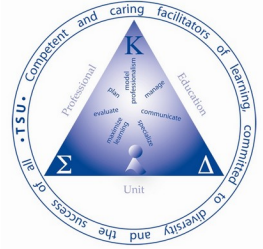




**Tennessee State University
Psychology Department
Psychometrics
PSYC 6530
Summer Semester, 2022**



Instructor: Marie S. Hammond, Ph.D.
Phone: 615.630.2703 (cell)
Office: Via Zoom or phone, due to COVID-19
Class Days/Times: 5:00-9:00 p.m., Tuesdays & Thursdays (July 5-August 6)
Office Hours: 3:00 – 4:30 p.m., Tuesdays & Thursdays
Email contacts: Given the vagaries of email systems, please send emails to both of the email addresses listed, in order to decrease response time: mhammond1@tnstate.edu; vocpsych@comcast.net
TA Information: Leah Kepley, M.Ed.
TA email: lkepley@tnstate.edu
TA Office Hours: Mondays 6:30-7:30 pm CDT, Wednesdays 2:30-3:30 pm CDT

Prerequisites: Successful completion of PSYC 5040 & 5140. Admission to graduate program in Psychology, Professional School Counseling, Educational Leadership, or Pre-K-12.

COURSE TEXT

Furr, R.M. (2022). *Psychometrics: An introduction*. (4th Edition). Sage Publications. ISBN-13: 978-1071824078 (cost estimate on Amazon - Paperback – new: \$106.70 - \$162.50, used: \$89.50 - \$111.69; Kindle – purchase \$78.49, rent – 52.52).

Other readings as assigned.

CATALOG COURSE DESCRIPTION

PSYC 5530. PSYCHOMETRICS. (3) Third course in the master's Psychological Foundations sequence. Basic psychometric concepts to prepare the student for subsequent evaluation of instruments. Origin and logic of scale creation, criteria for judging tests, standardization, reliability, and validity and principles of test development and construction. Special emphasis is placed upon interpreting these concepts in light of diversity issues. Prerequisite: PSYC 5040 & 5140. Admission to graduate program in Counseling Psychology, Professional School Counseling, Educational Leadership, or Pre-K-12.

RELATIONSHIP TO PROGRAMS

This course emphasizes acquisition of knowledge of the history and principles of development of psychological assessments and the construction of surveys and questionnaires while providing the opportunity for study of practical applications of the knowledge.

COURSE OBJECTIVES/LEARNING OUTCOMES

After completing this course satisfactorily, the student will be able to communicate a basic understanding of seven concepts:

- a. Origin and logic of assessment
- b. Reliability
- c. Validity
- d. Standardization (or, norms)
- e. Process for developing valid and reliable surveys, tests, scales, questionnaires, and other measures of psychological or behavioral functioning.
- f. Principles of culturally appropriate test development and construction, including the development of case questions/vignettes
- g. Methods for evaluating the above: Generalizability Theory, Confirmatory and Exploratory Factor Analysis, and Item Response Theory

After completing this course, the student will have developed the following dispositions:

1. Recognize key psychometric elements when selecting, administering, or interpreting assessments in the professional setting
2. Exercise discernment in ethical psychometric decisions
3. Protect clients' rights and confidentiality by practicing legal and ethically with regards to assessment and testing.

Field Experience Information

Not required for this course.

TK20 Information

TK20 is not required.

Expectations and General Information:

- 1) **Academic Integrity** - You are responsible for what you achieve in this class; therefore, neither cheating nor plagiarism will be tolerated. Any material taken from another work must be documented, and in no case should one represent another's work as one's own, including information received from others during examinations or submitting another's assignments, papers, etc. as one's own. To avoid questions of plagiarism, students involved in collaborative research should exercise extreme caution. If in doubt, students should check with me. In addition to the other possible disciplinary sanctions which may be imposed through the regular institutional procedures as a result of academic misconduct, the instructor has the authority to assign an "F" or a zero for the exercise or examination. Just use your own words which are more interesting to the class and to me anyway!
 - a. Grading issues: Per TSU/TBR policy and your professional ethical standards, if you are found to have used another student's work (cheating) or provided someone your work that they represent as their own, you will receive zero points for each assignment on which this occurs.
 - b. Again, per TSU/TBR policy and your professional ethical standards, plagiarizing information from a website, journal article, or any other source is considered unacceptable behavior. Once your work

is turned in for grading, you are claiming that it is your own work, except for documented ideas and quotes from others. If your work contains material taken from another source that is not appropriately cited or attributed to another, you are claiming it as your own, which is plagiarism. If the work contains plagiarism, you will receive zero points for that work. This will apply separately for each assignment/task in which plagiarism occurs.

