

Tests and Measures
PSYCHOLOGY 531
FALL 2022

Location: Hanes Hall 0112
Times: TTh 12:30-1:45pm
Instructor: Oscar Gonzalez (he/him/his)
Office Hours: By appointment
Email: ogonza13@unc.edu
Website: Sakai class site

Class Prerequisites: PSYC 210 or equivalent

Reference Text

Miller, L. A., & Lovler, R. L. (2020). *Foundations of psychological testing: A practical approach* (6th Edition). Thousand Oaks, CA, US: Sage Publications, Inc. **Required**

** Supplemental readings will also be assigned and posted.

Statistical Software (FREE)

In this class we will use the R statistical language for data analysis. R is a popular, script-based statistical language that you can download for free in your own laptop.

Download: <https://www.r-project.org/>

Overview and Learning Goals for the Course

In this day and age, assessment is an integral part of many institutions and disciplines. From assessing educational achievement, health outcomes, or psychological constructs, we use scales and measures to make inferences and decisions about individuals. Psychometrics can be defined as the study of the measurement of psychological constructs, which ultimately “encourages the development of psychology as a rational science” (Thurstone, 1937). Test theorists develop scales and evaluate the inferences we can make from them. This course is an introductory seminar on measurement and psychometric theory.

The overall goals of the course are to...

1. Understand the role of tests in society and how they affect individual outcomes
2. Understand how to evaluate constructs precisely
3. Understand how to ascribe a valid interpretation to the score on a measure
4. Understand the fundamental aspects of test construction

One of the major aims of this course is for students to think critically about the measurement of psychological constructs, so the target audience is psychology undergraduate students with a basic statistics foundation.

Structure of the course

Most of the days I will lecture on a particular measurement topic and the theory behind it. Early assignments are focused on measurement theory and components needed for the final. There will be dedicated days where we learn to analyze data in the R statistical environment. Towards the end of the semester, I will lecture on special topics in psychometrics while students conduct their final projects on measure development.

Classroom Environment, Course Requirements, Grading, and Honor Code

I value the perspectives of individuals from all backgrounds reflecting the diversity of our students. I broadly define diversity to include race, gender identity, national origin, ethnicity, religion, social class, age, sexual orientation, political background, and physical and learning ability. I strive to make this classroom an inclusive space for all students. Please let me know if there is anything I can do to improve, I appreciate suggestions.

I do not tolerate cheating. The honor code is in effect for this course. Students shall not misrepresent others' work as their own and will give full credit for others' contributions to the extent that these are allowed within the parameters of the assignment. Individual assignments are to be conducted individually. Course grades will be based on three major components:

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- **Participation (20%)**: There will be several in-class activities, forum posts, and discussions about current testing topics. Short reflection papers will also be assigned throughout the semester. As you may infer, regular class attendance is expected. Late papers will not be accepted.
- **Assignments (30%)**. There will be four homework assignments that consist of basic analysis or reviewing peer-reviewed papers about scales. Assignments will be due, roughly, a week after they are assigned. Late assignments are penalized with 10% off each day that they are late. After three days, the assignment will not be accepted.
- **Scale Development (50%)**. Towards the end of the semester, students will develop a short measure of a psychological construct. The project will consist of reviewing prior literature (10%), item writing and revision (5%), (in-class) data collection, a final report (15%), and a final group presentation (20%). The final presentation will constitute the "final exam" for the class and will take place during the final exam period. The final exam is given in compliance with the UNC final exam regulations and has to be completed in order to pass the class. More details will be provided throughout.

The grade scale follows:

A	95-100%	highest level of attainment
A-	91-94%	
B+	88-90%	
B	85-87%	high level of attainment
B-	81-84%	
C+	78-80%	
C	75-77%	adequate level of attainment
C-	71-74%	
D	61-70%	minimal passing level of attainment
F	60% failed	unacceptable performance

Important Deadlines (Tentative)

	Assigned	Due
Reflection paper #1	08/18	08/23
Assignment #1	08/23	08/30
Reflection paper #2	08/30	09/01
Assignment #2	09/15	09/22
Assignment #3	09/27	10/04
Scale Dev't - Background	10/06	10/13
Scale Dev't – Item Writing	10/13	10/18
Assignment #4	10/25	11/01
Scale Dev't – Data Collection	11/03	11/10
Final Paper	11/10	11/22
Final Presentation	12/02	12/02

