

George Mason University
College of Education and Human Development
Educational Psychology

EDRS531: DLI – Educational & Psychological Measurement
3 Credits, Spring 2021
Jan 28 – April 29, 2021 | Online – Thursday 4:30 – 7:10 pm

Faculty

Name: Dr. Alexandra Patzak (she/her/hers)
Office Hours: Tuesday 4:00 – 5:00 pm or by appointment
Email: Blackboard email function

Prerequisites/Co-requisites

Recommended Prerequisites: EDRS 620, EDRS 621

Appropriate methods and advanced methods courses. Concurrent enrollment is also permitted.

University Catalog Course Description

EDRS 531 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. May not be repeated for credit.

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

This course will be delivered online (76% or more) using a mix of a synchronous and an asynchronous 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.

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.
- 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 Thursday, and finish on Wednesday. Our synchronous meetings take place as indicated on the Schedule of Classes, typically on Thursdays between 4:30 pm and 7:10 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.

Communication

The Blackboard site for this course is the primary channel of communication. Please check the Blackboard course regularly for updates (at least 5 times a week). Please use the Blackboard discussion board, email function, and office hours.

- Discussion board: Please check the discussion board regularly. You are strongly encouraged to post questions about assignments in the discussion board. You are likely not the only one with the same question. Consider the discussion board as an extra resource for getting extra help with assignments.
- Email communication should be restricted to questions related to sensitive, confidential information, such as questions about grades, personal circumstances requiring accommodations, etc.

- Emails will be returned within 2 business days and may not be returned on weekends/holidays.
- When you send an email to me, please put EDRS531 at the beginning of the subject line.
- Office hours provide the opportunity to ask and discuss questions about the course materials or activities you may have.

Should you have concerns that you may not be able to fully participate or engage in any of the activities listed below, please do not hesitate to contact me by e-mail. We can discuss alternative arrangements that suit your needs.

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:

1. Knowledge and use of APA style
2. Oral presentations
3. Poster presentations
4. Article abstracts
5. Research proposals
6. Literature reviews

7. 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

1. American Educational Research Association, American Psychological Association, and National Council on Measurement in Education. (2014). Standards for Educational and Psychological Testing. Washington, DC: Author.
2. Furr, M. (2018). Psychometrics: An introduction (3rd ed.). Thousand Oaks, CA: SAGE

Course Schedule

Class/ Week	Date	Topic	Activities	Activities Due
1	Jan 28, 2021	Introduction	Readings: Chapter 1 Assignment: Find A Topic	Feb 2, 2021, 11:59pm,
2	Feb 4, 2021	Ethical Considerations	Readings: Chapter 2, Chapter 10 Project: Introduction	Feb 9, 2021, 11:59pm
3	Feb 11, 2021	Development of Assessments	Readings: Chapter 3 Assignment: Annotated Literature Review	Feb 16, 2021, 11:59pm
4	Feb 18, 2021	Statistics for Measurement	Readings: Chapter 4 Project: Literature Review	Feb 23, 2021, 11:59pm
5	Feb 25, 2021	Reliability, Validity, Utility	Readings: Chapter 5 Assignment: Create A Plan	Mar 2, 2021, 11:59pm
6	Mar 4, 2021	Reliability in Context of Personality Assessment	Readings: Chapter 8 Assignment: Fine-Tune Your Plan	Mar 9, 2021, 11:59pm
7	Mar 11, 2021	Validity	Readings: Chapter 6 Project: Plan	Mar 16, 2021, 11:59pm
8	Mar 18, 2021	Validity in Context of Measuring Intelligence	Readings: Chapter 7 Assignment: Plan Pilot Testing	Mar 23, 2021, 11:59pm
9	Mar 25, 2021	Mid-Term Exam		
10	Apr 1, 2021	Item Analysis, Item and Test Development	Readings: Chapter 9, Chapter 11 Assignment: Plan Pilot Testing	Mar 30, 2021, 11:59pm
11	Apr 8, 2021	Educational Assessment	Assignment: Pilot Test	Apr 13, 2021, 11:59pm
12	Apr 15, 2021	Data Analysis Techniques	Project: Pilot	Apr 20, 2021, 11:59pm
13	Apr 22, 2021	Utility	Project: Reflection	Apr 27, 2021, 11:59pm
14	Apr 29, 2021	Learning Analytics, Project Reflection	Project: Final report	May 4, 2021, 11:59pm

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

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). You are expected to participate in in-class activities that are individual or small group assignments. Assigned readings are to be completed. Attendance is required. Please contact the instructor if you plan to miss a class. Late submission of assignments will lead to an automatic deduction of points from the participation score.
 - 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

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.

- a) Introduction (25 points): 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, i.e., 5 points for each part of the project): 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 components 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/policies-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/>.

Classroom Climate

You are encouraged to discuss and share ideas with your classmates. To facilitate a respectful and inclusive classroom climate, be open to explore and challenge each other's ideas without criticizing individuals. Diversity is a source of creativity and innovation and I ask that learners appreciate diverse perspectives, that they listen respectfully and let everyone speak. If you have concerns about the dynamics or classroom climate, please do not hesitate to bring them to my attention.

The College of Education and Human Development seeks to create a learning environment that fosters respect for people across identities. We welcome and value individuals and their differences, including gender expression and identity, race, economic status, sex, sexuality, ethnicity, national origin, first language, religion, age and ability. We encourage all members of the learning environment to engage with the material personally, but to also be open to exploring and learning from experiences different than their own.

Gender identity and pronoun use: If you wish, please share your name and gender pronouns with me and how best to address you in class and via email. I use she/her/hers for myself and you may address me as "Alexandra", "Prof. Patzak" or "Mrs. Patzak" in email and verbally.

Individual accommodations: Disability Services at George Mason University is committed to providing equitable access to learning opportunities for all learners by upholding the laws that ensure equal treatment of people with disabilities. If you are seeking accommodations for this class, please first visit <http://ds.gmu.edu> for detailed information about the Disability Services registration process. Then please discuss your approved accommodations with me. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email: ods@gmu.edu | Phone: (703) 993-2474.

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.

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 may vary depending on the nature of the assignments/tasks.

Rubric: Measurement Project

Project Component	Does not meet standard	Approaches standard	Meets standard	Exceeds standard
Introduction	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	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	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	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	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;	Includes four or more sections complete; key revisions were	All sections are adequately addressed; Revisions	All sections are adequately addressed in the revisions and

	Revisions/Corrections are omitted	omitted or inadequately addressed	demonstrate increased understanding of measurement concepts	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.	

Note. You will find more detailed information on Blackboard.