George Mason University
College of Education and Human Development
Learning Design and Technology (LDT)

EDIT751 001 – Perspectives on Learning Analytics
3 Credits, Fall 2023
Meets Totally Online

Faculty

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Prerequisites/Corequisites

None.

University Catalog Course Description

Explores perspectives on learning analytics and the shifting landscape related to the use of data, current trends and emerging technologies associated with the field of learning design and technology. Introduces the connections among learning and performance data, tools and techniques, technologies as well as emerging practices and methodologies in learning analytics. Offered by School of Education. May not be repeated for credit.

Course Overview

This course will provide students with opportunities to explore various perspectives in the field of learning analytics to improve their understanding of the origin and evolution of the field as well as the current state and emerging trends. Students will have the opportunity to map their own experiences and learning analytics data as an introduction to new perspectives and to increase their foundational knowledge in emerging tools and techniques. The course will be focused on a high-level understanding of terminology and the current state of the field as well as exploring future possibilities for learning and development including trends connecting educational data mining, learning analytics and artificial intelligence. Expert perspectives, examples, tools and techniques will be presented through weekly module activities and course assignments to familiarize students with definitions, concepts and processes related to this emerging field.

Course Delivery Method

This course will be delivered online (76% or more) 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 Thursday, August 17th, 2023.

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/Ultra/Getting_Started/Browser_Support
- 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 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.
    - Mural Collaboration Software – https://www.mural.co/. This software will provide the digital design studio workspace for remote collaborative work for this course.
    - Other optional software may be recommended.

Expectations

- Course Week:
  This course is an online course which means it encompasses asynchronous (not in real time) online sessions. Occasionally, we may hold optional, and not required, synchronous (in real time) sessions depending on the ebb and flow of the course. Because asynchronous courses do not have a "fixed" meeting day, our course will start on Thursday, August 24th, and proceed on a week-by-week basis from there. New content will be unlocked each Thursday spanning the duration of our 8-week/56-day course. We wrap up on Wednesday, October 18th, 2023.
- 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 3-4 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.
- 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 modular 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:

- Define basic terms and concepts in the field of learning analytics;
- Articulate the history and emergence of the field of learning analytics;
- Integrate multiple perspectives on learning analytics;
- Identify examples and software tools or techniques associated with learning analytics;
- Describe current and emerging trends in the learning analytics field;
- Apply basic data collection, analysis and interpretation skills with LMS learning analytics data;
- Identify and describe anonymous course level data; and
- Select and describe a learning and/or performance context and question with a plan to apply learning analytics for actionable insights.

Professional Standards (International Board of Standards for Training, Performance and Instruction) (IBSTPI):

Upon completion of this course, students will have met the following professional standards:

- Professional Foundations: Communicate effectively in visual, oral and written form.
- Professional Foundations: Apply Research & Theory: Apply concepts, techniques, and theories of other disciplines to learning and performance improvement.

- Professional Foundations: Apply data collection and analysis skills in instructional design projects.
- Planning & Analysis: Identify and describe target population and environmental characteristics.
- Planning & Analysis: Select & use analysis techniques for determining instructional content.

Required Texts

Srinivasa, K.G. & Kurni, M. (2021). *A beginner's guide to learning analytics*. Springer. ISBN: 9783-030-70257-1

Other readings and resources will be provided by your instructor in Blackboard Learn

Course Performance Evaluation

Students are expected to submit all assignments on time in the manner outlined by the instructor (*e.g.*, Blackboard Learn).

Weekly Module Activities (45%)

Completion of all Weekly Module Activities across 8 weeks – 45%
(*e.g.*, review of video and online resources, online discussion postings/comments, interactive activities, etc.).

Core Assignments (55%)

Assignment 1: Part 1: Reading/Understanding LMS Learning Analytics Data (10%)
Assignment 2: Part 2: Reading/Understanding Your Own Learning Analytics Data (10%)
Assignment 3: Learning Analytics Executive Summary/Business Case/Briefing (35%)

Assignments and/or Examinations

WEEKLY MODULE ACTIVITIES (45%):

Engaging in the weekly module activities is core to your success in this course. Module resources and activities have been carefully selected and sequenced to progressively build your knowledge about the field, practice and expert perspectives related to learning analytics. Varied examples, definitions and viewpoints are presented combined with discussions, interactive activities, and related resources to provide you with an opportunity to integrate a holistic understanding of the potential of learning analytics in the field of learning, design and technology across sectors. Participation in some of these designated modular activities will be tracked through the learning management system (LMS) to provide learning analytics data further demonstrating some of the concepts presented in this course. Please see the module folders for the related sequenced resources and activities. Students who do not engage, participate, or contribute with these activities and resources on a weekly basis will receive zero points in the applicable area or activity.

