

Educational Measurement
PRE 725 – Fall 2007
Tuesday, 4:30 – 7:00 pm
Edwards Campus – Regnier H 165

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Texts

Thorndike, R.M. (2005). *Measurement and Evaluation in Psychology and Education* (7th Edition). Upper Saddle River, NJ: Pearson Education, Inc.

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (1999). *Standards for Educational and Psychological Testing*. Washington, DC: American Educational Research Association.

Context of Course within the School of Education Mission

The primary mission of the School of Education is to prepare leaders in education and human services fields. As stated in the School Code:

Within the University, the School of Education serves Kansas, the nation, and the world by (1) preparing individuals to be leaders and practitioners in education and related human service fields, (2) expanding and deepening understanding of education as a fundamental human endeavor, and (3) helping society define and respond to its educational responsibilities and challenges.

The components that frame this mission for our initial and advanced programs are Research and Best Practice, Content Knowledge, and Professionalism. These interlocking themes build our Conceptual Framework.

Purpose of This Course

The purpose of this course is to provide graduate students who will be conducting and/or evaluating research that uses test scores or administering and interpreting tests the working knowledge of psychometrics necessary to do so well. This course will focus on five major concepts – Objectivity, Standardization, Reliability, Validity, and Score Reporting – and how they are applied in major domains of testing and by specific major commercially available tests.

Much of the first half of this course is heavily quantitative in nature and will require the use (but not memorization of) formulas. Laboratory assignments will require the use of Excel.

This is NOT a course designed to teach participants to develop better classroom assessments (though many of the concepts are transferable). PRE 720 is the appropriate course for students with this interest.

Broad Course Objectives

- Students will be able to design and implement a basic study of the reliability of a test, including identifying and estimating the most significant sources of error variance and interpret the results of such a study with regard to factors affecting the interpretation of reliability coefficients
- Students will be able to design and implement a basic study of criterion-related validity and interpret the results of such a study with regard to factors affecting the interpretation of validity coefficients
- Students will understand major psychometric concepts well enough to conduct a review of the literature on a testing issue.
- Students will be aware of major psychometric approaches and issues associated with testing of cognitive abilities, educational achievement, personality and adjustment.

Syllabus PRE 725 (Fall 2007)

	Date	Topic
1	August 21	<ul style="list-style-type: none"> • Introductions, Overview of Course, Some Recent History, Philosophy of Measurement • In class data collection for Laboratory Assignment I Reading: Thorndike, Chapter 1; Suen & Lu (2006). Chronic consequences of high stakes testing? Lessons from the Chinese civil service exam.
2	August 28	<ul style="list-style-type: none"> • Steps in the Measurement Process, Measurement and Numbers, Item Analyses Reading: Thorndike, Chapter 2
3	September 4	<p>Class will meet in the computer lab. I will be out. Fei Gu and Jie Chen will run the laboratory assignment.</p> <ul style="list-style-type: none"> • Laboratory Assignment I – Descriptive Statistics and Item Analysis <ul style="list-style-type: none"> ▪ Using Excel to do statistics and measurement; Introduction to the data set; Descriptive statistics applied to test scores; Item statistics
4	September 11	<p>Class will meet in the computer lab.</p> <ul style="list-style-type: none"> • True and Error Scores, Standard and Variance Error of Measurement, Sources of Error Variance, Reliability • Laboratory Assignment II – Reliability and Standard Error of Measurement Reading: Thorndike, Chapter 4; Joint Standards, Chapter 2 → Laboratory Assignment I is due
5	September 18	<ul style="list-style-type: none"> • Overview of educational achievement testing, tests of cognitive ability, tests of personality and adjustment, vocational interest testing, job selection testing, licensure and certification testing → Laboratory Assignment II is due
6	September 25	<ul style="list-style-type: none"> • Validity I (Face Validity, Content Validity, Criterion-Related Validity, Construct Validity, Validity Generalization) Reading: Thorndike, Chapter 5; Joint Standards, Chapter 1 → Paper topic due
7	October 2	<p>Class will meet in the computer lab.</p> <ul style="list-style-type: none"> • Validity II (Test Bias, Differential Item Functioning, Testing Special Populations) • Laboratory Assignment III – Validity Reading: Joint Standards, Chapters 9, 10
8	October 9	Midterm → Laboratory Assignment III is due
9	October 16	<ul style="list-style-type: none"> • Score Reporting and Designing Tests to Facilitate Desired Interpretations <ul style="list-style-type: none"> ▪ Normative, Criterion Referenced, Behaviorally Anchored, and Standards-Based; Reporting; Scaling Reading: Thorndike, Chapter 3; Joint Standards, Chapter 4
10	October 23	<ul style="list-style-type: none"> • Professional Standards, Sources of Information About Tests Reading: Thorndike, Page 19; Joint Standards, Chapter 6 → Paper presentations
11	October 30	<ul style="list-style-type: none"> • Assessment and Educational Decisions Reading: Thorndike, Chapter 7; Joint Standards, Chapter 13 → Paper presentations
12	November 6	<ul style="list-style-type: none"> • Tests of Cognitive Abilities Reading: Thorndike, Chapter 8 → Paper presentations
13	November 13	<ul style="list-style-type: none"> • Tests of Educational Achievement Reading: Thorndike, Chapter 9 → Paper presentations
14	November 20	<ul style="list-style-type: none"> • Tests of Interests, Personality, and Adjustment Reading: Thorndike, Chapter 11; Joint Standards, Chapter 12 → Paper presentations
15	December 4	<ul style="list-style-type: none"> • Summary and Review
	December 11	<ul style="list-style-type: none"> • In class final examination

