

Course Syllabus
Online Psychometric Theory I
15:291:515:90
Spring, 2013

Course Information

Instructor:	Chia-Yi Chiu
Office:	Room 326, Graduate School of Education
Email:	chia-yi.chiu@gse.rutgers.edu
Time:	New course materials will be posted on Tuesdays
Live Session:	Tuesdays as scheduled
Discussion:	Every weekday
Text:	Allen, M. & Yen, W. (2002). <i>Introduction to Measurement Theory</i>
Recommended texts:	1. Wilson, M. (2005). <i>Constructing Measures: An Item Response Modeling Approach</i> 2. Crocker, L. & Algina, J. (1986). <i>Introduction to Classical & Modern Test Theory</i> 3. Embertson, S. & Reise, S. (2000). <i>Item Response Theory for Psychologists</i>

Course Description

This course is designed to provide an overview of basic yet important topics and issues in educational and psychological testing and measurement. The goal of the course is to offer fundamental knowledge and techniques required to analyze educational and psychological tests from the perspective of psychometrics. Basic statistical knowledge is required through this course. The topics include principles of educational and psychological measurement, such as scaling, reliability and validity analyses, and item analysis, introduction to Classic Test Theory (CTT), applications of factor analysis, introduction to Item Response Theory (IRT) and test development.

Course Goals

After successfully completing this class students should

1. Understand the purpose of score transformation and be able to obtain and interpret it.
2. Be able to obtain and interpret reliability and validity related evidence.
3. Understand the general procedures of test construction and item writing.
4. Be able to conduct an item/test analysis from the classical test theory perspective.
5. Understand the general principles of the item response theory and its applications.

6. Be able to read, interpret, and critically evaluate measurement methodology, reported outcomes and subsequent interpretations, as found in educational and behavioral research journals.

Course Requirements

1. **Email & ECollege Access:** Efficient communication is the key to evaluate how successful an online course is and in this course, **emailing** and **eCollege** are the two communication tools that we heavily rely on. To maximize the teaching and learning effects, you have to check your email account frequently and make sure you are able to receive information, download files, drop messages, join live sessions, do homework, take exams and access your grades from our course web page. All information and activities are time sensitive. Late responses and requests will not be handled. For example, you will have a week to finish each homework assignment. However, you will not be able to access the homework questions after the due day.
2. **Exams:** The two online exams, midterm and final, are worth 30% and 30% of the final grade, respectively. You will need a calculator for the exams.
3. **Homework Assignments:** Approximately 4 homework assignments, worth 30% of the final grade, will be given online during the semester. You have a whole week to work on a homework assignment. No late homework assignment is acceptable.
4. **Final Report:** A report/critique from a self-selected journal paper that applies the theories and techniques covered in the course is worth 10% of the final grade. The final report/critique is due on **May 2**.
5. **Participation:** Your participation is expected throughout the semester.

Live Sessions

Live sessions in this online course are analogous to office hours in a regular course. You can ask questions in one-to-one manner and obtain responses immediately. For those who cannot participate in the live sessions, I will record the sessions and make them available on our course web page. Please refer to the “Class Schedule” for the dates when the live sessions are to be held.

Dropbox

In addition to live sessions, an alternative to find the solutions to your questions is simply drop your questions to a designate Dropbox on our course web page. This is especially convenient for those who cannot participate in our live sessions. A **Basket** labeled **Question Box** will be created every week for you to drop content-related questions. Your questions will be answered on a daily basis (weekdays). Therefore, please make sure you are familiar with the function, **Dropbox**.

Final Grade

Final letter grade will be assigned as follows:

Final Score	Letter Grade
90% and Above	A
80%-89%	B+
75%-79%	B
65%-74%	C+
60%-64%	C
Below 60%	F

Class Schedule

The following class schedule is subject to change if necessary. Reading assignments must be completed each week.

Date	Topic	Reading Assignment
Jan 22 - Jan 27	Getting Started	Handouts
Jan 28 - Feb 3	Introduction; Basic statistical concepts	Ch. 1 & 2
Feb 4 - Feb 10	Transformation; Scaling; Equating	Ch. 7 & 8; Handout
Feb 5	*ClassLive	
Feb 11 - Feb 17	Classical Test Theory;	Ch. 3
Feb 12	*Hw 1 assigned	
Feb 18 - Feb 24	Reliability I	Ch. 4
Feb 18	*Hw 1 due	
Feb 19	*ClassLive	
Feb 25 - Mar 3	Reliability II	Handout
Feb 26	*Hw 2 assigned	
Mar 4 - Mar 10	Validity I; Review	Ch. 5
Mar 4	*Hw 2 due	
Mar 5	*ClassLive	
Mar 12	MIDTERM	
Mar 18 - Mar 24	<i>No Class (Spring Break)</i>	
Mar 25 - Mar 31	Validity II	Ch. 5
Apr 1 - Apr 7	Test Construction	Ch. 6 + Handout
Apr 2	*Hw 3 assigned	
Apr 2	*ClassLive	
Apr 8 - Apr 14	Item Analysis	Ch. 6
Apr 8	*Hw 3 due	
Apr 15 - Apr 21	Item Response Theory	Sec. 11.5-11.8; Handout
Apr 16	*ClassLive	
Apr 22 - Apr 28	IRT Applications	Sec. 10.5
	Issues in ability testing, test bias	Sec. 10.9; Handout
Apr 23	*Hw 4 assigned	
Apr 29 - May 5	Review	
Apr 29	*Hw 4 due	
Apr 30	*ClassLive	
May 2	*FINAL REPORT DUE	
May 7	FINAL EXAM	

Policy on Academic Integrity

Please refer to the Policy on Academic Integrity for Undergraduate and Graduate Students at <http://academicintegrity.rutgers.edu>. I will follow the policy strictly.