

College of Education and Human Development
Educational Psychology



EDRS 531 001: Educational & Psychological Measurement
3 Credits Spring 2020

Course Time: Thursday, 4:30- 7:10 p.m. Room L014 Thompson Hall

Instructor: Angela Miller, Ph. D.

Office Hours: Monday 3:00-4:00 p.m. and by appointment

Office Location: West Building, Room 2007

Email Address: amille35@gmu.edu

Office Phone: 703-993-5590

Prerequisites/Corequisites:

Recommended Prerequisites: EDRS 620, EDRS 621..

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 & Objectives:

This course is designed to facilitate students acquiring the fundamental measurement concepts, principles, and theories used in psychological and educational testing. Current models for test construction and the evaluation of standardized and standards-based tests will be examined.

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

- Apply the principles of educational measurement to relevant problems in testing
- Understand basic technical characteristics of standardized tests
- Interpret technical information presented in standardized test manuals
- Interpret standardized test results
- Evaluate published standardized tests and assessment instruments;
- Knowledge of current professional practices and issues related to educational measurement and assessment;
- 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 Text:

Coaley, K. (2014). *An introduction to psychological assessment and psychometrics* (2nd ed.). Thousand Oaks, CA: SAGE

Other readings will also be assigned for the course and made available on Blackboard.

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. (2019). *Publication manual of the American Psychological Association*. (7th Ed.). Washington, DC: Author.

Furr, M. (2018). *Psychometrics: An introduction* (3rd ed.). Thousand Oaks, CA: SAGE

Course Format: All students are expected to be active contributors in the class. Students are expected to read extensively, seek information, communicate, and participate in class activities and discussions. I encourage questions at all times; do not "wait for the right moment." If you do not understand something, please ask.

Class Preparation: Information on course assignments and notes for class lectures are available on the course Blackboard site.

For assistance with Blackboard students may email courses@gmu.edu, call (803) 993-3141, or go to Johnson Center Rm 311 (office hours: 8:30 am-5 pm). For general technical assistance, students may call 9703) 993-8870 or go to the counter in Innovation Hall.

Class Attendance & Participation: Students are expected to come to class on time, complete assignments, and participate in class discussions.

ASSESSMENT:

Class Participation (10%)

There will be several in-class activities that are individual or small group assignments. Participation in class discussions is expected and assigned readings are to be completed in advance of the class.

Interpretation of Testing Data (15%)

Written response to a scenario in which students will recommend the use of a hypothetical instrument to a school district superintendent.

Exam (25%): The exam will address readings, class, and homework materials. The exam will be 2.5 hours in duration and will include application-type test items (multiple choice, short answer, etc.) related to the core concepts.

Measurement Project (50%): 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 (see below). Drafts for each part are due throughout the course, with the final paper integrating all revised or updated project parts.

1. **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: (1) conceptually define your construct (2) operationally define the construct. 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. Include a reference list.
2. **Literature Review (5%):** 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 two (2) measurement studies or measurement reviews about existing 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. This section will address the following questions: *How are the items in the existing measures similar to and different than each other? How are the scales similar to or different than each other? That is, what gaps or problems does your scale address?* Identify whether your measure will include sub-constructs. The literature review should include a revised introduction in track changes.
3. **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. 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. Please contact the instructor if you plan to develop a measure intended for minors (under the age of 18 years). 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.
4. **Pilot Study (10%):** Pilot test your measure with at least 25 participants. 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 final report and track changes.

5. **Reflection(5%):** 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.
6. **Final Paper (10%):** Write your measurement report. Track changes to show revisions based on instructor comments. The report should include the introduction, a review of relevant literature, methods, pilot study 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. It includes your reflection. Follow APA guidelines.

Adherence to APA 7th guidelines, grammar, and mechanics: The drafts and final report are written in accordance to APA writing and formatting guidelines.

Late Assignments: *As a general rule, late papers/assignments will not be accepted.* If you believe you have EXCEPTIONAL circumstances and wish to negotiate to have extra time to complete course work, you must discuss this with me before the day the assignment is due. (Negotiating means that you will be sacrificing a portion, perhaps substantial, of your grade for extra time).

Grading Scale: Grades will be assigned based on the following:

A+	98-100%	B+	88-89%	C	70-79%
A	93-100%	B	83-87%	F	below 70%
A-	90-92%	B-	80-82%		

Final grades are based in the assessments described above. “Extra credit” is not available.

GMU Policies and Resources for Students

Policies

1. Students must adhere to the guidelines of the Mason Honor Code (see <https://catalog.gmu.edu/policies/honor-code-system/>).
2. Students must follow the university policy for Responsible Use of Computing (see <https://universitypolicy.gmu.edu/policies/responsible-use-of-computing/>).
3. 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.

4. 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 <https://ds.gmu.edu>).
5. Students must silence all sound emitting devices during class unless otherwise authorized by the instructor.

Notice of mandatory reporting of sexual assault, interpersonal violence, and stalking: As a faculty member, I am designated as a “Responsible Employee,” and must report all disclosures of sexual assault, interpersonal violence, and stalking to Mason’s Title IX Coordinator per University Policy 1202. If you wish to speak with someone confidentially, please contact one of Mason’s confidential resources, such as Student Support and Advocacy Center (SSAC) at 703-380-1434 or Counseling and Psychological Services (CAPS) at 703-993-2380. You may also seek assistance from Mason’s Title IX Coordinator by calling 703-993-8730, or emailing titleix@gmu.edu.

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 <https://its.gmu.edu/knowledge-base/blackboard-instructional-technology-support-for-students/>.

For information on student support resources on campus, see <https://ctfe.gmu.edu/teaching/student-support-resources-on-campus>

Core Values Commitment

The College of Education & 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/>.

Professional Dispositions: Students are expected to exhibit professional behaviors and dispositions at all times.

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

Tentative Course Schedule

Date	Class	Topic	Reading	Due
1/23	1	Course Info Role of Measurement & Testing	Ch. 1	
1/30	2	Ethical Considerations The Basic Components (overview)	Ch. 2 & Ch. 10	
2/6	3	Development of Assessments	Ch. 3	
2/13	4	Statistics for Measurement	Ch. 4	Intro Draft
2/20	5	Reliability	Ch. 5	
2/27	6	Validity	Ch. 6	Lit Review Draft
3/5	7	Item Development	Ch. 11	Interpretation Assn. Due
3/12		Spring Break- No Class		
3/19	8	Exam		
3/26	9	Item Analysis		Plan Due
4/2	10	Assessment of Intellectual Ability	Ch. 7	
4/9	11	Assessment of Personality	Ch. 8	
4/16	12	<i>Individual Meetings-no class</i>		Pilot Test Due
4/23	13	Educational Assessment		Reflection Draft
4/30	14	Alternative Perspectives	Ch. 9	
5/7	15			Final Project Due