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PSYX 524.01: Tests & Measurement (Psychometrics)

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Tests & Measurement (Psychometrics)

PSYX 524

Autumn 2013

Meeting Times: Mondays, 11:10am – 2:00pm

Location: 303 Skaggs

Instructor:	Daniel J. Denis, Ph.D.
Office:	369 Skaggs Building
Phone:	(406) 243-4539
E-mail:	daniel.denis@umontana.edu
Autumn Office Hours:	Wed, 1:10 – 3:00pm; Fri, 2:00 – 3:00pm

Data & Decision Lab: <http://psychweb.psy.umt.edu/denis/datadecision/front/index.html>

Course Overview & Expectations

This course is designed for graduate students in psychology. The goal of the course is to provide you with a relatively comprehensive study of the field of psychological testing and the nature of measurement in psychology and social science. Psychological measurement is truly a fascinating topic, if only because it relies almost exclusively on our belief in the existence of certain psychological constructs. Throughout the course, we will draw parallels and point out distinctions between the physical and social sciences. Why is the measurement of length not the topic of debate in the physical sciences, yet the measurement of intelligence is, and has been historically, quite controversial? To what extent does testing truly “capture” the underlying construct we are seeking to measure? Why is it vitally important to contextualize test scores relative to distributions, and not evaluate them in absolute terms? Throughout the course, we will discuss such issues and many more.

Learning Outcomes

1. Obtain a reasonable understanding of all topics discussed in the course as given in the textbook and “Tentative Timetable” listed on p. 4, as well as others featured in classroom discussion.
2. Become proficient at evaluating the psychometric properties of psychological (and related) instruments, and critically evaluating their use in applied settings.
3. Learn how statistical thinking is essential to interpreting psychometric tests and virtually all other sources of numerical data.
4. Learn how to compute psychometric properties of tests using software.

Credits: 3.0

Required Text

Furr, R. M. & Bacharach, V. R. (2008). *Psychometrics: an introduction*. Sage Publications: New York.

Office Hours

Office hours are held weekly. You are also strongly encouraged to e-mail questions to the instructor, as they arise. Writing your question out in an e-mail, as clearly as you can (even if very long) is an **excellent** way to clarify what you do not understand, and often, you achieve a deeper understanding of the topic itself. Replies will **usually** be given 24 to 48 hours after the e-mail is received. Please be as detailed and specific as you can in your e-mail so I know how to frame my response to best suit your needs. There will be a class e-mail listserv with which I will use to communicate with the class. Be sure you are on this list.

Evaluation & Grading

100	A	EXCELLENT
99		
98		
97		
96		
95		
94		
93		
92		
91		
90	A -	VERY GOOD
89		
88		
87		
86		
85		
84		
83		
82		
81		
80	B +	GOOD
79		
78		
77		
76		
75	B	GOOD
74		
73		
72		
71		
70	B -	GOOD
69		
68		
67		
66		
65	C +	SATISFACTORY
64		
63		
62		
61		
60	C -	SATISFACTORY
59		
58		
57		
56		
55	D +	POOR
54		
53		
52		
51		
50	D -	POOR
< 50		

There are 5 components that will make up your final grade (see "grade thermometer" to the left):

1. Participation & Contributions (20%)
2. Mid-Term (20%)
3. Quizzes (2 pop quizzes @ 5% each)
4. Assignments (4 @ 5% each)
5. Final Exam (30%)

Policies regarding Tests & Exams

All tests and exams will be written in-class, room 303 Skaggs. Be on time for all evaluations, as you will not have additional time if you arrive late.

Because of the nature of short-answer and multiple-choice testing, tests and exams will require the class seating to be as sparse as possible (i.e., every second or third position). Please adopt "test-taking" seating on test days.

All material in Furr & Bacharach and lectures is testable.

Accommodation of Students with Disabilities

Whenever possible, and in accordance with civil rights laws, the University of Montana will attempt to provide reasonable modifications to students with disabilities who request and require them. Please feel free to setup a time with me to discuss any modifications that may be necessary for this course. For more information, visit the Disability Services for Students website at <http://www.umt.edu/disability>.

