

George Mason University
College of Education and Human Development
Educational Psychology

EDEP 531: 001 – Educational & Psychological Measurement
3 Credits, Fall 2019

Aug 30 – Dec. 13, 2019 | Thursdays: 4:30 – 7:10 pm | Thompson L018 Fairfax Campus

Faculty

Name: Dr. Divya Varier
Office Hours: By appointment
Office Location: West Suite | 2106 - Fairfax Campus
Office Phone: 703-993-5047
Email Address: dvarier@gmu.edu

Prerequisites/Corequisites:

Course Restrictions: Not Repeatable for Credit
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

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 and in-class assignments. The instructor will use Blackboard and other web tools 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

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

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

Course Performance Evaluation

Students are expected to submit all assignments on time in the manner outlined by the instructor (e.g., Blackboard, hard copy). **Late assignments will not be accepted without prior instructor approval.**

- **Class Participation (100 points, ~16 class sessions).** Students are expected to participate in in-class activities that are individual or small group assignments. Assigned readings are to be completed. Attendance is required (20 points). Please contact the instructor if you plan to miss a class. On-time submissions will give you 20 points – late submission of assignments will lead to an automatic deduction of 20 points from the participation score (all-or-nothing).
 - Attend all class sessions on time.
 - Use your MASON e-mail account for all correspondence with the instructor.
 - Complete readings in advance of the class and participate fully in discussions, group, or individual classwork.
 - Submit all assignments to the class blackboard on time.
- **Mid-Term Examination (100 points):** The material 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 (200 points):** 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. This is a performance-based assessment.
 - a. **Overview/Introduction (25 points):** 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.
 - b. **Literature Review (25 points):** 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.

c. Development and Methods Plan (25 points): 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.

d. Pilot Study (50 points): 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.

e. Reflection (25 points): 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 (25 points): 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.

g. Adherence to APA 6th guidelines, grammar, and mechanics (25 points): The drafts and final report are written in accordance to APA writing and formatting guidelines.

Grading

There are a total 400 points for the course distributed among the four assignments listed above.

Grading scale:

A+ = 392 – 400 points

- A = 372 – 391 points
- A- = 360 - 371 points
- B+ = 352 - 359 points
- B = 332 – 351 points
- B- = 320 – 331 points
- C = 280 – 319 points
- F = 279 or fewer points

Professional Dispositions

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

Class Schedule

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

WEEK	TOPICS	READINGS/MULTIMEDIA	ACTIVITES/ASSIGNMENTS DUE
1	Aug 29, 2019	Introduction	Reading: Chapter 1 In-Class Activity
2	Sep 5, 2019	Ethical considerations The Basic Components	Reading: Chapter 2, Chapter 10 In-Class Assignment
3	Sep 12, 2019	Development of Assessments	Reading: Chapter 3 In-Class Assignment
4	Sep 19, 2019	Statistics for Measurement	Reading: Chapter 4 In-Class Assignment
5	Sep 26, 2019	Web Module: No Class Meeting Overview of Reliability, Validity, Utility Reliability	Reading: Chapter 5 In-Class Assignment
6	Oct 3, 2019	Reliability in Context Personality Assessment Guest Lecture: TBD	Reading: Chapter 8 Introduction and Lit. Review Draft (October 5, 9 am) In-Class Assignment
7	Oct 10, 2019	Validity Guest Lecture: TBD	Reading: Chapter 7 In-Class Assignment
8	Oct 17, 2019	Validity in Context Measurement of Intelligence	Reading: Chapter 11 In-Class Assignment
9	Oct 24, 2019	Mid-Term Exam (Blackboard)	No Class Meeting
10	Oct 31, 2019	Item Analysis/Test Development Item Development	Reading: TBD In-Class Assignment

11	Nov 7, 2019	Ed. Assessment Plan: Workshop	Reading: Chapter Project: Plan Due Nov 8, 9 am
12	Nov 14, 2019	Data Analysis Techniques	No Reading In-class activity
13	Nov 21, 2019	Utility	Project: Pilot Test, November 22, 9 am
14	Nov 28, 2019	Thanksgiving Day - No Class	
15	Dec 5, 2019	Utility in Context Measurement in Careers	Reading: TBD
16	Dec 12, 2019	No class meeting Project: Reflection & Final Paper Due December 13, 9 am	

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 <https://catalog.gmu.edu/policies/honor-code-system/>).
- 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://ds.gmu.edu/>).
- Students must silence all sound emitting devices 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/> .

Rubric: In-Class Assignments

Criteria	Unsatisfactory (0-2)	Minimal (3)	Competent (4)	Outstanding (5)
Connections to Coursework <i>Demonstrate connections to course concepts in the task</i>	does not include connections to course concepts	some connections to course concepts that may not be relevant.	adequate connections to relevant course concepts	clear and insightful connections to relevant course concepts
Analysis <i>For tasks that require analysis</i>	Analysis is incomplete or missing.	Analysis is general and addresses only some aspects of the task requirements	Analysis is complete and adequately addresses task requirements	Analysis is thorough and detailed; fully addresses task requirements
APA Style <i>Use APA style and formatting</i>	Uses concise, coherent, well-organized writing with correct APA style.	Writes with some lack of clarity and/or inconsistent APA style with some errors.	Writes with a lack of clarity and coherence, many errors, or incorrect APA style.	Writes with little clarity or coherence, many errors, and/or no use of APA style.

Note: The criteria will vary depending on the nature of the assignments/tasks.

Rubric: Measurement Project						
Project Component*	Standard	Does not meet standard Below 17.5 points Below 35 points	Approaching standard 17.5 – 20 points OR 35 – 40 points	Meets standard 20 to 22.5 points OR 40 – 45 points	Exceeds standard 22.5 – 25 points OR 45- 50 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	Includes all aspects of the component that are adequately addressed	Includes all aspects of the component that are addressed completely and exceptionally well	
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	Includes all aspects of the component that are adequately addressed	Includes all aspects of the component that are addressed completely and exceptionally well	
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;	
APA Style		Writes with a lack of clarity and coherence, many errors, or incorrect APA style. In-text and full references are not accurate or complete.		Uses concise, coherent, well-organized writing with correct APA style. In-text and full references are accurate and complete.		