

George Mason University
College of Education and Human Development
Educational Psychology

EDEP 592: DL1 – Understanding Data in Data-Driven Decision Making
3 Credits, Fall 2020

Faculty

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Prerequisites/Corequisites:

Required prerequisite: None.
Recommended prerequisite: EDEP 591
Corequisite: EDEP 591

University Catalog Course Description

Provides a comprehensive understanding of educational data that drive decisions at the classroom and system level. Emphasizes understanding and evaluating technical qualities of data presented in a variety of forms, ethical issues related to gathering and using educational data, and the use of technology to support data use.

Course Overview

The course will provide in-depth coverage of the nature of ‘data’ in education. The course will focus on presenting students with a comprehensive understanding of educational data at the classroom level to system level. Students will understand: the nature of data and its connection to measurement concepts; the influence of policy, technology, and industry on the types of data educators engage with; ethical issues related to data use; federal policies on data privacy; understanding the principles of gathering high quality data, and evaluating the appropriateness of data sources for educational decisions. The course is application oriented, and students will develop technical skills related to engaging with quantitative and qualitative data; describe varied types and purposes of educational data, leveraging technology and data systems that enable effective data gathering and organizing for analysis and interpretation. Focus throughout is on ethical use of data supported by videos, case studies, and simulated datasets and scenarios.

Course Delivery Method

This course will be delivered online using 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. The course site will be available on August 15, 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.

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 Monday, and finish on Sunday.**
- **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 4 times per week.
- **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. Each week, you will read approximately 30 pages, complete online activities, work on assignments to be submitted through Blackboard, and take quizzes.

- 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 ensure accessibility must be registered with George Mason University Disability Services.

Course Logistics

Access to [MyMason](#) and Mason email are required to participate successfully in this course. Check the [IT Support Center](#) website. Please make sure to update your computer and prepare yourself to begin using the online format BEFORE the first day of class. Read the information under "Technical Requirements" above.

Though the delivery method is entirely online, it should take you the same amount of time as other 3-credit courses. You should **expect to spend an average of 8 to 10 hours on coursework for each class session** (this includes the time you would have spent in a classroom).

Learner Outcomes or Objectives

This course forms a foundation for the data literacy certificate courses in the sequence. As such, it will inform educators of the importance and role of data-driven decision-making (DDDM) to improve teaching and learning.

Emphasis is placed on the learning principles, cognitive processes, and psychometric principles as they pertain to instructional and assessment issues. Students should have a working knowledge of potential data sources and existing data from classrooms, schools, or at the district level.

By the end of this **asynchronous online course** students will be able to:

- Identify how data-driven decision-making is implied or made explicit in federal statutes and state assessment programs, particularly for the state where employed.
- Explain the differences between the conceptual frameworks underlying classroom and system level assessment data.
- Explain how data from these multiple frameworks are applied to inform decision making about learning and teaching.
- Demonstrate understanding of basic measurement and statistics concepts that enable educators to describe data and conduct data analysis.
- Understand characteristics of qualitative data used in instructional decision-making (e.g, data from systematic observations)
- Understand the role of technology in gathering and analyzing educational data at the system and classroom level.
- Understand ethical issues concerning educational data and data use.
- Explain the range of testing issues that educators confront and describe sound ways to handle those issues effectively.
- Discern critical issues related to the role of DDDM in public school accountability and high stakes testing including issues of social justice and equity

Professional Standards

Learner outcomes are consistent with the Educational Psychology Program standards. The standards, expressed as learner outcomes for assessment for data-driven decision making, are:

- Educators will demonstrate an understanding of principles and theories of learning, cognition, motivation, and development as they apply to a wide variety of contemporary assessment contexts.
- Educators will use their knowledge, skills, and dispositions to apply principles and theories of learning, cognition, motivation, and development to analyze and develop instruction based on sound assessment principles.
- Educators will demonstrate an understanding of the basic concepts, principles, techniques, approaches, and ethical issues involved in educational data use.