Attendance

You are expected to attend regularly. Missing more than **3** classes without justifiable reason as determined by the instructor in conjunction with the **Department of Psychology**, may result in a grade of F for your final grade, regardless of your quiz, test, and exam performance. If you absolutely **must** miss a class, please note that it is **your** responsibility to catch up on missed work. *Instructor notes will not be made available on an individual basis at any time.* Please notify the instructor in advance should you need to miss a class. Attending class lectures usually helps a great deal in understanding material, and consequently doing well on tests and exams.

Academic Misconduct

You are expected to adhere to the university's student conduct code with regard to academic integrity. Academic misconduct in this course will not be tolerated and will result in an academic penalty. **If you are suspected of cheating on a test or exam, you will receive zero on that test or exam and be asked to leave the class permanently.** In short, even if you do not know the answer to a question, you're much better off guessing than risking the chance of getting caught cheating.

Policy on Class Disruptions

The expectations for this course are such that you remain respectfully silent while either the instructor is speaking or a colleague in the class is asking or responding to a question. In accordance with policies set by the University, **disruptions in class will not be tolerated.** This policy is set very strict so that **every student has the opportunity to learn in a quiet and constructive environment.** A failure to meet this expectation ($p < .05$) will result in you being dismissed permanently from the class. This policy is extremely strict as to protect the rights of students who have invested time, money and energy into this course and deserve nothing less than an optimal learning environment. The instructor will make every effort to make sure you, the student, has an ideal learning environment. Please speak to the instructor privately if you are being disturbed in class.

Incompletes

Departmental and university policies regarding incompletes do not allow one to change "incomplete" grades after 1 year has passed since the "I" was granted.

Lectures

Questions During Class

Although you are welcome and often encouraged to ask questions during lecture, class questions to some extent will have to be limited if they become too numerous, as to allow us to make our way through all the material we need to wade through by the end of the course. Be sure to recognize that only once in a blue moon will you understand EVERYTHING from the beginning to end of a given lecture, which is why studying between lectures is necessary. This is normal. If you understand the main themes of lectures, and can more or less "stay with us" as we progress through the lecture, that's a good guidepost to evaluate your in-class progress. Many of the questions you have during class will be answered by post-class study (or sometimes while waiting at a red light on the way home). Such is the nature of learning - do your best to "get it now," but if you can't, then sit or sleep on it for a little bit and return to *experience* the concept again from scratch once more. It might just "take" this time! Even the best of the best learners are always learning. As soon as you declare a concept "mastered," you possibly close the door to new learning and deepening of that very concept. If you would like to discuss learning strategies further, feel free to contact me.

Tentative Timetable

Date	Topic	Readings/Articles/Assignments
26 Aug.	Introductions, Syllabus, The "Big Picture" of Psychometric Theory	
02 Sept.**	LABOR DAY – NO CLASS	
09 Sept.	Psychometrics and the Importance of Psychological Measurement Scaling	Chapter 1 Chapter 2
16 Sept.	Individual Differences and Correlations	Chapter 3
23 Sept.	Test Dimensionality and Factor Analysis	Chapter 4
30 Sept.	Reliability	Chapter 5
07 Oct.	Empirical Estimates of Reliability	Chapter 6
14 Oct.	The Importance of Reliability	Chapter 7
21 Oct.	Mid-Term (20%)	Chapters 1-7
28 Oct.	Validity	Chapter 8
04 Nov.	Validity: Estimating and Evaluating Convergent and Discriminant Validity Evidence	Chapter 9
11 Nov.	VETERAN'S DAY – NO CLASS	-
18 Nov.	Response Biases & Test Bias	Chapter 10 Chapter 11
25 Nov.	Generalizability Theory	Chapter 12
02 Dec.	Item Response Theory and Rasch Models	Chapter 13
09 Dec.	Final Exam (30%) 8:00am – 10:00am – Skaggs 303	<i>All material covered in the course is subject to examination</i>