

**Psychology 594: Psychometrics 1 (Spring 2008)**  
**Mondays 2:00 – 5:00, AB-4-313**

<b>Instructor:</b>	Marc Boccaccini, Ph.D.	<b>Office:</b>	325 AB-4
<b>Phone:</b>	936-294-1179	<b>Office hours:</b>	Monday 9:00 – 11:00
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**Required Texts**

1. DeVellis, R.F. (2003). *Scale development* (2nd ed.). Thousand Oaks, CA: Sage.
2. American Educational and research Association, American Psychological Association, & National Council on Measurement in Education (1999). *Standards for educational and psychological testing*. Washington, DC: Author.

**Recommended Supplemental Texts**

For Researchers:

1. Nunnally, J.C., & Bernstein, I.H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
2. Embreston, S. E., & Reise, S.P. (2000). *Item response theory for psychologists*. Mahwah, NJ: Erlbaum.

For Scientist-Practitioners

1. Murphy, K.R., & Davidshofer, C.O. (2005). *Psychological testing: Principles and applications* (6th ed.). Upper Saddle River, NJ: Prentice Hall.

**Course Description:**

This course is designed to provide clinical and school psychology graduate students with the skills needed to select appropriate and scientifically valid assessment instruments for use in clinical practice. Students in this course will acquire these skills by learning about test construction and development. Students will be required to develop their own assessment instruments to better understand how to critically evaluate existing instruments. A second goal of learning about the test construction process is to teach students involved in conducting research to develop useful measures for their own research.

**Course Objectives**

1. Develop an understanding of how psychological instruments assess various aspects of human personality, behavior, and potential.
2. Learn basic principles involved in test construction and validation, and the ability to apply these principles by developing a new assessment measure.
3. Gain an appreciation of ethical issues involved in testing, including the impact of culture, diversity, and language on test results and interpretation.

**Attendance**

As graduate students, I expect to be notified (by e-mail or phone) beforehand of any classes you plan to miss. I see attendance in class by graduate students as a matter of respect and professionalism. In the case of excessive unexcused absences, course grades may be reduced in accordance with university policy. My tests are heavily weighted toward information covered during lectures. Missing class will put you at a disadvantage for performing well in this class.

**Academic honesty:** Don't cheat. Really, it will make me mad. All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials.

**Religious Holidays.** Section 51.911(b) of the Texas Education Code requires that an institution of higher education excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. Section 51.911(a)(2) defines religious holy days as: “a holy day observed by a religion whose places of worship are exempt from property taxation under Section 11.20, Tax Code . . . .” A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence. University policy 861001 provides the procedures to be followed by the student and instructor. A student desiring to absent himself/herself from a scheduled class in order to observe (a) religious holy day(s) shall present to each instructor involved a written statement concerning the religious holy day(s). The instructor will complete a will notify the student of a reasonable timeframe in which the missed assignments and/or examinations are to be completed.

**Instructor Evaluations:**

You will be asked to complete a course/instructor evaluation form (IDEA) toward the end of the semester.

**Required Supplies:**

None

**Classroom rules of conduct:**

Please see the Code of Student Conduct and discipline: [www.shsu.edu/students/guide/dean/codeofconduct.html](http://www.shsu.edu/students/guide/dean/codeofconduct.html)  
Cell phones and other electronic devices may not be used in class, without the instructor’s permission

**Americans with Disabilities Act.** It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance are expected to visit with the Office of Services for Students with Disabilities located in the Counseling Center. They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired. SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Counseling Center and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: no accommodation can be made until the you register with the Counseling Center.

**Assignments, Exams, and Grades:**

Your course grade will be determined by your performance on a series of assignments and exams. I use the traditional grading system for all assignments, exams, and final course grades (i.e., 100-90% = A, 89-80% = B, 79-70% = C, 69-60% = D, 59-0% = F). There are 100 points possible in this course. Below is a description of how you will earn points in this class.

<b><u>Points</u></b>	<b><u>Due date</u></b>	<b><u>Assignment</u></b>
10	2/18	Research Article Assignment
10	2/25	Group assignment 1
25	3/3	Exam 1, in class essay exam
15	4/14	Test Review Assignment
15	4/28	Group assignment 2: Final report of test construction
25	5/12	Exam 2, in class essay exam ( <b><u>Due in my office by 5PM</u></b> )

## **Description of Assignments:**

**1. Research Article Assignment.** Find a published research article describing the development of a psychological measure. The article should provide a) the rationale for developing the measure, b) describe how items were selected, and c) provide (at a minimum) reliability and validity data for the measure. Good places to look include the journals *Psychological Assessment*, and *Assessment*, although you are welcome to use an article from another journal. Once you have found an article, write a two page summary (double spaced, 12 point font, 1 inch margins) summarizing a-c (above) and ending with a critique of the development study or studies described in the article.

**2. Group assignment 1: Test Development.** Students groups (3-4 students) must a) come up with an idea for a psychological assessment measure, b) provide a written rationale for the measure, and c) identify additional measures that can be used to assess the construct validity of the proposed measure. Each group must submit a research proposal to the instructor (in APA style) describing how they plan to conduct a study to develop their measure. The articles you found for the research article assignment should guide you in writing this proposal. The measures designed by the groups do not need to measure something related to clinical or school psychology. They can assess attitudes, personality, behavior, or any other topic that is of interest to the group. I encourage you to develop a measure for something that is interesting to you, but not to get too grandiose (e.g., an intelligence test). We will talk more about this in class.