- 2) **Classroom conduct** – The instructor has the primary responsibility for control over classroom behavior and maintenance of academic integrity and can order temporary removal or exclusion from the classroom of any student engaged in disruptive conduct or conduct in violation of the general rules and regulations of the institution.
- 3) **Official Course Enrollment** - Students who are not on the official class roll may not remain in class. These students must leave class and may not return to class until they enroll in the course and their names show up on the official class roster. Please make sure you are in the correct section.
- 4) **Disabled Student Services** – Any student who has a condition which might interfere with his/her performance in class is required to contact the office of Disabled Student Services. This office is located in room #117 Floyd Payne Student Center. The phone number is 963-7400. They will provide you with a document stating what type of classroom accommodations, if any, are to be made by the instructor. The student is to give a copy of this document to the instructor no later than the end of the second week of class. Failure to do so will result in the instructor making no special accommodations of any kind.
- 5) **Class attendance** - The TSU policy on class attendance will be followed in this course. Punctual arrival and appropriate involvement throughout class will be considered imperative to receive full credit for participation. Any student missing more than two (2) classes for the course encounters the risk of a failing final grade. Students who miss more than 2 class meetings without a viable excuse will be dropped a letter grade in the course for each subsequent absence. Tardiness to class on 3 occasions constitutes an absence. ABSENCE FROM CLASS (unless the assignment was completed in ADVANCE) results in a zero on the assignment.
- 6) **Zoom-based courses** - Students are required to keep their screen on and unmuted during class. It is required that you keep your video on and audio unmuted so that you can participate effectively in the discussions and activities. Please discuss this with the faculty member as soon as possible if this requirement poses a serious challenge for you.
- 7) **Quiz/Examination make-up** - No student will be allowed to make up an examination unless arrangements have been made prior to the regularly scheduled exam time. Failure to make such arrangements will automatically result in the grade of 0% on that test. In the case of a missed exam due to an emergency, the student will be required to request the make-up exam in writing and attach documentation of the legitimacy of the emergency.

Methods of Instruction/Learning Activities

Instructional strategies will incorporate readings, lecture, discussion, guest lecturers, student presentations, videos, and resource research via technology.

Diversity and Respect for Others. Course content, class discussions, projects and activities, and assignments for this class rest on an assumption that human diversity is normative and is an appropriate focus of attention. The course requires and expects critical thinking about, and sensitivity to, the impact of diversity (e.g., culture, ethnicity, race, religion/faith, gender, socioeconomics, physical and cognitive ability, sexual orientation, social class, and other considerations) both in relation to the populations we serve, and in the classroom. Students are encouraged to develop and expand their respect for and understanding of diverse identities and experiences.

Class Attendance. This class is based on a collaborative learning experience. As such, attendance and participation are mandatory. It is true that things come up, life happens, people get sick, etc., so it's understandable if you need to miss class one or two times. However, when you are not in class, you are not participating in class discussions, listening to lectures, interacting with classmates, asking questions, and sharing your ideas. Therefore, no matter what your excuse is, an absence "counts" as an absence. If you must miss a class, please note that you are responsible for course content and assignments that you miss, and you need to contact a classmate to learn what was missed. Students are expected to attend classes regularly and punctually. The instructor will keep an accurate record of class attendance. It is the responsibility of the student to inform the instructor of any anticipated absences and contact a classmate to find out what work was missed during a period of absence. Unexcused absences and or tardiness will result in your grade in this course being lowered. This course is experientially based; therefore, a major component of learning is the continuing participation of each student. It is *required* that each student attend *all* class sessions.

