward mail from their account to an email address which they will monitor.

## **Religious Holidays**

It is the policy of Teachers College to respect its members' observance of their major religious holidays. Students should notify instructors at the beginning of the semester about their wishes to observe holidays on days when class sessions are scheduled.

Where academic scheduling conflicts prove unavoidable, no student will be penalized for absence due to religious reasons, and alternative means will be sought for satisfying the academic requirements involved. If a suitable arrangement cannot be worked out between the student and the instructor, students and instructors should consult the appropriate department chair or director. If an additional appeal is needed, it may be taken to the Provost.

## **Academic Integrity**

Students who intentionally submit work either not their own or without clear attribution to the original source, fabricate data or other information, engage in cheating, or misrepresentation of academic records may be subject to charges. Sanctions may include dismissal from the college for violation of the TC principles of academic and professional integrity fundamental to the purpose of the College.