

George Mason University
College of Education and Human Development
Educational Psychology

EDRS 531- 001 - 71697
Educational and Psychological Measurement
3 Credits, Fall 2017 | Thursdays 4:30 pm – 7:10 pm
Thompson Hall | Lower Level | L013
Fairfax Campus

Instructor: Divya Varier, Ph.D.
Office Hours: Thursdays 3 pm – 4 pm OR by appointment
Office Location: 2106, West Building, Fairfax Campus
Office Phone: 703-993-5047
Email Address: dvarier@gmu.edu
Twitter: @divarier

Prerequisites/Corequisites

Course Restrictions: Not Repeatable for Credit

Prerequisites: Appropriate methods and advanced methods courses.

Corequisites: Appropriate methods and advanced methods courses.

University Catalog Course Description

Emphasizes techniques and principles used in the construction, administration, and quantification of measuring devices for evaluation purposes. Discusses interpretation of standardized tests of ability, aptitude, achievement, interest, and personality.

Course Overview

This course is designed to facilitate students acquiring the fundamental measurement concepts, principles, theories, and ethics used in psychological and educational testing. Current models for survey and test construction and the evaluation of psychological measures and standardized and standards-based tests will be examined. This course supports the mission of the Educational Psychology Program, which is “to develop professionals who:

- a. apply principles of learning, cognition and motivation to vital problems in the area of education in a variety of settings;
- b. develop a solid understanding of research, assessment, and evaluation methodologies; and
- c. develop an analytical and scholarly approach to critically assessing theoretical perspectives, research, and practice within and across content domains.”

Course Delivery Method

This course will be delivered using a lecture format, individual, small and large group activities in class. The instructor will use Blackboard and/or Microsoft Classroom tools (accessible via Mason's Office 365) to facilitate in class activities.

Learner Outcomes or Objectives

This course is designed to enable students to do the following:

1. Apply the principles of educational measurement to relevant problems in testing
2. Understand basic technical characteristics of standardized tests
3. Interpret technical information presented in standardized test manuals
4. Interpret standardized test results
5. Evaluate published standardized tests and assessment instruments;
6. Knowledge of current professional practices and issues related to educational measurement and assessment;
7. Apply sound principles of measurement and assessment in multicultural settings.

Professional Standards

Upon completion of this course, students will have met the following professional standards:

Masters of Science (MS) Educational Psychology Program Standards

Standard 3: Knowledge of Educational Research and Assessment. Candidates will demonstrate an understanding of the basic concepts, principles, techniques, approaches, and ethical issues involved in educational research.

Standard 4: Analysis, Critique, and Evaluation of Educational Research. Candidates will use their knowledge of quantitative and qualitative research methodology to critically read and evaluate quantitative and qualitative research articles.

Standard 5: Planning and Implementation of Educational Research. Candidates will use their knowledge of quantitative and qualitative research methodology to develop a research proposal and conduct research.

Standard 6: Communication and Dissemination of Educational Research. Candidates will demonstrate critical thinking, oral presentation, technological, and writing skills as they are used in the profession. These include:

- a. Knowledge and use of APA style
- b. Oral presentations
- c. Poster presentations
- d. Article abstracts
- e. Research proposals
- f. Literature reviews
- g. Technological skills (including library/reference skills, interactive displays skills, data analysis skills)

Standards for Educational and Psychological Testing (American Educational Research Association [AERA], American Psychological Association [APA], & National Council on Measurement in

Education [NCME], 2014) The lens through which each topic will be viewed and understood are grounded in the Standards for Educational and Psychological Testing (AERA, APA, & NCME, 2014); NCME's [Code of Professional Responsibilities in Educational Measurement](#) (NCME, 2015); and in addition, the learning objectives correspond to two additional sets of standards for teachers. The Joint Committee for Standards on Educational Evaluation address understanding the foundational assessment principles, appropriate use of test results, and assessment quality. The second set of competency standards were developed jointly by the American Federation of Teachers (AFT), NCME, and the National Education Association (NEA): [Standards for Teacher Competence in Educational Assessment of Students](#) (1990). These professional associations asserted that educators should be skilled in:

- Choosing assessment methods appropriate for instructional decisions.
- Developing assessment methods appropriate for instructional decisions.
- Administering, scoring and interpreting the results of both externally-produced and teacher-produced assessment methods.
- Using assessment results when making decisions about individual students, planning teaching, developing curriculum, and school improvement.
- Developing valid pupil grading procedures which use pupil assessments.
- Communicating assessment results to students, parents, other lay audiences, and other educators.
- Recognizing unethical, illegal, and otherwise inappropriate assessment methods and uses of assessment information.

Required Texts

Cohen, R. J., & Swerdlik, M. E. (2013). *Psychological testing and assessment: An introduction to tests and measurement* (9th ed.). NY: McGraw-Hill.

Recommended Texts

American Educational Research Association, American Psychological Association, and National Council on Measurement in Education. (2014). *Standards for Educational and Psychological Testing*. Washington, DC: Author.

