

RMTD 430: Psychological Measurement
Fall, 2016

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Office Hours
Wednesday 3:00pm – 5:00pm
Friday 1:00pm – 3:00pm

INTRODUCTION AND PURPOSES

The purpose of this course is to provide the student with an introduction to the conceptual, theoretical, and quantitative foundations of psychological measurement. Measurement theory is a branch of applied statistics that attempts to (1) describe and evaluate the quality of measurements in various substantive domains (e.g., psychology), (2) improve on the usefulness and meaningfulness of measures in these domains, and (3) propose theories and methods for developing new and better domain-specific measures. In this course, you will learn the concepts and methods of measurement theory as they apply to the measurement of psychological and educational constructs. Specifically, you will be exposed to foundational conceptual, quantitative, and technical principles of measurement theory so that you will gain the basic, doctoral-level background necessary to make maximum use of available psychological measures and to develop measures to suit your individual research needs.

Although we will take a primarily conceptual rather than mathematical approach to the topic in this course, I will assume that all students have a basic familiarity with college algebra and elementary statistics, including descriptive statistics, correlation, and regression basics.

OBJECTIVES:

The objectives in this course align with the following in the IDEA course evaluation system: (a) gaining factual knowledge, (b) learning fundamental principles, generalizations, or theories, and (c) learning to apply course material (for this course—writing a proposal). The addendum to this syllabus (see last page) explains more about the IDEA Course Evaluation System.

TEXTS

American Psychological Association (1999). *Standards for educational and psychological testing*. Washington, D. C.: American Psychological Association. (noted as Standards on attached course schedule)

READINGS: The following readings are required. The reading marked with an * is in Sakai. The others are available electronically through the University's electronic journal data base.

1. Tinsley, H. E. & Weiss, D. J. (2000). Interrater reliability and agreement. In H.E.A. Tinsley & S. D. Brown (Eds.). *Handbook of Multivariate Statistics and Mathematical Modeling* (pp. 95-124). New York: Academic Press.*
2. Cronbach, L. J. & Meehl, P. E. (1955). Construct validity of psychological tests. *Psychological Bulletin*, 56, 81-92.
3. Messick, S. (1980). Test bias and the ethics of assessment. *American Psychologist*, 35, 1012-1027.
4. Frazier, P. A., Tix, A. P., & Barron, K. E. (2004). Testing moderator and mediator effects in counseling psychology research. *Journal of Counseling Psychology*, 51, 115-134.
5. Schmidt, F. (2010). Detecting and correcting the lies that data tell. *Perspectives on psychological science*, 5, 233-242.
6. Kahn, J. H. (2006). Factor analysis in counseling psychology research, training, and practice: Principles, advances, and applications. *The Counseling Psychologist*, 34, 684-718.
7. Coward, W. M. & Sackett, P. R. (1990). Linearity of ability-performance relationships: A reconfirmation. *Journal of Applied Psychology*, 75,297-300.
8. Tovar-Murray et al. (2012). Racism-related stress and ethnic identity as determinants of African American college students' career aspirations. *Career Development Quarterly*, 60, 254- 262.
9. Carr, A. et al (2014). The Career Indecision Profile: Measurement equivalence in two international samples. *Journal of Career Assessment*, 22, 123-137.
10. Wilkinson, L. et al. (1999). Statistical methods in psychology journals: Guidelines and explanations. *American Psychologist*, 54, 594-604.

EVALUATION

Grades for the course will be based on two exams, a research proposal, and outside readings. The dates for the exams and proposal are noted on the attached syllabus. These are each worth 30% of the final grade. The research proposal should propose a measurement study on some topic of interest to the student. The proposal should include an introductory section (which concludes with a statement of the research question) and a methods section (which should include a description of subjects, instruments, procedures, and proposed data analyses). It is recommended that the student select a research topic that is germane to ongoing research in which he or she is engaged or to a proposed dissertation. The proposal should be written in APA style and will be graded for adherence

to APA style requirements, writing, and content.

In addition, students should become familiar with the journals in which measurement research is published and gain some practice reading such research. Thus, students are also required to read articles on measurement topics and summarize each article on a 4”X6” index card. A maximum of 10 reading summaries is required. Grades will be assigned on the basis of the number of articles read and summarized as follows: 10 = A, 9 = A-, 8 = B+, 7 = B, 6 = B-, 5 = C+, 4 = C, 3 = C-, 2 = D+, 1 = D, 0 = F. Outside readings are worth 10% of the final grade.

In order to receive credit for the reading, you should read an article on a measurement topic from a journal in the field (see below for examples), summarize (in your own words) the article on a 4”X6” index card, and turn the summary in at the beginning of class. **Only one card will be accepted each class period and it must be on a measurement topic to receive credit for it.**

Relevant Journals

Educational and Psychological Measurement

Measurement and Assessment in Counseling and Development

Psychological Assessment

Psychological Methods

Journal of Applied Psychological Measurement

Journal of Career Assessment

Journal of Personality Assessment

Journal of Psychoeducational Assessment

Psychometrika

Other Journals (e.g., Journal of Counseling Psychology, Journal of Multicultural Counseling and Development) will have some articles on measurement-related topics.