Active Participation. Class participation includes being present in class preparedly, physically, psychologically, interpersonally, and thoughtfully. I will strive to structure activities to accommodate and utilize a variety of learning styles and participation styles. I recognize that each of you will find some of these activities more enjoyable, comfortable, culturally congruent, or suited to your learning style, than others. I encourage you to expand your range of participation.

Use of APA Style. All papers must use APA formatting and style, including references, citations, use of non-biased language, etc. Students must refer to the APA Publication Manual, 7th edition, for all questions related to APA style.

Description of Assignments

Class Participation: A seminar format has been chosen for this course in order to enable students to grapple with the material and its application in the practice of consulting and evaluation. The student will best benefit from the learning activities in this course by 1) actively participating in class discussions and activities, 2) raising relevant questions, 3) bringing into the discussion relevant information from the texts, readings, and references, and 4) engaging in appropriate, professional behavior around engagement in class. Thus, active, appropriate participation in both aspects of the class, being prepared for each class and incorporating information from readings, active engagement in the experiential project, as well as being on time for class and not leaving early are the expectations for professional behavior in class. **LEARNING IS NOT A SPECTATOR SPORT!**

Class Activities: Across the course timeframe, you will apply your knowledge and understanding of the impact of psychometrics on the quality of information one can obtain from professionally developed (such as you are learning to develop) measures. The class will be divided into three groups, with each group explore one measure. For example, the first part of the text focuses on the history and background of measure development. Thus, the class activity asks you to explore and report on the history and development of the measure, as well as scaling and information related to items and norms. These activities will be turned in by the end of the class day.

Below are the activities in which we will engage across the semester. Note that the last two sections will be completed during the last evening of class:

1. Introduction: Origin, theoretical basis & uses of the assessment (in other words, the background); norming or standardization (sample and process used)
2. Part II: Reliability – What types of reliability were used? Was this choice reasonable? for what groups/settings has reliability been examined? For which groups/settings is this measure shown to be reliable? What are the implications for its use with either community members (CMHC) or college students (college counseling center)? Was/were the analyses adequate and appropriately carried out? What should have been done?
3. Part III: Validity - What types of validity were examined? For what groups/settings has the measure been examined for validity? For which groups/settings is this measure shown to be valid? What are the implications for its use with either community members (CMHC) or college students (college counseling center)? Was/were the analyses adequate and appropriately carried out? What should have been done?
4. Part IV: The impact of Bias on accurate assessment – were the culturally competent scale development steps utilized? How did the developers address response biases, response sets, and response styles? If not, what should they have done, based upon your readings? How did the developers assess for bias (test score, construct, and predictive)? If not, what should they have done, based upon your readings?
5. Part V: Evaluation of the statistical approach taken; impact on diverse populations. Using the information from chapter 4 and the material from the doctoral students' presentation, does it seem that the statistical approach was reasonable? What evidence is presented that this scale functions equally well for those of/from different: assigned sex, race/ethnicity, ability status, religions/denominations, national origin, sexual orientation, cultural identity, neurodiversity, and gender identity?
6. Summary: given your understanding of this measure, what are your recommendations for the use of this measure – both in general and for specific groups? Discuss the research needed to bring these measures into compliance with current psychometric practice.

Learning Checks: A learning check provides you with feedback (rather than a quiz or exam which does not) on the degree to which you've mastered the learning and knowledge presented through readings, resources, and class activities. Each learning check will be due by the class period after that "Part" is finished.

TENTATIVE COURSE OUTLINE*

*The instructor has the right to make changes in this outline as needed.

Week	Date	Topic
1	7/5	Intro to class & psychometrics; review syllabus (Chapter 1); overview of course
1	7/7	Part I: Basic concepts in measurement and scale construction (Chapters 2 - 3) <ul style="list-style-type: none"> - Activity – review scale validation article and contents (in class); process - Due(by midnight, Sunday 7/10): Practice Learning Check for Chapter 1
2	7/12	Part I: Dimensionality & Factor Analysis (Chapters 4) <ul style="list-style-type: none"> - Activity – review scale validation article for dimensionality/analytic details
2	7/14	Part II: Reliability (Chapters 5 - 6) <ul style="list-style-type: none"> - Activity – review scale validation article for reliability; process - Due: Part I Learning Check
3	7/19	Part II: Reliability (Chapter 7) <ul style="list-style-type: none"> - Activity – continue examination of reliability as reported in validation sources
3	7/21	Part III: Validity (Chapters 8)