Student Outcomes & Relationship to Professional Standards

The student outcomes for the certificate are informed by standards for what teachers should know and be able to do established by various organizations:

1. [Standards for Teacher Competence in Educational Assessment of Students](#) (1990)
2. [Data Quality Campaign](#)
3. [Interstate New Teacher Assessment and Support Consortium](#) (InTASC)
4. [American Federation of Teachers](#)
4. [The Five Core Propositions of the National Board for Professional Teaching Standards](#)

Required Texts

Van Blerkom, M. L. (2017). *Measurement and statistics for teachers* (2nd ed.). New York, NY: Routledge.

Koretz, D. (2009). *Measuring up: What educational testing really tells us*. Cambridge, MA: Harvard University Press.

Johnson, J. H., & Gluck, M. (2016). *Everydata: The misinformation hidden in the little data you consume every day*. Brookline, MA: Bibliomotion.

Supplementary Readings

Selected readings will be assigned for the course and made available on Blackboard. These include:

Garner, B., Thorne, J. K., & Horn, I. S. (2017). Teachers interpreting data for instructional decisions: Where does equity come in? *Journal of Educational Administration*, 55(4), 407–426. Doi: <https://doi.org/10.1108/JEA-09-2016-0106>

Honan, E. (2015). Small data: Working with qualitative information in the literacy classroom. *Literacy Learning: The Middle Years*, 23(3), 57–68. Retrieved from: <https://www.alea.edu.au/resources/literacy-learning-the-middle-years-ll>

Mandinach, E., Parton, B., Gummer, E., & Anderson, R. (2015). Ethical and appropriate data use requires data literacy. *Phi Delta Kappan*, 96(5), 25–28. Doi: <https://doi.org/10.1177/0031721715569465>

National Forum on Education Statistics. (2010). *The forum guide to data ethics*. U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Park, V., St John, E., Datnow, A., & Choi, B. (2017). The balancing act: Student classroom placement routines and the uses of data in elementary schools. *Journal of Educational Administration*, 55(4), 390–406. Doi: <https://doi.org/10.1108/JEA-09-2016-0098>

Course Performance Evaluation

Students are expected to submit all assignments on time in the manner outlined by the instructor (e.g., Blackboard, Tk20, hard copy). Late assignments will not be accepted without prior instructor approval. An excused late submission will at best receive a grade of B (in points) for that assignment.

- **Class Participation (130 points, 13 class sessions).** Students will participate in online discussion boards in a meaningful way. Assigned readings are to be completed. Active contribution means you post in specified discussion boards and respond to classmates' posts meaningfully. Please review Netiquette in preparation for this class. Mini quizzes may be included in class participation and are usually aligned to assigned readings, videos, or other class materials.
- **Analysis of teaching-learning scenarios (TLS) (30 points total, six assignments).** Students will complete six scenarios/activities. Specific directions will be provided for

each scenario. Students will apply appropriate course concepts to complete these activities.

- **Module 2 Assignment (40 points):** Students will submit a 5-6 page double spaced 12 point Times New Roman font paper on one of the educational data kits (comprised of case study + dataset + report) to describe types of questions that can be asked and answered using the available information. The students will apply the concepts from Module 2 on fundamental statistics and qualitative data. Students will address reliability and validity issues as appropriate.
- **Module 3 Module Assignment (50 points):** Students will choose one of the case studies provided to develop a *Data Gathering, Management, and Analysis* plan. The paper will be 5-6 pages double-spaced 12” Times New Roman font. The paper will address the following: purposes of data use and the data sources that will be gathered, a plan for managing those data using technology-based tools, and a plan for systematic analysis.

Grading

There are 250 total points for the course distributed among the four assignments listed above.