Conceptual Framework

Social Action through Education. As a doctoral-level psychologist, you can be a vehicle of social justice in whatever setting you work and in whatever role you exercise in your career. This course will provide you with the knowledge that you need to ensure that your research adheres to the highest standards of psychometric adequacy so that your findings and the inferences that can be drawn from your findings are trustworthy and unbiased.

Diversity

Your program is committed to issues of diversity, including, but not limited to, ability status, ethnicity, gender, race, sexual orientation, and social class. Among other things, you will learn in this course the meanings of culture fairness, test bias, and measurement invariance and how to assess each to ensure that the measurements that you use in your research have the same meanings to diverse groups and that the decisions that you make on the basis of measurement data are fair and equitable.

Dispositions

Each course in the School of Education focuses on one or more professional dispositions. The specific dispositions that students can develop in class are *professionalism, fairness/equity, and the belief that all students can learn*. The descriptions for the expected behaviors for the listed dispositions can be found on the rubric posted in LiveText for this course (the syllabus addendum also explains more about Dispositions and LiveText).

Academic Honesty, Accessibility, EthicsLine Reporting Hotline, Electronic Communication Policies and Guidelines: See Syllabus Addendum for the link to the policies.

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COURSE SCHEDULE

DATE	TOPICS AND READINGS
F, September 2:	<u>Administrative Matters, Course Overview, Basic Concepts</u> Standards, pp. 1-6; Reading 10 (Skim)
F, September 9:	<u>Reliability: Classical Test Theory and Implications</u> <u>Readings:</u> Reading 10, p. 596 (Instruments); Standards, pp. 25-31
F, September 16:	<u>Reliability: Domain Sampling Theory and Implications</u> <u>Readings:</u> Standards, pp. 31-36
F, September 23:	<u>Reliability: Inter-Rater Agreement and Reliability</u> <u>Reading:</u> Reading 1
F, September 30:	<u>Catch up and Review</u>
F, October 7:	<u>Midterm Exam</u>
F, October 14	<u>Validity: Logic of the Validation Process and Evaluating Validity Evidence</u> <u>Readings:</u> Reading 2; Standards pp. 9-17
F, October 21:	<u>Validity: Evaluating Validity Evidence (Continued)</u> Readings: Readings 5, 7, 10 (pp. 598-599); Standards, pp. 17-24.
F, October 28:	<u>Validity: Evaluating Validity Evidence (Finished)</u> <u>Readings:</u> Readings 4 and 8
F, November 4:	<u>Measurement Invariance: Introduction to Factor Analysis</u> <u>Readings:</u> Reading 6

F, November 11: Measurement Invariance: Levels of Measurement Invariance

Readings: Reading 9

Culture Fairness: Differential Item Functioning and Test Bias

Readings: Reading 3, Standards, pp. 71-84

F, November 16: Construction of Psychological Measures: Methods and Scaling Issues

Readings: Standards, pp. 37-44

F, November 25 No Class—Thanksgiving Break

F, December 2: Interpreting Scores from Psychological Measures: Norms and Transformed Scores; Review for Final

Readings: Text, pp. 48-60.

F, December 9 Final Exam

F, December 16 Proposals Due at noon—send electronically to instructor

Loyola University Chicago
School of Education
Syllabus Addendum

IDEA Course Evaluation Link for Students

Each course you take in the School of Education is evaluated through the IDEA Campus Labs system. We ask that when you receive an email alerting you that the evaluation is available that you promptly complete it. To learn more about IDEA or to access the website directly to complete your course evaluation go to:

<http://luc.edu/idea/> and click on **STUDENT IDEA LOGIN** on the left hand side of the page.

Dispositions

All students are assessed on one or more dispositional areas of growth across our programs: **Professionalism, Fairness, and the Belief that All Students Can Learn**. The instructor in your course will identify the dispositions assessed in this course and you can find the rubrics related to these dispositions in LiveText. Disposition data is reviewed by program faculty on a regular basis. This allows faculty to work with students to develop throughout their program and address any issues as they arise.

LiveText

All students, except those who are non-degree, must have access to LiveText to complete the benchmark assessments aligned to the Conceptual Framework Standards and all other accreditation, school-wide and/or program-wide related assessments. You can access more information on LiveText here: [LiveText](#).

Syllabus Addendum Link

- www.luc.edu/education/syllabus-addendum/

This link directs students to statements on essential policies regarding *academic honesty, accessibility, ethics line reporting* and *electronic communication policies and guidelines*. We ask that you read each policy carefully.

This link will also bring you to the full text of our conceptual framework that guides the work of the School of Education - ***Social Action through Education***.