American Psychological Association. (2009). *Publication manual of the American Psychological Association*. (6th Ed.). Washington, DC: Author.

Course Performance Evaluation

Students are expected to submit all assignments on time in the manner outlined by the instructor via Blackboard.

A. Assignments and Examinations

1. **Measurement Project (60%):** You have one major project in this course which is to develop and pilot test a psychological or educational measure. This project has six parts, each worth 10%.

Parts are due throughout the course, with the final paper integrating all revised or updated project parts. This is a performance-based assessment.

a. Overview/Introduction (10%): Prepare a brief report about a current area of interest in educational psychology. The report should address a current issue that has implications for developing a new measure. The report needs to include an overview of the issue, an introduction to pertinent literature related to the construct under investigation. For the introduction, you must include three (3) research studies discussing your construct. Based on this review, provide the conceptual definition of the construct you will measure. That is: how did each of the researchers (1) conceptually define your construct? (2) operationally define the construct? (3) How are the items in the measures similar to and different than each other? (4) How are the scales similar to or different than each other? In the introduction, you also need to provide a brief introduction to the existing measures and discussion of the need for a new measure. The introduction should provide a context for the measure, including but not limited to the population that will take the measure, how the measure can be used, and by whom. Indicate the population that will take the measure, how the measure can be used, and by whom. Ensure that you also include a reference list.

b. Literature Review (10%): Write a literature review extending the themes from the introduction. The literature review must expand the number of studies that you included about your construct. In addition, you need to have a section that examines a minimum of three (3) measurement studies or measurement reviews about existing measures (such as three studies for one measure or one study for each of three measures). You need to analyze the measures critically addressing strengths and weaknesses. The critical analysis should address: (1) the validity and reliability data for the existing measures; (2) problems with or gaps associated with the existing measures. A justification for your new measure needs to be provided. That is, what gaps or problems does your scale address? Ensure that you include an operational definition for your construct, so that it clearly leads to how you will develop your measure. Ensure you identify whether your measure will include sub-constructs. The literature review should include a revised introduction in track changes.

c. Development and Methods Plan (10%): This section is the methods section for your final report, describing how you developed and validated your measure. It is also a planning document for development and pilot-testing of your measure. Develop a plan to write your items for your measure. You need to include a minimum of ten (10) items. If you are developing an educational assessment, you will need to develop a test blueprint. If you are developing a psychological measure, you will need to develop a plan identifying the number of items that you will include for each of the sub-constructs. You also need to describe the scale that you will develop. The plan should also include directions for administering the measure. Identify how you will select your sample for pilot tests. You may NOT administer your measure to children. Indicate the methods that you will use to establish validity and reliability for your measure, including the types of analyses that you will conduct. The plan should include any revisions to your overview and literature review in track changes. Finally, you need to include a timeline and references.

d. Pilot Study (10%): Pilot test your measure with at least 25 people. Report out your results for descriptive statistics, reliability, and validity. Examine your findings and discuss whether you need to change your measure in any way and provide a rationale. Compare your results to those of the measures you examined in your literature review. Include an updated methods section and an updated measure in your report in track changes.

e. Reflection (10%): Reflect on your work on the project in relation to what you have learned about the measurement development process. Discuss limitations of your plan. Provide specific details about how you would improve the process and the measure. Reflect on how you could enhance reliability and validity evidence. Include updated sections in track changes.

f. Final Paper (10% points): Write your measurement report. The report should include the introduction, a review of relevant literature, methods, findings, a discussion that interprets the findings in terms of the research and includes recommendations for how the new measure can be used and the information that can be learned from the data. Ensure this section includes specific implications for interpreting and using the data. Finally, discuss what you learned by doing this project and how you would improve your processes and products if you were to develop another measure. This report should include your final updates in both track changes and a clean copy.

2. Examinations (40%): Two exams, a mid-term and a final exam, will be given. The material will address readings, class, and homework materials. Final exam is not cumulative, but may address prerequisite material from mid-term. Each exam is worth 20%.

B. Other Requirements

Students are expected to meet the requirements listed below. Up to a full letter grade may be deducted from the final grade for failure to meet one or more requirements. Exceptionally meeting requirements will add up to a half letter grade to the final grade.

1. Attend all class sessions on time. Use your MASON e-mail account for all correspondence with the instructor.
2. Complete readings in advance of the class and participate fully in discussions, group, or individual classwork.
3. Submit all assignments to the class blackboard on time. Late assignments will not be accepted unless there is an exceptional reason (notify instructor in advance or at the earliest).
4. Use the APA manual guidelines for the final project.