**3. Group assignment 2: Final Report of Test Development.** Group members will be responsible for collecting data to develop and validate their measure. This will likely involve administering questionnaires to people, but may require other activities (e.g., observing people's behaviors) depending on the type of measure that is being developed. Once data have been collected, each group must present a completed research report to the instructor. This report will present and discuss the psychometric properties of the scale. The report should look very much like the articles you found for the Research article assignment. Each group will also present the results of their study to the class (10-12 minutes per group).

**4. Test Review Assignment:** For this assignment, you must a) identify a psychological test offered for sale by a major test publisher (see below), b) identify two empirical studies examining the psychometric properties of the test, and c) write a 4-6 page critique of the scientific merit of the test.

The best way to ensure that you are reviewing an appropriate test is to get the test "approved" by me well in advance of the assignment due date. The best way to identify a test is to search the websites of major test publishing companies. I have listed several test company names and websites below. There are many other test companies, but make sure to get approval from me about using a test from a different company.

Psychological Assessment Resources (PAR):	<a href="http://www3.parinc.com/">http://www3.parinc.com/</a>
Psychological Corporation:	<a href="http://harcourtassessment.com/haiweb/Cultures/en-US/default.htm">http://harcourtassessment.com/haiweb/Cultures/en-US/default.htm</a>
Multi-Health Systems INC:	<a href="http://www.mhs.com/">http://www.mhs.com/</a>

You can find empirical studies relating to the test by searching the PsychINFO database available through the SHSU library. Please note that I want you to review actual studies examining the test, not simply other reviews or critiques of the test (unless the review is a meta-analysis). The test's user manual may also be a good source for finding citations for empirical studies relating to the test (if you are able to obtain a copy of the test manual).

Your written critique of the test should focus on the strengths and weaknesses of its psychometric characteristics. You will likely want to comment on the construct(s) the test is purported to measure, its reliability, and its validity. Please do not simply provide a summary of the existing studies. What I want to see from you is that you have read these studies and formed your own psychometrically sound opinions about the usefulness of the test you are reviewing.

**Class Schedule:**

The schedule below identifies the topics that will be covered during course lectures and the readings required for the week. All readings for the week should be completed by the Tuesday of that week. In addition to the required readings, there are supplemental readings for each topic. Please note that this schedule is subject to change based on class progress.

<b><u>Week</u></b>	<b><u>Topic</u></b>	<b><u>Required Reading(s)</u></b>
1/28	Why use tests?	Standards, Chpt. 12 DeVillis, Chpt. 1
2/4	Test development	Standards, Chpt. 3 DeVillis, Chpt 2 DeVillis, Chpt. 5
2/11	More test development	
2/18	Scaling and Reliability <b><u>Research Article assignment is due</u></b>	DeVillis, Chpt. 3 Standards, Chpt. 2 DeVillis Chpt. 7
2/25	Continue Reliability <b><u>Group Assignment 1 is due</u></b>	
3/3	<b><u>Examination 1</u></b>	
3/10	<b>(Spring Break)</b>	
3/17	Scores, Norms	Standards, Chpt. 7 Standards, Chpt. 4
3/24	Validity	DeVillis, Chpt. 4 Standards, Chpt, 1
3/31	Validity	DeVillis, Chpt. 6
4/7	Diagnostic accuracy	
4/14	Test Bias <b><u>Test Review Assignment is Due</u></b>	Standards, Chpt 7
4/21	Item Response Theory	(see supplemental readings)
4/28	Generalizability theory And Rater Agreement <b><u>Groups Assignment 2 is due</u></b>	(see supplemental readings)
5/5	Group presentations	
Finals week	<b><u>Examination 2 (Final Exam)</u></b>	

## Supplemental Readings

### Why use tests:

1) Westen, d., & Weinberger, J. (2004). When clinical description becomes statistical prediction. *American Psychologist*, 59, 595-613.

### Test Development

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

2) Schwarz, N. (1999). Self reports: How the questions shape the answers. *American Psychologist*, 54, 93-105.

3) Smith, G. T., & McCarthy, D. M. (1995). Methodological considerations in the refinement of clinical assessment instruments. *Psychological Assessment*, 7, 300-308.

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

5) Weng, L. (2004). Impact of the number of response categories and anchor labels on coefficient alpha and test-retest reliability. *Educational and Psychological Measurement*, 64, 956-972.

### Reliability and Rater Agreement

1) Shavelson, R. J., Webb, N.M., & Rowley, G. L. (1989). Generalizability theory. *American Psychologist*, 44, 922-932.

2) McGraw, K. O., & Wong, S. P. (1996). Forming inferences about some intraclass correlation coefficients. *Psychological Methods*, 1, 30-46.

3) Rosenthal, R. (1973). Estimating effective reliabilities in studies that employ judges' ratings. *Journal of Clinical Psychology*, 29, 342-345.

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

### Validity

1) Baldessarini, R.J., Finklestein, S., & Arana, G.W. (1983). The predictive power of diagnostic tests and the effect of prevalence of illness. *Archives of General Psychiatry*, 40, 569-573.

2) 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.

3) Swets, J.A., Dawes, R.M., & Monahan, J. (2000). Psychological science can improve diagnostic decisions. *Psychological Science in the Public Interest*, 1, 1-26.

### Test Bias

1) Furr, R. M., & Bacharach, V. R. (2008). Test bias. In *Psychometrics: an Introduction* (pp. 265-284). Los Angeles; Sage.

### IRT

1) Osterlind, S. J. (2006). Modern scaling with item response theory. In *Modern measurement: Theory, principles, and applications of mental appraisal* (pp. 261-301). Upper Saddle River, NJ: Pearson.