**MEASUREMENT IN EDUCATIONAL RESEARCH**

 **(REF 720)**

**Summer 2013**

Instructor: Kamden K. Strunk, Ph.D. Phone: 601-266-6520

Class hours: Wednesdays, 6:00PM to 10:00PM Email: Kamden.Strunk@usm.edu

Office hours: Wednesdays 1PM-3PM, Office Address: OMH 133

or by appointment

**COURSE DESCRIPTION:**

Survey of the theory of measurement including true score theory, reliability, validity, item analysis, and item-selection techniques.

**COURSE OVERVIEW:**

This course is an overview of measurement theory as applied to educational and social/behavioral research. Specifically, we will focus on classical test theory for the majority of the course, with some attention given later in the course to item response theory and generalizability theory. The theoretical construction of scales and measures will be considered, along with reliability, validity, and other ways of assessing measurements.

**Required Course Textbook:**

DeVellis, R. F. (2003). *Scale development: Theory and application* (2nd ed.). Thousand Oaks, CA: SAGE.

Shultz, K. S., & Whitney, D. J. (2005). *Measurement theory in action: Case studies and exercises.* Thousand Oaks, CA: SAGE.

Other required course readings will be posted on Blackboard.

**RECOMMENDED READING:**

Furr, M. R., & Bacharach, V. R. (2008). *Psychometrics: An introduction.* Thousand Oaks, CA: SAGE.

**PREREQUISITE COURSES:**

REF 761 & REF 762 are required prior to taking this courses. Contact the instructor with any questions.

**Course Objectives:**

1. To understand fundamental statistics underlying measurement theory.
2. To gain an understanding of test scores in various models such as composite scores, latent variables, or ability scores.
3. To understand and utilized classical test theory (true score theory) in educational research.
4. To understand and critique various theories of validity including their application to educational measurement.
5. To understand and critique various theories of reliability including their application to educational measurement.
6. To learn and apply item analysis techniques.
7. To gain familiarity with G theory and item response theory.

**Mode/Style of Teaching:**

The teaching style for this class is a four-domain holistic education model, wherein education is targeted toward the whole person. In this model the “whole person” is conceptualized as the body, mind, soul, and heart, or the “doing”, “thinking”, “creating”, and “feeling” functions. Weekly discussions and course projects are all designed to target these domains and functions to encourage development and growth in all of these areas. This class is also built on a constructivist and social learning model, wherein students are expected to learn from the textbook, from the instructor, and from each other. This is accomplished through a reciprocal social interaction process where students contribute their understanding and knowledge to each other, thus enhancing the overall understanding of everyone in the class and allowing everyone to construct a more complete base of knowledge than would otherwise be possible.

**Course Assignments:**

1. **Project:** Each student will complete a full proposal for a measurement-related project (e.g., testing an existing measure, developing a new measure) or completing a critical review of an area in measurement theory (e.g., a critical review of theories in validity, a review of developments in IRT). This project is completed in stages to allow for critical feedback and review, and a detailed project description is provided.
2. **Exams:** There are two exams in this course. Each exam covers material from the preceding weeks, and the second exam is not comprehensive. Each exam will be worth 200 points.
3. **Presentation:** Each student will prepare a presentation on a topic of interest in measurement theory. Example topics will be provided, but students are encouraged to explore topics relevant to their own interests. Presentations will be scheduled throughout the course based on the topic students select. The presentation will be worth 100 points

**Grading Structure/Requirements:**

There are a total of 1000 points in the course, which means you can take your total points and divide by ten to determine your percentage grade in the course. The grading structure is as follows:

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| --- | --- |
| **Assignment Type** | **Total Points Possible** |
| Exams | 400 |
| Presentation | 100 |
| Project | 500 |
| **TOTAL POINTS** | **1000 points** |

The course is graded as follows: A = 100-91%, A- = 90.99-90%, B+ = 89.99-89% B = 88.99%-81%, B- = 80.99-80%, C+ = 79.99-79%, C = 78.99-71% C- = 70.99-70%, D+ = 69.99-69% D = 68.99-61% D- = 60.99-60%, F < 60%.

**CLASS PREPAREDNESS:**

Students are expected to arrive to class on time and prepared for required coursework. This means arriving prepared for in-class activities that may require the use of the textbook, spare paper, and a basic calculator. You should bring a calculator, the course textbook, and paper with you to each class period to be prepared for in-class activities designed to strengthen conceptual understanding.