- **Grading scale:**
 - A+ = 245-250 points
 - A = 232-244 points
 - A- = 225-231 points
 - B+ = 220-224 points
 - B = 207-219 points
 - B- = 200-206 points
 - C = 175-199 points
 - F = 174 or fewer points

Professional Dispositions

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

Class Schedule

MODULES	WEEKS	TOPICS	READINGS/MULTIMEDIA	ACTIVITIES/ASSIGNMENTS DUE AND DUE DATES
Module 1: Introduction to Educational Data	1 Aug 24 – Aug 30	Data in Education	Koretz, Chap 1, 2, 4 Johnson & Gluck, Chapter 1	Discussion Board/Activity 1
	2 Aug 31- Sep 6	Data in Education: Diverse Types of Data	Koretz Chapter 5 & 6 Johnson & Gluck, Chapter 3	Discussion Board/Activity 2
	3 Sep 14- Sep 20	Critical Issues: Educational Equity	Garner, Thorne, & Horn, 2017 Park, St John, Datnow, & Choi, 2017	Discussion Board/Activity 3 TLS 1: Equity Audit Case Study
	4 Sep 21- Sep 27	Data Quality	Koretz Chapter 3, Johnson & Gluck, Chapter 2	Discussion Board/Activity 4 TLS 2: Evaluating Data Quality
Module 2: Describing and Understanding Data	5 Sep 28- Oct 4	Levels of Measurement; Describing Data I – Understanding Summary Statistics – (frequencies, proportions)	Koretz Chapters 7, 8, 9 Johnson & Gluck Chapter 4, 5, 6 & 7 Van Blerkon - Chapter 18 TBD: Visualizing Data	Discussion Board / Activity 5 Week 5 TLS 3: Fundamental Statistics
	6 Oct 5 - Oct 11	Describing Data II: Summary Statistics (central tendency, variability, correlations)	Van Blerkon – Chapter 20 - 22	Discussion Board / Activity 6 Week 6 TLS 4: Fundamental Statistics II
	7 Oct 12- Oct 18	Describing Data III: Validity and Reliability	Van Blerkon - Chapter 2, 4, 5, 11	Discussion Board / Activity 7

	8 Oct 19 – Oct 25	Connecting Data and Data Use		Discussion Board / Activity 8
	9 Oct 26- Nov 1	Visualizing Data: Interpreting Charts & Graphs, Constructing Graphs	Van Blerkon – Chapter 19	Discussion Board / Activity 9 Week 9: Module II: Assignment Due
	10 Nov 2 – Nov 8	Qualitative Data Gathering Data Through Systematic Observations	Honan, 2015	Discussion Board/ Activity 10 TLS 5: Using Qualitative Data
Module 3: Ethics; Technology	11 Nov 9 – Nov 15	Ethical Use of Data: Policy	Koretz Chapter 10, 11 &12 TBD	Discussion Board/ Activity 11
	12 Nov 16 – Nov 22	Ethical Use of Data: Practice	NFES (2010) Mandinach et al (2015)	Discussion Board/ Activity 12
Nov. 23 - 29 Thanksgiving Break – no class				
	13 Nov 30- Dec 6	Technology, Industry and Data: Proliferation of data in schools/instituti ons	TBD Johnson & Gluck Chapter 8 & 9	Discussion Board/ Activity 13
	14 Decemb er 7 - 13	Technology to Help Gather, Compile, Analyze Data	TBD: Tools, Software for Data Management, Dashboards	TLS 6: Using technology for data management Discussion board: Wrap Up
	Dec 18			Module 3 Assignment Due

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

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 <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: Class Participation

Student participation is imperative to student learning and a successful class. The following rubric outlines how student participation scores will be determined in this course. All students are expected to demonstrate specific characteristics and actions throughout the semester. The quality and quantity of these actions will determine the points assigned for participation.