Module 1 Perspectives on Learning Analytics

View Resources and Participate in Activities

Module 2 Educational Data Mining, Learning Analytics and Data Requirements

View Resources and Participate in Activities

Module 3 Learning Analytics Data, Tools and Models

View Resources and Participate in Activities

Module 4 Technology Approaches to Learning Analytics and Artificial Intelligence in Education and Training

View Resources and Participate in Activities

Module 5 Pedagogy and Designing Learning Analytics Interventions

View Resources and Participate in Activities

Module 6 Current Trends in Learning Analytics

View Resources and Participate in Activities

Module 7 Future Trends in Learning Analytics

View Resources and Participate in Activities

Module 8 Data Visualization, Human-Machine Partnerships and Ethics

View Resources and Participate in Activities

ASSIGNMENT M2

Reading and Understanding LMS Learning Analytics Data – PART 1 (10%) – Due Week 2
In this assignment, the students will view, explain, and interpret basic learning analytics data that may be generated in a learning management system. The instructor will provide anonymized data reports from a learning management system (*e.g.*, Blackboard Learn) at the course level. Students will analyze typical class learning analytics data to understand what types of data are automatically collected from learning management systems behind the scenes as well as how to interpret this type of descriptive data. This assignment will be submitted as an Excel document in Blackboard.

ASSIGNMENT M3

Reading and Understanding LMS Learning Analytics Data – PART 2 (10%) – Due Week 3
In this assignment, the students will interpret data to provide recommendations. Students will engage in data manipulation as well as data sense-making and reflection connected to learning theory in order to generate ideas for actionable insights grounded in the learning analytics data. This assignment will be submitted as an Excel document in Blackboard.

ASSIGNMENT M8

Learning Analytics Executive Summary/Business Case/Briefing (35%) – Due Week 8 – October 18th, 2023.

In this final core assignment, you will integrate everything you have learned about learning analytics in order to deliver a final presentation to a hypothetical group of stakeholders. This final presentation should be in the form of an executive summary, business case or briefing - your choice. This presentation should contain the following:

- identify a relevant learning or performance context, the stakeholders associated with that context, and a question(s) you would like to address using learning analytics;
- justify what makes these questions worthwhile and why they are worth addressing;
- identify what data collection or analysis directions might you consider investigating further based on your current knowledge of learning analytics and who might you collaborate with to accomplish your goals;
- explain what actionable insights or recommendations might result
- explain what real-world impact your recommendations may have
- an argument that would convince your stakeholders of the value of learning analytics
- an answer to the question: how could you learn more about how to integrate learning analytics into this context?

This assignment will be submitted as a narrated **PowerPoint of 8-10 slides in Blackboard and should be between 10-15 minutes.**

Course Questions/Instructor Availability

Any course questions should be posted to the course question section on Blackboard for all class participants to view and benefit from the collaborative responses. The instructor will typically respond to the majority of questions/concerns on the day of the class allocated to that particular topic and remaining responses will likely occur periodically on Monday through Thursday.

Please note: Response to questions/concerns posted on Friday through Sunday will typically require some additional turn-around time.

Grading

Your final grade will be based on the following scale:

A = 94%-100%

A- = 90%-93%

B+ = 86%-89%

B = 83%-85%

B- = 80%-82%

C = 70%-79%

F = <70%

Professional Dispositions

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

Class Schedule

See the "EDIT 751 Course Schedule (PDF)" in our Blackboard Course shell.

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 VIA should be directed to viahelp@gmu.edu or https://cehd.gmu.edu/aero/assessments. 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, sexual harassment, interpersonal violence, and stalking:

As a faculty member, I am designated as a "Non-Confidential Employee," and must report all disclosures of sexual assault, sexual harassment, 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 or support measures 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/.