		<ul style="list-style-type: none"> - Activity – review scale validation article for validity; process - Part II Learning Check
4	7/26	Part III: Validity (Chapter 9) <ul style="list-style-type: none"> - Activity – review scale validation article for validity; process
4	7/28	Part IV: Bias in test construction (Chapters 10-11) <ul style="list-style-type: none"> - Activity – review scale validation article/manual for reporting on how they addressed bias - Due – Part III Learning Check
5	8/2	Part V: Advanced Psychometric Approaches (overview) <ul style="list-style-type: none"> - Activity – review data analytic procedures used for validating measure - Due – Part IV Learning Check
5	8/4	Class wrap-up and final Learning Check <ul style="list-style-type: none"> - Activity – prepare comments on your evaluation of the statistical approach (based on our conversations) & summarize your evaluation of the measure for use with diverse populations - Due – Part V Learning Check

Grading System

Category	Competence demonstration items	Pts/Category	% of Grade
Participation:	Weekly contribution, engagement, etc. (6 pts/class)	60	15.0%
Activities	In-class, Identified Reflections, Surveys, Activities (10 pts each)	210	52.5%
Learning Checks	Each LC will cover the material in that “Part” (10 pts/chapter)	130	32.5%
Total		400 pts	100%

Grading Scale: A = 90% - 100%; B = 80% - 89.5%; C = 70% - 79.5%; D = 60% - 69.5%; F = < 60%

Related Organizations

Psychometric Society (<https://www.psychometricsociety.org/>)

APA Division 5 Quantitative & Qualitative Methods (<https://www.apadivisions.org/division-5/index>)

ACA Division – Association for Assessment & Research in Counseling (<https://aarc-counseling.org/>)

Foundational Readings

Foundational Texts

Anastasi, A. & Urbina, S. (1997). *Psychological testing* (7th ed.). New Jersey: Prentice Hall.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). Columbus, OH: McGraw-Hill.

Wiggins, J. S. (1973). *Personality and prediction: Principles of personality assessment*. Reading, MA: Addison-Wesley.

Mediation and Moderation

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator distinction in social psychological research. *Journal of Personality and Social Psychology*, 51, 1173-1182.

Reliability and the Standard Error of Measurement

Nunnally, J. C., & Bernstein, I. H. (1994). Psychometric theory (pp. 211-292). "The theory of measurement error" and "The assessment of reliability."

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

Validity: Basic Concepts

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, 52, 281-302.

Nunnally, J. C., & Bernstein, I. H. (1994). Psychometric theory (pp. 83-113). "Validity." Validity: Measurement and Interpretation

Campbell, D. P., & Fiske, D. W. (1959). Convergent and discriminant validity in the multitrait-multimethod matrix. *Psychological Bulletin*, 56, 81-105

Kenny, D.A. & Kashy, D.A. (1992). Analysis of the multitrait-multi-method matrix by confirmatory factor analysis. *Psychological Bulletin*, 112, 165-172.

Bollen, K., & Lennox, R. (1991). Conventional wisdom on measurement: A structural equation perspective. *Psychological Bulletin*, 110, 2, 305-314.

Burisch, M. (1984). Approaches to personality inventory construction: A comparison of merits. *American Psychologist*, 39, 214-227.

Hunsley, J. & Meyer, G.J. (2003). The incremental validity of psychological testing and assessment: conceptual, methodological, and statistical issues. *Psychological Assessment*, 15, 446-455.

Test Construction: Overview

Cicchetti, D.V. (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment*, 6, 282-290.

Foster, S. L., & Cone, J. D. (1995). Validity issues in clinical assessment. *Psychological Assessment*, 7, 248-260.

Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, 7, 309-319.

Floyd, F.J. & Widaman, K. F. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Psychological Assessment*, 7, 286-299.

