

George Mason University
College of Education and Human Development
Educational Psychology

EDEP 531: DL1 – Educational & Psychological Measurement
3 Credits, Fall 2020

Aug 25 – Dec. 14, 2020 | Online - Tuesdays: 7:20 – 10:00 pm | TH- L014

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 100% online using a combination of asynchronous and synchronous format via Blackboard Learning Management system (LMS) housed in the MyMason portal. You will log in to the Blackboard (Bb) course site using your Mason email name (everything before @masonlive.gmu.edu) and email password. The course site will be available on **August 25, 2020**.

Under no circumstances, may candidates/students participate in online class sessions (either by phone or Internet) while operating motor vehicles. Further, as expected in a face-to-face class meeting, such online participation requires undivided attention to course content and communication.

Technical Requirements

To participate in this course, students will need to satisfy the following technical requirements:

- High-speed Internet access with standard up-to-date browsers. To get a list of Blackboard's supported browsers see:

https://help.blackboard.com/Learn/Student/Getting_Started/Browser_Support#supported-browsers

To get a list of supported operation systems on different devices see:

https://help.blackboard.com/Learn/Student/Getting_Started/Browser_Support#tested-devices-and-operating-systems

- Students must maintain consistent and reliable access to their GMU email and Blackboard, as these are the official methods of communication for this course.
- Students will need a headset microphone for use with the Blackboard Collaborate web conferencing tool. [Delete this sentence if not applicable.]
- Students may be asked to create logins and passwords on supplemental websites and/or to download trial software to their computer or tablet as part of course requirements.
- The following software plug-ins for PCs and Macs, respectively, are available for free download: [Add or delete options, as desire.]
 - Adobe Acrobat Reader: <https://get.adobe.com/reader/>
 - Windows Media Player:

<https://support.microsoft.com/en-us/help/14209/get-windows-media-player>

- Apple Quick Time Player: www.apple.com/quicktime/download/

Expectations

- Course Week: Because asynchronous courses do not have a “fixed” meeting day, our week will start on Tuesday, and finish on Monday. Our synchronous meetings take place as indicated on the Schedule of Classes, typically on Tuesdays between 7:20 pm and 10 pm.
- Log-in Frequency:

Students must actively check the course Blackboard site and their GMU email for communications from the instructor, class discussions, and/or access to course materials at least 5 times per week. In addition, students must log-in for all scheduled online synchronous meetings.

- Participation:

Students are expected to actively engage in all course activities throughout the semester, which includes viewing all course materials, completing course activities and assignments, and participating in course discussions and group interactions.

- Technical Competence:

Students are expected to demonstrate competence in the use of all course technology. Students who are struggling with technical components of the course are expected to seek assistance from the instructor and/or College or University technical services.

- Technical Issues:

Students should anticipate some technical difficulties during the semester and should, therefore, budget their time accordingly. Late work will not be accepted based on individual technical issues.

- Workload:

Please be aware that this course is **not** self-paced. Students are expected to meet *specific deadlines* and *due dates* listed in the **Class Schedule** section of this syllabus. It is the student's responsibility to keep track of the weekly course schedule of topics, readings, activities and assignments due.

- Instructor Support:

Students may schedule a one-on-one meeting to discuss course requirements, content or other course-related issues. Those unable to come to a Mason campus can meet with the instructor via telephone or web conference. Students should email the instructor to schedule a one-on-one session, including their preferred meeting method and suggested dates/times.

- Netiquette:

The course environment is a collaborative space. Experience shows that even an innocent remark typed in the online environment can be misconstrued. Students must always re-read their responses carefully before posting them, so as others do not consider them as personal offenses. *Be positive in your approach with others and diplomatic in selecting your words.* Remember that you are not competing with classmates, but sharing information and learning from others. All faculty are similarly expected to be respectful in all communications.

- Accommodations:

Online learners who require effective accommodations to insure accessibility must be registered with George Mason University Disability Services.

