

## **Measurement: Classical Test Theory (APSY-GE 2140)**

Fall Term, 2014

Wednesday 3:30-6:10 PM, Location: KIMB 505W (246 Greene Street)

### **Instructor:**

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### **Official Course Description:**

This course introduces the principles of psychological measurement and testing, emphasizing the classical test theory for sum scores. Main topics include dimensionality, reliability, validity, and fairness, as well as current standards for educational and psychological measurement. Content is drawn from domains of aptitude, personality, intelligence, and achievement, and students are also invited to discuss their own case studies. Statistical software is used to conduct analyses, and basic statistical concepts (e.g., variance, correlation) are reviewed.

### **Course Overview and Objectives:**

Every practitioner of applied social and behavioral sciences should understand the fundamentals of measurement theory as it is used to frame arguments, gather evidence, address questions, and solve problems relevant to their field. This course focuses on psychological measurement with particular emphasis on psychological testing as a tool for assessment and evaluation of groups and individuals.

Psychological measurement theory applies ideas from statistics as an approach to evidential reasoning to support claims about psychological and social phenomena as well as inferences about individual and group differences; however, this course does not assume a deep statistical background -- all the relevant concepts (e.g., variance, correlation) are reviewed during course. The purpose of the course is to introduce measurement concepts and show how they are currently used to analyze testing and assessment data. By the end of the term, it is expected that students will be able to think for themselves and apply their knowledge, skills, and new understandings to evaluate the psychometric properties of educational and psychological tests and to communicate measurement concepts effectively. This includes computing basic univariate and bivariate statistics, estimating test score reliability and validity coefficients, conducting rudimentary factor analyses, and evaluating potential biases in item responses.

Students are also encouraged to directly apply what they have learned to their own domain of study, and to think critically about the material. To this end, the course involves two presentations, during which students discuss the psychometric properties of a test / instrument of their own choice. Depending on class size, group work may be required on presentations.

Grade breakdown is as follows: 30% Presentations, 30% Problem Sets, 25% Take-home final exam, and 15% attendance and participation. Attendance and active participation are expected, meaning that all students are expected to participate during each class. See below for further

details on grading.

**Required Text:**

Cohen R. J., Swerdlik M., Sturman E. (2012). *Psychological Testing and Assessment: An Introduction to Tests and Measurement*. McGraw-Hill Education

**Website:**

The course uses NYUClasses for posting lecture notes, handouts, readings, homework assignments, and general information.

**Assignments:**

*First presentation: Discuss a test or measure of interest to you.*

For this presentation you are asked to present some initial details on a test or measure of interest to you. It will probably be helpful to select the test in consultation with your senior colleagues or advisor. You may also consult a variety of other sources to obtain a list of currently used tests (e.g., *Tests in Print*, *Mental Measurement Yearbook*, *Test Critiques*, and *Measures for Psychological Assessment*). These sources are available in the first floor reference section of the NYU Bobst Library (they cannot be checked out).

The presentations should be no longer than 15 minutes and address the following topics: (1) a description of the instrument and the construct(s) it is intended to measure; (2) historical background on the development of the instrument; (3) how the instrument is used in research and practical settings, including populations for which the instrument was intended to be used; (4) description of items, sub-scales, and scoring. The general idea is that, by the end of your talk, the audience should have a good comprehension of the instrument and why they would use it.

Before the presentation, ensure that you provide the instructor with a hard copy of any presentation slides or other materials to be used. This presentation is worth 15% of the overall grade.

*Second presentation: Psychometric properties of your test.*

For this presentation, you are asked to provide information on the psychometric properties of the instrument you described in the first presentation. This requires you to report on 2 - 3 studies of the reliability and validity for the instrument.

The presentations should be no longer than 15 minutes and address the following topics: (1) a detailed description of the psychometric studies, (2) the associated finding of these studies, and (3) your own assessment of the utility of this measure in research and practice. Make sure you address the “validity argument” of the test when making your conclusion.

Before the presentation, ensure that you provide the instructor with a hard copy of any presentation slides or other materials to be used. This presentation is worth 15% of the overall grade.