Students are expected to:

- a) Be well prepared for class by completing assigned readings.
- b) Participate fully in class activities and assignments – take an active part in small and large group online discussions (without dominating the conversations). Students will provide evidence of their engagement with video lectures by scoring at least an 80% on quizzes.
- c) Discussion Board: Make insightful comments, which are informed by required readings and demonstrate reflection on those readings. Specifically, students should come to the asynchronous class with questions, comments, and thoughts on the current readings.
- d) Treat class activities, group discussions, and class discussions as important components of the course, showing respect for fellow classmates and the course material.

Rubric: Analysis of Teaching and Learning Scenarios

Criteria	Outstanding (5)	Competent (4)	Minimal (3)	Unsatisfactory (0 - 2)
<p>Connections to Coursework <i>Demonstrate connections to course concepts in the analysis</i></p>	<p>The analysis makes clear and insightful connections to relevant course concepts (readings, video)</p>	<p>The analysis makes adequate connections to relevant course concepts</p>	<p>Analysis makes some connections to course concepts that may not be relevant.</p>	<p>Analysis does not include connections to course concepts</p>
<p>Analysis <i>Analyze the scenario and address the questions</i></p>	<p>Analysis is thorough and detailed; fully addresses task requirements</p>	<p>Analysis is complete and adequately addresses task requirements</p>	<p>Analysis is general and addresses only some aspects of the task requirements</p>	<p>Analysis is incomplete or missing.</p>

Module 3 Major Assignment: Data Gathering, Management, and Analysis plan

	Outstanding	Competent	Minimal	Unsatisfactory	Score
Purposes of data use (10 points)	Articulates a problem of inquiry or research/evaluation on question that can be addressed using a data inquiry cycle. Question is meaningful and considers equity related issues; centered on continuous improvement	Articulates a problem of inquiry or research/evaluation on question that can be addressed using a data inquiry cycle. Question is meaningful and considers equity related issues	Includes a problem of inquiry or research/evaluation on question that cannot be addressed fully using a data inquiry cycle; question needs is unclear; equity related issues are not adequately considered.	Does not include a problem of inquiry or research/evaluation on question.	
Data sources (10 points)	Provides multiple and diverse data sources; data sources are connected to the inquiry purpose; clearly describes technical characteristics of each data source. Includes a discussion of the quality of data including strengths and limitations	Provides relevant and diverse data sources; data sources are connected to the inquiry purpose describes technical characteristics of each data sources Includes a discussion of the quality of data including strengths and limitations	Describes data sources and technical characteristics without sufficient detail; only one or two data sources are included; data quality is not addressed fully	Does not describe data sources or includes data sources not connected to the problem of inquiry	
Data Management Plan (10 points)	Includes a detailed description of data gathering procedures and data management for all the data described in the data sources; ethical considerations are described.	Includes a good description of data gathering procedures and data management for all the data described in the data sources; ethical considerations are described	Includes an incomplete description of the data gathering and management procedures; ethical considerations are not included	Does not include a description of the data gathering and management procedures	
Technology-based tools (5 points)	Provides a detailed description of relevant technology tools that will be used for data gathering, management, and analysis.	Provides a good description of relevant technology tools that will be used for data gathering, management, and analysis.	Provides an incomplete description of relevant technology tools that will be used for data gathering, management, and analysis.	Does not provide or includes a partial description of relevant technology tools for data gathering, management, and analysis.	
Data Analysis	Provides a detailed plan for	Provides an appropriate plan	Provides a plan for data analysis	Does not provide a plan for data	

Plan (10 points)	data analysis appropriate for each data source given technical characteristics; visualization and communication considerations are appropriate.	for data analysis appropriate for each data source given technical characteristics; visualization and communication considerations are included.	that does not fully consider each data source and technical characteristics; techniques may be inappropriate and visualization and communication is not considered	analysis. Inappropriate data analysis techniques	
APA 7 th Formatting and Writing Style (5 points)	Uses concise, coherent, well-organized writing with correct APA style. (4-5 points)		0 points		