C. Grading Policy

Grading for the project components is based on a rubric. Deductions reflect failure to adhere to assignment instructions or inaccuracies and misconceptions in the submitted work. Students will receive feedback electronically within two weeks of submission. Grading for the course is established as follows:

Percent	Letter Grade
98 – 100	A+

93 – 97	A
90 – 92	A-
88 – 89	B+
83 – 87	B
80 – 82	B-
70 – 79	C
Below 70	F

D. Course Performance Evaluation Weighting

Assignments and Examinations	Points	Percent of Grade
Project		60%
Introduction	40	10%
Literature Review	40	10%
Plan	40	10%
Pilot Test	40	10%
Reflection	40	10%
Final Paper	40	10%
Examinations		40%
Mid-Term Exam	80	20%
Final Exam	80	20%
Total	400	100%

Professional Dispositions

See <https://cehd.gmu.edu/students/polices-procedures/>

Core Values Commitment

The College of Education and Human Development is committed to collaboration, ethical leadership, innovation, research-based practice, and social justice. Students are expected to adhere to these principles: <http://cehd.gmu.edu/values/>.

GMU Policies and Resources for Students

Policies

- Students must adhere to the guidelines of the Mason Honor Code (see <http://oai.gmu.edu/the-mason-honor-code/>).
- Students must follow the university policy for Responsible Use of Computing (see <http://universitypolicy.gmu.edu/policies/responsible-use-of-computing/>).
- Students are responsible for the content of university communications sent to their Mason email account and are required to activate their account and check it regularly. All

communication from the university, college, school, and program will be sent to students **solely** through their Mason email account.

- Students with disabilities who seek accommodations in a course must be registered with George Mason University Disability Services. Approved accommodations will begin at the time the written letter from Disability Services is received by the instructor (see <http://ods.gmu.edu/>).
- Students must follow the university policy stating that all sound emitting devices shall be silenced during class unless otherwise authorized by the instructor.

Campus Resources

- Support for submission of assignments to Tk20 should be directed to tk20help@gmu.edu or <https://cehd.gmu.edu/aero/tk20>. Questions or concerns regarding use of Blackboard should be directed to <http://coursesupport.gmu.edu/>.
- For information on student support resources on campus, see <https://ctfe.gmu.edu/teaching/student-support-resources-on-campus>

For additional information on the College of Education and Human Development, please visit our website <https://cehd.gmu.edu/students/> .

Class Schedule

Note: Faculty reserves the right to alter the schedule as necessary, with notification to students.

Week	Date	Content	What's due?
1	Aug 31, 2017	Introduction to Educational and Psychological Measurement	Reading: Chapter 1
2	Sep 7, 2017	Ethical Considerations, Statistics Refresher	Reading: Chapter 2, 3
3	Sep 14, 2017	Tests	Reading: Chapter 4 Project: Introduction
4	Sep 21, 2017	Reliability	Reading: Chapter 5
5	Sep 28, 2017	Validity, Utility, Fairness	Reading: Chapter 6, 7
6	Oct 5, 2017	Test Development, Mid-Term Content Review	Reading: Chapter 8 Project: Lit. Review
7	Oct 12, 2017	Mid-Term Exam	
8	Oct 19, 2017	Intelligence and Tests Peer Feedback on Project Plan/Progress	Reading: Chapter 9, 10
9	Oct 26, 2017	Educational Assessment	Reading: Chapter 11 Project: Plan
10	Nov 2, 2017	Analyzing item data	
11	Nov 9, 2017	Personality Assessment	Reading: Chapter 12, 13 Project: Pilot Test
12	Nov 16, 2017	Clinical Assessment Project: Peer Feedback	Reading: Chapter 14
13	Nov 23, 2017	Thanksgiving Day. No Class	
14	Nov 30, 2017	Assessment Careers	Reading: Chapter 16
15	Dec 7, 2017	Final Exam Content Review	Project: Reflection & Final Paper
16	Dec 14, 2017	Final Exam	

Rubric: Measurement Project

Project Component*	Standard	Does not meet standard 0 points	Approaching standard 1 point	Meets standard 2 points	Exceeds standard 3 points	Score
Introduction	3, 4	Introduction is not included or is incomplete Only some aspects of the component are addressed;	Includes all or most parts of the component but in insufficient detail or with many inaccuracies	Includes all aspects of the component that are adequately addressed	Includes all aspects of the component that are addressed completely and exceptionally well	
Literature Review	4, 6	Lit. review is not included or is incomplete	Includes all or most parts of the component but demonstrates inaccuracies that need to be addressed	Includes all aspects of the component that are adequately addressed	Includes all aspects of the component that are addressed completely and exceptionally well	
Plan	5	Plan is not included or is incomplete	All or most parts of the component are addressed, but inaccuracies are evident and need to be addressed			
Pilot Study	5	Pilot study is not included or incomplete	All or most parts of the component are addressed, but inaccuracies are evident and need to be addressed			
Reflection	5	Reflection is not included or is incomplete	Reflection includes perfunctory comments on the plan; no critical analysis	Reflection provides a critical analysis of the strengths and limitations of the plan	Reflection provides insightful critical analysis of strengths and limitations of the plan and makes direct connections to course content	
Final Paper		Two or more components are not included or incomplete; Revisions/Corrections are omitted	Includes four or more sections complete; key revisions were omitted or inadequately addressed	All sections are adequately addressed; Revisions demonstrate increased understanding of measurement concepts	All sections are adequately addressed in the revisions and demonstrate exceptional grasp of measurement concepts;	

*See assignment description pp 3 – 5 for detailed description of each component.