**1. ERMA 8350 Advanced Measurement Theory (**3 credit hours)

**2. Semester Fall 2013**

Instructor: Joni M. Lakin

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Office Hours: Monday 3-4pm, Wednesday 3-4pm, and by appointment.

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**3. Resources**

**Required**: Furr, R.M., & Bacharach, V.R. Psychometrics: An Introduction (2nd ed.). Sage. ISBN **9781452256801**

**Required**: AERA, APA, & NCME (1999). Standards for Educational and Psychological Testing. ISBN **9780935302257**

*Other resources on reserve at LRC, RBD, or on Canvas, when possible.*

*All written assignments must be completed in APA (6th ed.) style. Please obtain the style manual if you are not familiar with this format.*

**4. Course Description:** The focus of this course is on basic principles and applications of educational and psychological measurement. It is intended for counselors, psychologists, teachers, administrators, and measurement specialists who have some facility with basic statistics. This course is intended to be relatively applied, giving students authentic experiences in applying concepts and techniques to educational and psychological assessments and assessment data. In order to maximize learning in this course, it is important that everyone prepares for and participates in class discussions.

**5. Course Objectives**

* Understand and apply key concepts and methods in evaluating assessment quality
* Understand role of assessments in modern educational and counseling context
* Distinguish between various types of tests, test scores, and test purposes
* Apply techniques for establishing validity and reliability, including correlation and regression, factor analytic, and analysis of variance procedures.
* Apply item analysis procedures such as item difficulty and discrimination as well as differential item functioning.
* Apply professional standards and ethics in the use and development of assessments
* Explore emerging issues and innovations in educational testing

**Note: We will be using the Canvas learning management system for this course. Check the Canvas site frequently for announcements and handouts for class.**

**6. Tentative Course Content and Schedule Readings and Assignments Due**

|  |  |  |
| --- | --- | --- |
| Week 1 (8/26) | **Introduction to measurement** | F&B Ch. 1  Standards Intro., Ch. 11-13 (14 & 15, if interested) |
| 9/2 | Labor Day—no class |  |
| Week 2 (9/9) | **Scaling and test construction, standards** | F&B Ch. 2-3  Coaley Ch. 11  EdMeas Ch. by Schmeiser & Welch (read anything new to you in detail)  Standards Ch.3, 5-6  ***If needed, attend library orientation at 12pm on Tues. (9/10) or 4pm on Wed. (9/11)*** |
| Week 3 (9/16) | **Norms, equating** | Standards Ch. 4  Kaplan & Saccuzzo Ch. norms (partial)  EdMeas Ch. by Kolen (partial)  EdMeas Ch. by Holland & Dorans (partial)  Other readings as assigned |
| Week 4  (9/23) | **Reliability, generalizability theory**  *Student-led topic (1)* | F&B Ch. 5-7, 13  Standards Ch.2  Other readings as assigned |
| Week 5 (9/30) | **Validity**  *Part I of Final Project Due (draft of instrument)* | F&B Ch.4, 8, 10  Standards Ch.1  Other readings as assigned |
| Week 6 (10/7) | **Validity Methods**  *Student-led topic (2)* | F&B Ch. 9, 12  Other readings as assigned |
| Week 7 (10/14) | Validity Methods, cont’d  **Fairness and Bias detection**  *Student-led topic (3)* | F&B Ch. 11  EdMeas Ch. by Camilli  Standards Ch 7-10 |
| Week 8 (10/21) | **Midterm exam**  **(take home—no class)** |  |
| Week 9 (10/28) | **Item analysis and Classical Test Theory**  *Student-led topic (5)* | Crocker & Algina Ch. on CTT  EdMeas Ch. by Schmeiser & Welch (review starting from p331 in detail)  Kaplan & Saccuzzo Ch. on item analysis  Other readings as assigned |
| Week 10 (11/4) | **Item Response Theory**  *Student-led topic (6)* | F&B Ch. 14  Baylor et al. (2011)  Other readings as assigned  See also:  <http://www.youtube.com/watch?v=SrdbllMYq8M> |
| Week 11 (11/1) | **IRT cont’d**  *Student-led topic (7,8)* | Readings as assigned |
| Week 12 (11/18) | **TBA—discuss readings**  *Student-led topic (9, 10)* | Readings as assigned |
| 11/25 | **Thanksgiving** |  |
| Week 13 (12/2) | *Student presentations of projects*  *Project written components due* |  |
| Finals |  | **Final exam due 12/11** |

**7. Course Requirements and Evaluation**

*Learning Methods:* Discussions, lectures, readings, class exercises, and projects. Primary emphasis will be on class discussions and will focus on textbook readings and other assignments. The purpose of these discussions is to encourage students to participate in an open, knowledgeable, supportive, and collaborative manner to enhance their understanding of the application of theory to practical situations.

Exams will be comprehensive to the extent that the course naturally builds on early concepts.