University Resources

- **Accessibility Resources and Services:** The University of North Carolina at Chapel Hill facilitates the implementation of reasonable accommodations, including resources and services, for students with disabilities, chronic medical conditions, a temporary disability, or pregnancy complications resulting in barriers to fully accessing University courses, programs and activities. Accommodations are determined through the Office of Accessibility Resources and Service (ARS) for individuals with documented qualifying disabilities in accordance with applicable state and federal laws. See the ARS Website for contact information: <https://ars.unc.edu> or email ars@unc.edu.
- **Counseling and Psychological Services:** CAPS is strongly committed to addressing the mental health needs of a diverse student body through timely access to consultation and connection to clinically appropriate services, whether for short or long-term needs. Go to their website: <https://caps.unc.edu/> or visit their facilities on the third floor of the Campus Health Services building for a walk-in evaluation to learn more.
- **Title IX Resources:** Any student who is impacted by discrimination, harassment, interpersonal (relationship) violence, sexual violence, sexual exploitation, or stalking is encouraged to seek resources on campus or in the community. Please contact the Director of Title IX Compliance (Adrienne Allison – Adrienne.allison@unc.edu), Report and Response Coordinators in the Equal Opportunity and Compliance Office (reportandresponse@unc.edu), Counseling and Psychological Services (confidential), or the Gender Violence Services Coordinators (gvsc@unc.edu; confidential) to discuss your specific needs. Additional resources are available at safe.unc.edu.

Tentative Schedule*

Date	Week	Lecture	Reference Reading
08/16	1	Why do we test people?	
08/18	1	Some concepts of psychological testing	M&L – Ch.1
08/23	2	Some issues with standardized testing	M&L – Ch.2
08/25	2	Importance and ethics of testing	M&L – Ch.3
08/30	3	Measurement and the eugenics movement	Wintroub (2020)
09/01	3	Eugenics discussion	Longreads post
09/06	4	WELLNESS DAY	
09/08	4	Interpreting test scores	M&L – Ch.4
09/13	5	What is reliability?	M&L – Ch.5
09/15	5	Lab: Introduction to R	
09/20	6	Estimating reliability	Cortina (1993)
09/22	6	What is validity? + Content validity	M&L Ch. 6, Kane (1992)
09/27	7	Criterion Validity	M&L Ch. 7
09/29	7	Construct Validity	M&L Ch. 8
10/04	8	Factor theory	M&L Ch. 8
10/06	8	Test development, planning meetings	M&L Ch. 9
10/11	9	Test construction	M&L Ch.10
10/13	9	Measurement bias w/ Dr. Dan Bauer	
10/18	10	Item Writing Workday	M&L Ch.10
10/20	10	FALL BREAK	
10/25	11	Item analysis	M&L Ch.11
10/27	11	Item response theory	Thomas (2011)
11/01	12	Special topic: Cutscores and decision making	Youngstrom (2013)
11/03	12	Special topic: Fairness	TBD
11/08	13	Special topic: Tests in Education	M&L Ch.12
11/10	13	Data Analysis Workday	Data collection is due
11/15	14	Special topic: Tests in Clinical Settings	M&L Ch.13
11/17	14	Special topic: Tests in Organizational Settings	M&L Ch.14
11/22	15	Recap (AMA) – Ask me anything	
11/24	15	THANKSGIVING BREAK	
11/29	16	Wrap-Up	
12/02	12pm	FINAL	Presentations

* Instructor reserves the right to make changes to the syllabus, including lab dates and due dates. These changes will be announced as early as possible.

Reference Readings

Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology*, 78(1), 98-104.

Kane, M. T. (1992). An argument-based approach to validity. *Psychological Bulletin*, 112(3), 527-535.

Thomas, M. L. (2011). The value of item response theory in clinical assessment: a review. *Assessment*, 18(3), 291-307.

Wintroub, M. (2020). Sordid genealogies: a conjectural history of Cambridge Analytica's eugenic roots. *Humanities and Social Sciences Communications*, 7(1), 1-16.

Youngstrom, E. A. (2014). A primer on receiver operating characteristic analysis and diagnostic efficiency statistics for pediatric psychology: we are ready to ROC. *Journal of Pediatric Psychology*, 39(2), 204-221.