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

- 1) Coaley, K. (2014). *An introduction to psychological assessment and psychometrics* (2nd ed.). Thousand Oaks, CA: SAGE
- 2) American Psychological Association. (2020). *Publication manual of the American Psychological Association*. (7th Ed.). Washington, DC: Author.
- 3) SPSS Software: IBM Statistics GradPack (<https://www.ibm.com/us-en/marketplace/spss-statistics-gradpack/details>)

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.

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, ~14 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. The exam will be open textbook and notes and administered via Blackboard.
- **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 definition of the construct you will measure: (1) conceptually define your construct (2) operationally define the construct. Provide a brief introduction to the existing measures and discussion of the need for a new measure. The introduction will also describe the intended population, 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 and address 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 from each other? That is, what gaps or problems related to measurement does your scale address?* Identify whether your measure will include sub-constructs.

c. Development and Methods Plan (25 points): Develop a plan to write your items for your measure. You need to include a minimum of ten (10) items. Your plan describes the number of items that you will include and the scale that you will develop. The plan should also include details about administering the measure: online/paper, instructions, and the first draft of the items. Identify how you will select your sample for pilot tests. You may not administer the measure to 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 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.

f. Final Paper (25 points): Write your measurement report. 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. Track changes to show revisions based on instructor comments. Include your reflection section toward the end of the report. Follow APA guidelines.

g. Adherence to APA 7th 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	ACTIVITIES/ASSIGNMENTS DUE	Format
1	Aug 25, 2020	Introduction	Reading: Chapter 1 Discussion Board 1 In-Class Activity	Synchronous online via Blackboard Collaborate
2	Sep 1, 2020	Ethical considerations The Basic Components	Reading: Chapter 2, Chapter 10 Discussion Board 2 In-Class Assignment Due: Sep. 7, 11:59 pm	Asynchronous online
3	Sep 8, 2020	Development of Assessments	Reading: Chapter 3 Discussion Board 3 In-Class Assignment Due: Sep. 14, 11:59 pm	Asynchronous online
4	Sep 15, 2020	Statistics for Measurement	Reading: Chapter 4 In-Class Assignment	synchronous online

5	Sep 22, 2020	Overview of Reliability, Validity, Utility Reliability	Reading: Chapter 5 Discussion Board 4 In-Class Assignment Due: Sep. 28, 11:59 pm	Asynchronous online
6	Sep 29, 2020	Reliability in Context Personality Assessment	Reading: Chapter 8 Introduction and Lit. Review Draft In-Class Assignment Due: Oct. 5, 11:59 pm	Asynchronous online
7	Oct 6, 2020	Validity	Reading: Chapter 6 Small Group Discussion Board 5a In-Class Assignment Due: Oct. 12, 11:59 pm	Asynchronous online
8	October 13 – Fall break – no class			
9	Oct 20, 2020	Validity in Context Measurement of Intelligence	Reading: Chapter 7 Small Group Discussion Board 5b In-Class Assignment Due: Oct. 26, 11:59 pm	Asynchronous online
10	Oct 27, 2020	Mid-Term Exam (Blackboard)		Asynchronous online
11	Nov 3, 2019	Item Analysis/Test Development Item Development	Reading: Chapter 9 and Chapter 11 In-Class Assignment Due: Nov. 9, 11:59 pm Project: Plan Due Nov 10 11:59 pm	Asynchronous online
12	Nov 10, 2020	Ed. Assessment	No readings	Asynchronous online
13	Nov 17, 2020	Data Analysis Techniques	No Reading In-class activity	In person sign up/ synchronous online
14	Nov 24, 2020	Utility	Project: Pilot Test	In person sign up/ synchronous online
15	Dec 1, 2020	Utility in Context Measurement in Careers	Reading: TBD	synchronous online
16	Dec 8, 2020	Project: Reflection & Final Paper Due December 14 11:59 pm		

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

Core Values Commitment

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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 <https://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 <https://ds.gmu.edu/>).
- Students must silence all sound emitting devices during class unless otherwise authorized by the instructor. Please also remain on mute during synchronous sessions and use the ‘raise your hand’ feature to notify when you want to speak.

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 <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>

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.

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

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.		