*Student Assessment*

Midterm exam 20%

Class presentation 20%

Homework, in-class activities and participation\* 10%

Final project 30%

Final exam 20%

\*You MUST be in class to earn class participation points. These will be based on evidence that you have read the assigned materials and contribute thoughtfully to the discussion.

*Grading Scale:* A: 90 – 100% B: 80 – 89% C: 70 – 79% D: 60 – 69% F: below 60%

**8. Projects**

1. **Class presentation:** Each student will present a 45-50 minute lesson covering a major topic in the area of educational and psychological measurement. This topic should be organized around an assessment that exemplifies the topic (e.g., topic is creativity assessment and you present the Torrance battery as an example). Base your lesson on class texts and supplementary resources as appropriate. Students will have their topics approved by the professor within the first two weeks of the course. Requirements:

* **You must assign at least two relevant readings on your topic and send them to the instructor to post to Canvas as least one week in advance**
* You should select a focal assessment and bring it to class
  + The LRC has a large selection of psychological tests that you can check out for a limited period of time. If you have any trouble, ask them to contact me and Dr. Kluck, who supervises the collection. You can search their materials online:

[http://lrccollection.auburn.edu](http://lrccollection.auburn.edu/)

* Use the technical manual and available research on the assessment to present a *critical* analysis of its psychometric qualities as part of your lesson
* A lesson outline including objectives and all handout materials should be submitted at the beginning of the lesson.

Evaluation will be based on evidence of thorough preparation (knowledge of subject matter and ability to answer questions), planning (an appropriate and complete lesson plan), delivery (ability to deliver the content and answer questions), and professionalism (language, style, and overall manner of teaching).

When other students are presenting, each student will participate as a member in large and small group discussions and exercises.

1. **Test Development Project:** You will practice your skills by developing a psychological measure. For the class project, you will be expected to identify a currently unaddressed need in the field of education or psychology and develop a measure (and respective test manual) to address this deficiency. I recommend picking a topic related to some of your current research – many of you may decide to use your measures and data for upcoming projects, theses, and dissertations.

You have two options for this project: You may either actually collect data for validation of your measure or you may create fictitious data (that demonstrates support for the use of your measure). However, if the latter route is chosen, the ‘validation efforts’ demonstrated will need to be substantially more comprehensive. If the former route is chosen, you must either work with an adult population (who understand that the project is NOT publishable research and therefore is not subject to IRB oversight) or you may work with children (as long as you start as soon as possible and submit your materials to IRB for review). If you would like to use your data for publishable research, you should submit materials to IRB prior to data collection, regardless of population tested.

**Products:**

1. Draft instrument and description mid-semester
   1. You will critique each others’ projects at this time
2. Final product of technical manual and test
3. 10-minute in-class poster presentation (or single powerpoint slide) of your instrument and validity evidence

**See extended description on Canvas**

**9. Class Policy Statements**

*Attendance Policy*

* Attendance is expected, but not required. If you miss class, you will need to get notes from another student.
* I will start class on time, so if you are late you will need to get notes from another student.

*Late Assignments Policy*

* Assignments turned in late will receive a 5% reduction in earned points per day. The only exception will be in the case of emergency.
* Except for in-class work, all work must be typed or it will **not** be graded. Late penalty will be applied to work completed in writing and then turned in late in typed format for a grade.

*Incompletes and Withdrawals*

Grades associated with incomplete course work or withdrawal from class will be assigned in strict conformity to University policy (see Auburn University Bulletin). If you wish to drop this course you may do so by the 10th class day with no grade assignment. From the 10th class day to mid-semester a W (withdrawn-passing) grade will be recorded in your transcripts. After this period withdrawal from the course will only be granted under unusual circumstances and must be approved by the Dean of the College of Education.

Note that the incomplete grade (IN) policy is in effect. The new policy requires that students complete a form requesting that an IN grade be assigned. If this form in not completed and given to the instructor of the class, a grade will be assigned with a score of zero (0) for work that has not been completed and turned in by the time the instructor reports grades.

*Academic Misconduct*

The Department of EFLT recognizes university policy regarding academic misconduct. Violations include, but are not limited to: plagiarism, unauthorized assistance during examinations, submitting another’s work product as your own, using another’s words as your own without appropriate citation, sharing unauthorized materials with another that contain questions or answers to examinations, altering or attempting to alter assigned grades. In accordance with University policy regarding academic misconduct, students may be subject to several sanctions upon violations of the Student Academic Honesty Code. See the Tiger Cub publication for the current year for specifics regarding academic misconduct as well as student’s rights and responsibilities associated with the Code.

*Disability Accommodations*

Students who need accommodations are asked to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternate time can be arranged. To set up this meeting, please contact me by e-mail. If you have not established accommodations through the PSD office, but need accommodations, make an appointment with The Program for Students with Disabilities, 1228 Haley Center, 844-2096 (V/TT).