*Assessments & Problem Sets*

These data-based assignments reinforce concepts learned during class. They are a mixture of conceptual questions, algebraic problems, and calculations. Students may discuss these assignments with classmates, but must turn in their own work. These assignments account for 30% of the overall grade.

### *Final Examination*

A take-home examination is available during the final exam period scheduled by the registrar. It covers the material from the entire course and is similar in nature to the problem sets. You will have at least two weeks to complete the exam. Each student must work on the exam individually. Working on the exam with a classmate or receiving help from a consultant is a violation of ethical standards. A hard copy of the exam must be delivered to the instructor before the due date. The exam accounts for 25% of the overall grade.

### **Grading:**

F	D	C-	C	C+	B-	B	B+	A-	A
< 65	65-69	70-73	74-76	77-79	80-83	84-86	87-89	90-93	94-100

### **Norms of Collaboration:**

In this course, we will privilege questions over answers as the focus of learning. In order to encourage this critical thinking about psychological testing and measurement, the class will engage in collaborative discussion and problem solving. To help the class develop a shared meaning and facilitate productive discussions it is important that the group establish and maintain norms of collaborative discussion. To this end, we will be using a framework adapted from the following source:

Garmston, R., and Wellman, B. (2009) *The Adaptive School: A Sourcebook for Developing Collaborative Groups*, 2nd edition. Norwood, MA: Christopher Gordon.

Please pay attention to the following seven “Ps” for effective collaborative discussions:

1. Pausing
2. Paraphrasing
3. Posing Questions
4. Putting Ideas on the Table
5. Providing Data
6. Paying Attention to Self and Others
7. Presuming Positive Intentions

### **Academic Integrity:**

Students in this course are subject to the policies set out in the NYU Steinhardt Statement on Academic Integrity. Violations of this policy include cheating on an examination, receiving help on an assignment that calls for independent work, and plagiarism. Please see [https://steinhardt.nyu.edu/policies/academic\\_integrity](https://steinhardt.nyu.edu/policies/academic_integrity) for more information.

### **For Students with Disabilities:**

Any student attending NYU who needs an accommodation due to a chronic, psychological, visual, mobility and/or learning disability, or is deaf or hard of hearing, should register with

the Moses Center for Students with Disabilities at 212-998-4980, 719 Broadway, 2nd Floor, .  
[www.nyu.edu/csd](http://www.nyu.edu/csd).

**Course Calendar (tentative):**

Week	Class Date	Topics	Readings	Problem Sets
1	September 3, 2014	Introduction & Overview	Ch. 1 & 2	PS.1
2	September 10, 2014	Statistics Refresher	Ch. 3 & 4	PS.2
3	September 17, 2014	Reliability	Ch. 5	PS.3
4	September 24, 2014	Validity	Ch. 6	PS.4
5	October 1, 2014	Utility	Ch. 7	PS.5
6	October 8, 2014	Test Development	Ch. 8	PS.6
7	October 15, 2014	Presentation I		
8	October 22, 2014	Intelligence	Ch. 9 & 10	PS.7
9	October 29, 2014	Education	Ch. 11	PS.8
10	November 5, 2014	Personality	Ch. 12 & 13	PS.9
11	November 12, 2014	Clinical and Counseling	Ch. 14	PS.10
12	November 19, 2014	Neuropsychological	Ch. 15	PS.11
13	November 26, 2014	Industrial/Organizational	Ch. 16	PS.12
14	December 3, 2014	Presentation II		Final Exam

**Other Important Dates:**

Tuesday, September 2, 2014	<b>Fall 2014 classes begin</b>
Monday, October 13, 2014 - Tuesday, October 14, 2014	<b>Fall Recess</b> No classes scheduled
Thursday, November 27, 2014 - Sunday, November 30, 2014	<b>Thanksgiving Recess</b> No classes scheduled / University Holiday
Wednesday, December 10, 2014	<b>Legislative Day - Classes will meet according to a Monday schedule</b>
Friday, December 12, 2014	<b>Last day of Fall 2014 classes</b>
Saturday, December 13, 2014 - Sunday, December 14, 2014	<b>Reading Days</b>
Monday, December 15, 2014 - Friday, December 19, 2014	<b>Fall Semester Exams</b> Final Grades Deadline Grades are due 72 hours after the scheduled final exam date