Test Construction: Content Validity

Haynes, S. N., Richard, D. C. S., & Kubany, E. S. (1995). Content validity in psychological assessment: A functional approach to concepts and methods. *Psychological Assessment*, 7, 238-247.

Vogt, D.S., King, D.W., King, L.A. (2004). Focus groups in psychological assessment: enhancing content validity by consulting members of the target population. *Psychological Assessment*, 16, 231-243.

Test Construction: Revising Tests

- Smith, G. T., & McCarthy, D. M. (1995). Methodological considerations in the refinement of clinical assessment instruments. *Psychological Assessment*, 7, 300-308.
- Reise, S.P., Waller, N.G., Comrey, A.L. (2000). Factor analysis and scale revision. *Psychological Assessment*, 12, 287-297.
- Smith, G.T., McCarthy, D.M., & Anderson, K. (2000). On the sins of short form development. *Psychological Assessment*, 12, 102-111.

An Alternative Prediction Model: The Actuarial Approach

- Meehl, P. E., & Rosen, A. (1955). Antecedent probability and the efficiency of psychometric signs, patterns, or cutting scores. *Psychological Bulletin*, 52, 194-216.
- Meehl, P. E. (1956). Wanted: A good cookbook. *American Psychologist*, 11, 263-272.

Judgemental versus Statistical Prediction

- Dawes, R. M. (1979). The robust beauty of improper linear models in decision making. *American Psychologist*, 34, 571-582.
- Dawes, R. M. (1986). Representative thinking in clinical judgment. *Clinical Psychology Review*, 6, 425-441.
- Grove, W. M., Zald, D. H., Lebow, B. S., Snitz, B. E., & Nelson, C. (2000). Clinical versus mechanical prediction: A meta-analysis. *Psychological Assessment*, 12, 19-30.

Item Response Theory

- Nunnally, J. C., & Bernstein, I. H. (1994). Psychometric theory (pp. 394-443). "Recent developments in test theory."

Issues in Testing: Testing vs. Assessment

- Matarazzo, J. D. (1990). Psychological assessment versus psychological testing: Validation from Binet to the school, clinic, and courtroom. *American Psychologist*, 45, 999-1017.
- Ziskin, J., & Faust, D. (1991). Reply to Matarazzo. *American Psychologist*, 46, 881-882.
- Dawes, R. M. (1991). Hypothetical studies and civil liberties. *American Psychologist*, 46, 882.
- Gruenwald, D. (1991). Comment on psychological assessment versus psychological testing. *American Psychologist*, 46, 882.

Issues in Testing: Treatment Utility of Assessment

- Hayes, S. C., Nelson, R. O., & Jarrett, R. B. (1987). The treatment utility of assessment: A functional approach to evaluating assessment quality. *American Psychologist*, 42, 963-974.
- Nelson-Gray, R.O. (2003). Treatment utility of psychological assessment. *Psychological Assessment*, 14, 521-531.

Issues in Testing: Internet Testing and Computer-based Test Interpretations

- Snyder, D. K., Widiger, T. A., & Hoover, D. W. (1990). Methodological considerations in validating computer-based test interpretations: Controlling for response bias. *Psychological Assessment*, 2, 470-477.

Naglieri, J.A., Drasgow, F., Schmit, M., Handler, L., Prifitera, A., Margolis, A., Velasquez, R. (2004). Psychological testing on the Internet: New problems, old issues. *American Psychologist*, 59, 150-162.

Specific Methods: Self-reports, Peer Reports, Diary Methods and Diagnostic Interviews

Henry, B., Moffitt, T. E., Caspi, A., Langley, J., & Silva, P. A. (1994). On the "Remembrance of Things Past": A longitudinal evaluation of the retrospective method. *Psychological Assessment*, 6, 92-101.

Schwarz, N. (1999). Self reports: how the questions shape the answers. *American Psychologist*, 54, 93-95.

McCrae, R. R. (1994). The counterpoint of personality assessment: Self-reports and observer ratings. *Assessment*, 1, 159-172.

Bolger, N. Davis, A. & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology*, 54, 579-616.

Robins, L. N. (1985). Epidemiology: Reflections on testing the validity of psychiatric interviews. *Archives of General Psychiatry*, 42, 918-924.