**LATE WORK POLICY:**

Late work is not acceptable in graduate work. However, if you find that you are falling behind in your coursework, it is of the utmost importance that you immediately contact your instructor. As soon as you know there is any problem, immediately contact the course instructor. This is the best way to stay caught up with the course, and to achieve the highest possible grade.

If you find that you need to submit late work **it is required that you contact the instructor before submitting any late work.** Any late work submitted without first contacting the instructor to discuss the work and form a plan for getting caught up to date with coursework will not be accepted. This is to make sure that you receive all information you need about which assignments will take priority in getting caught up, and what, if any, credit can be given to late work before beginning. Communication is the key in getting caught up if you find yourself behind on work, so call, email, or stop by, whatever you need to do to get in contact!

If any late work is accepted following communication with the instructor and establishment of a written plan, it will be worth a maximum of 50% of its graded point value. The exact percentage will be established in the written plan you make with the instructor.

**TENTATIVE Course Calendar:**

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| --- | --- | --- | --- |
| **Week** | **Readings** | **Content** | **Project** |
| 15/29/13 | S&W Ch. 1-3DeVellis Ch. 1 | Introduction, Review of Statistical and Measurement Concepts |  |
| 26/5/13 | S&W Ch. 4, 18DeVellis Ch. 2, 6 | Test Score Theories, Dimensionality, and Nomological Networks | **Project Part 1 Due** |
| 36/12/13 | S&W Ch. 5DeVellis Ch. 3 | Reliability |  |
| 46/19/13 | S& W Ch. 6-9DeVellis Ch. 4 | Validity and Reliability | **Project Part 2 Due** |
| 56/26/13 | S&W Ch. 10Kane, 2013 | Validity | **Project Part 3 Due** |
| 67/3/13 |  | **Exam One** |  |
| 77/10/13 | S&W Ch. 12-13 | Item Analysis | **Project Part 4 Due** |
| 87/17/13 | S&W Ch. 19-20DeVellis Ch. 7 | Item Response Theory |  |
| 97/24/13 |  | **Exam Two** | **Project Part 5 Due** |

*(Average weekly reading requirement = 67 pages)*

*Note.* All readings other than the textbook can be found on Blackboard listed under the name of that week’s topic.

**Possible Changes to the Syllabus:**

This syllabus is your contract for production in the course. If changes are made to it they will be posted on Blackboard and announced in class or by email. No changes increasing requirements will be made as they might adversely affect your grade.

**Additional Information and Resources:**

1. Students are expected to adhere to the highest standard of academic integrity. Students are bound by and responsible for knowing the information contained in the policies set forth in the DES Academic Integrity Policy and the USM Student Handbook. In no instances will lack of familiarity with these policies excuse a violation. Procedures for dealing with academic dishonesty and consequences can be found in the above-mentioned policies, and may range from a reprimand and opportunity to rewrite an assignment, a reduced grade, a ‘0” or “F” being awarded for the assignment, a ‘0” or “F” being awarded for the class, and recommendation for dismissal from the program, suspension, or expulsion from the university.

Violations of this policy include plagiarism in all forms and extend to the use of internet resources. Any information that originates from another source must be noted as such in student materials. Other forms of academic dishonesty include, but are not limited to, buying papers, copying paragraphs/pages of text/whole papers off the Internet, copying another student’s answers/papers, multiple submissions (e.g. “self plagiarism”), etc.

1. Students are expected to be in class during scheduled class period and participate in all activities during that class period, including exams. Failure to be in class during an exam without agreement from and prior arrangements with the course instructor will result in a grade of zero on the exam.
2. Except in the case of a dire, documented emergency, project assignments not submitted by the stipulated date and time will not be accepted and will result in a score of zero.
3. If a student has a disability that qualifies under the Americans with Disabilities Act (ADA) and requires accommodations, he/she should contact the Office for Disability Accommodations (ODA) for information on appropriate policies and procedures. Disabilities covered by ADA may include learning, psychiatric, physical disabilities, or chronic health disorders. Students can contact ODA if they are not certain whether a medical condition/disability qualifies Mailing address: 118 College Drive #8586, Hattiesburg, MS 39406-0001; Telephone (610) 266-5024; TTY: (601) 266-6837; Fax: (601) 266-6035. Individuals with hearing impairments can contact ODA using the Mississippi Relay Service at 1-800-582-2233 (TTY) or email Suzy Hebert at Suzanne.Hebert@usm.edu.