Evaluation Activities

This class will use both formative and summative assessment activities.

- *Formative Assessments* will be provided for many classes and are intended to operationalize instructor performance expectations. They will be self-graded in the following class and will not count toward your grade
- There will be three *Laboratory Activities* where data will be collected and/or analyzed in class and written up as an assignment. Together, these assignments will be worth 30% of your final grade.
- There will be a paper on a testing topic. This project will be worth 20% of your grade.
- *Blackboard Discussions*. There will be 2-3 Discussions using Blackboard, together worth 5% of your grade.
- *Midterm*. The midterm will be worth 20% of your grade.
- *Comprehensive Final*. The final will be worth 25% of your grade.

Grading Criteria

93-100%	= A
89-92%	= A-
85-88%	= B+
81-84%	= B
77-80%	= B-
73-76%	= C+
69-72%	= C
65-68%	= C-
60-64%	= D
<60%	= F

Policies

- Cheating:** Any student found cheating will be given a 0 for that exam/project/assignment and reported to the Academic Dishonesty Committee.
- Assignments:** Students are expected to work by themselves. Any use of the ideas of another work must be cited appropriately. Any words of another should be clearly shown as such. Any degree of plagiarism is unacceptable and will be treated as cheating.
- Attendance:** All students are encouraged to attend class regularly, but attendance is not mandatory. You do NOT need to notify me of absences, except for the midterm and final.
- Accommodations:** The staff of Services for Students with Disabilities (SSD), located in Strong 135, coordinates accommodations and services for KU courses. If you want accommodations and have not yet contacted them, please do so as soon as possible. Please also see me privately if you think accommodations are desirable.
- Blackboard:** I will use Blackboard to share notes and data and create discussion groups.

Paper Assignment

The paper will be a review of the literature on a testing topic and must be produced using APA style. Examples of acceptable topics include:

- Methods of assessing differential item functioning (DIF)
- What have differential item functioning studies shown about characteristics associated with DIF?
- Evidence supporting the structure of intelligence
- Critique of multiple intelligence theories
- Test equating
- Evidence-centered design
- Comparison of the constructs underlying the Stanford Binet and Wechsler Adult Intelligence Scale

Papers are expected to be about 10-20 pages, not including references. You will also be required to present a summary of your paper in a 10-15 minute session.