

PSY 9520
Psychometrics
Fall 2005

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Course description:

This course focuses on concepts and issues central to the various forms of psychological assessment. The first part of the course will focus on psychometric theory and various methods of test construction. The last section of the course will focus on methodological and theoretical issues in the use of tests to make decisions, as well as several areas of application (e.g. personality assessment, intelligence).

Grades:

Grades for this course will be based on class participation, two in class examinations (Test #1, Test #2), one term paper and presentation, and one or two brief project/homework assignments. Students are expected to attend all class sessions, to complete the readings before class, and to contribute to class discussion. I make a habit of asking students to summarize readings in the beginning of class to ensure people are keeping up with reading.

Project/homework: over the course of the semester, I will assign one or two projects to be completed by class members. These will be brief and straightforward, and will involve minor statistical analyses of data sets. The purpose is to give you practical experience in test evaluation/construction.

Term paper: Each student will complete one term paper. There are several ways to meet this requirement. For example, a paper might present a proposal to develop a psychological inventory to measure a construct of the student's choice (e.g., depression, neuroticism). This paper might include a brief historical overview of the construct, a critical evaluation of existing inventories used to measure the construct, and a detailed description of the development of your inventory (item generation, basis for item selection, initial studies to evaluate reliability and validity, etc.). Alternatively, one might write a paper that discusses an issue or problem in psychometrics/ psychological measurement (e.g., validating diagnostic interviews; the use of factor analysis in test construction).

All paper topics must be approved by the instructor. This is in order to assist you in narrowing your focus so that the project is both feasible and relevant.

Each student will present a 20 minute overview of his/her paper near the end of the semester. Papers should follow APA guidelines (version 5) for manuscript preparation and should be about

10-15 pages in length, excluding cover page, references, tables and figures. PAPERS ARE DUE ON 11/2, 2005, AT CLASS TIME. LATE PAPERS WILL BE PENALIZED ONE LETTER GRADE FOR EACH DAY AFTER 11/2.

BREAKDOWN OF POINTS	Test #1	30%
	Test #2	30%
	Paper and presentation	20%
	Project/Homework	10%
	Participation and discussion	10%

Academic dishonesty:

Academic dishonesty is considered to be an offense against the University, and I am obligated to report any incident to the Provost (or Vice Provost for Academic Affairs) and to inform the Department Chair. Academic dishonesty includes (but is not limited to): cheating or assisting someone else in academic dishonesty, plagiarism, unauthorized possession of class materials (e.g., tests, reserve materials), and unauthorized changing of one's grade.

Academic honesty is fundamental to the activities and principles of a university. All members of the academic community must be confident that each person's work has been responsibly and honorably acquired, developed, and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards academic dishonesty as an extremely serious matter, with serious consequences that range from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting, or collaboration, consult the course instructor.

Note to Students with Special Needs:

If you need accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please inform me immediately. Please see me privately after class, or at my office.

To request academic accommodations (for example, a notetaker), students must also register with Disability Services, AO38 Brady Commons, 882-4696. It is the campus office responsible for reviewing documentation provided by students requesting academic accommodations, and for accommodations planning in cooperation with students and instructors, as needed and consistent with course requirements. Another resource, MU's Adaptive Computing Technology Center, 884-2828, is available to provide computing assistance to students with disabilities. For more information about the rights of people with disabilities, please see ada.missouri.edu or call 884-7278.

**SCHEDULE OF TOPICS FOR PSY 9520: PSYCHOMETRICS
Fall 2005**

Date	Day	Topic
8/22	M	Introduction to class and assignments
8/24	W	Introduction to Psychological Assessment
8/29	M	Basic Prediction Model
8/31	W	Basic Prediction Model
9/5	M	NO CLASS
9/7	W	Reliability
9/12	M	Reliability
9/14	W	Validity
9/19	M	Validity
9/21	W	Validity: Measurement and Interpretation
9/26	M	Validity: Measurement and Interpretation
9/28	W	Test 1
10/3	M	Test Construction
10/5	W	Test Construction
10/10	M	Actuarial Prediction
10/12	W	Judgmental vs. Statistical Prediction
10/17	M	Judgmental vs. Statistical Prediction
10/19	W	IRT
10/24	M	Testing vs. Assessment Treatment Utility of Assessment
10/26	W	Issues with Computer and Internet Tests
10/31	M	Validity of Self-reports, Peer Reports, and Diagnostic Interviews
11/2	W	Test Bias and Intelligence
TERM PAPERS ARE DUE		
11/7	M	Personality Traits: Myth or Reality?
11/9	W	Presentations
11/14	M	Presentations
11/16	W	Presentations
11/21	M	**Thanksgiving Break**
11/23	W	
11/28	M	Presentations
11/30	W	Presentations
12/5	M	Catch-up and review
12/7	W	Test 2

Students are expected to complete all readings before each relevant class.

Recommended Readings:

Students not having an undergraduate course in psychological testing may want to review:

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

Chap. 4. Through Chap. 7 (Available at Ellis library and from instructor).

Readings

Introduction

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (pp. 1-30). "Introduction."

The Basic Prediction Model

Overview of Correlation and Regression

Wiggins, J. S. (1973). *Personality and prediction: Principles of personality assessment*. Reading, MA: Addison-Wesley. [Reprinted by Krieger, 1987.] Chap. 1. The basic prediction model and its applications.

(For further reading see also Cohen & Cohen Pgs 25- 59 & Pgs 79-97 (in reader)

Mediation and Moderation

Wiggins, J. S. (1973). *Personality and prediction*. Chap. 2. Alternative prediction models: I. Moderator variables and higher-order functions.

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.

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.

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.

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.

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.

Test Bias and Intelligence

Helms, J. E. (1992). Why is there no study of cultural equivalence in standardized cognitive ability testing? *American Psychologist*, 47, 1083-1101.

Sternberg, R. J. (1995). For whom the bell curve tolls: A review of The Bell Curve. *Psychological Science*, 6, 257-261.

Steele, C. M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist*, 52, 613-629.

Sackett, P.R., Hardison, C.M., Cullen, M.J. (2004). On interpreting stereotype threat as accounting for African American-White differences on cognitive tests. *American Psychologist*, 59, 7-13.

Myerson, J., Rank, M. R., Raines, F. Q., & Schnitzler, M. A. (1998). Race and general cognitive ability: The myth of diminishing returns to education. *Psychological Science*, 9, 139-142.

Personality Traits, Myth or Reality?

Epstein, S., & O'Brien, E. J. (1985). The person-situation debate in historical perspective. *Psychological Bulletin*, 98, 513-537.

Goldberg, L. R. (1993). The structure of phenotypic personality traits. *American Psychologist*, 48, 26-34.

Caspi, A. Robert, B.W. & Shiner, R.L. (2005). Personality development: Stability and change. *Annual Review of Psychology*, 56, 453-84.