Assessment & Rubrics:

Weekly Module Activities (45%):

Criteria	**IBSTPI Standard**	**Does not Meet Standards**	**Meets Standards**	**Exceeds Standards**
MODULE 1: (Total possible points – 8)				
Posted a video summarizing experience with or questions about learning analytics. (4 points)	1 Prof Foundations: Communicate effectively in visual, oral and written form.	No evidence or limited description of experience and/or questions.	Evidence of some experience and/or questions described.	Evidence of significant and thoughtful integration of experiences and/or questions provided.
Posted descriptions of learning analytics with perceived potential and challenges. (2 points)	1 Prof Foundations: Communicate effectively in visual, oral and written form.	No evidence or limited description of potential and challenges.	Evidence of some potential and challenges described.	Evidence of significant and thoughtful integration of potential and challenges provided.
Commented on history of learning analytics in relation to improvement of learning. (2 points)	1 Prof Foundations: Communicate effectively in visual, oral and written form.	No evidence or limited comments.	Some comments provided reflecting history and improvement of learning.	Significant comments integrating history and related to improving learning.
MODULE 2: (Total possible points – 4)				

Discussed the different ways learner engagement may be modeled. (4 points)	2 Apply Research & Theory: Apply concepts, techniques, and theories of other disciplines to learning and performance improvement.	No evidence or limited evidence of discussion.	Evidence of discussion of ways learning engagement may be modeled.	Significant evidence of thoughtful discussion of ways learning engagement may be modeled.
MODULE 3: (Total possible points – 4)				
Applied learning analytics model to a system/tool data loop example with potential pedagogical/andragogical model. (4 points)	8 Planning & Analysis: Select & use analysis techniques for determining instructional content.	Limited or no application of learning analytics model and system analysis.	Evidence of application of learning analytics model and system analysis with analysis of theoretical model of learning and performance.	Significant evidence of application of learning analytics model and system description with analysis of theoretical model of learning and performance.

MODULE 4: (Total possible points – 4)				
Described value and challenges of big data, learning analytics and AI for education and training. (4 points)	2 Apply Research & Theory: Apply concepts, techniques, and theories of other disciplines to learning and performance improvement.	No description of value and challenges.	Adequate description of value and challenges.	Thorough description of value and challenges with thoughtful insights related to big data, learning analytics and AI.
MODULE 5: (Total possible points – 8)				
Selected example of program and description of incorporated and/or possible pedagogical approach or principles. (4 points)	2 Apply Research & Theory: Apply concepts, techniques, and theories of other disciplines to learning and performance improvement.	No evidence or limited example or description.	Adequate evidence of example of program and description of incorporated pedagogical approach or possible approach.	Thorough evidence of example of program and description of incorporated pedagogical approach or possible approach.
Discussed connections between and among learning design and learning analytics. (4 points)	8 Planning & Analysis: Select & use analysis techniques for determining instructional content.	No or limited evidence of connections between and among learning design and learning analytics.	Some evidence of stated connections between and among learning design and learning analytics.	Outstanding evidence of connections made between and among learning design and learning analytics.
MODULE 6: (Total possible points – 8)				
Described importance visualization of learning analytics. (4 points)	2 Apply Research & Theory: Apply concepts, techniques, and theories of other disciplines to learning and performance improvement.	No evidence or little evidence of described importance.	Evidence of meaningful description of importance of visualization in learning analytics.	Excellent evidence of insights and description of importance of visualization in learning analytics.
Applied of learning analytics framework to generate ideas for learning analytics in immersive environments. (4 points)	8 Planning & Analysis: Select & use analysis techniques for determining instructional content.	No evidence of little evidence of application of framework.	Evidence of application of learning analytics framework in immersive environments.	Significant evidence and thought related to application of learning analytics framework in immersive environments.
MODULE 7: Total possible points – 4				

Analyzed the HCAI framework to guide the design of human AI systems for learning analytics. (4 points)	2 Apply Research & Theory: Apply concepts, techniques, and theories of other disciplines to learning and performance improvement.	No evidence or little evidence of analysis.	Evidence of some analysis of the application of the HCAI framework may guide the design of human-AI systems for learning analytics.	Excellent evidence of some analysis of the application of the HCAI framework may guide the design of human-AI systems for learning analytics.
MODULE 8: (Total possible points – 5)				
Illustrated a personal concept map incorporating core constructs and processes from the course. (5 points)	2 Apply Research & Theory: Apply concepts, techniques, and theories of other disciplines to learning and performance improvement.	No evidence or limited examples of core concepts.	Adequate evidence of examples of core concepts.	Thorough evidence of examples of core concepts integrated with personal understandings.
Total Points Across Parts 1-8 (Total Evidence of All Weekly Module Activities) 45% of grade				**45 points**

LMS Learning Analytics Data Part 1 (10%)

Criteria	IBSTPI Standard	Does not Meet Standards	Meets Standards	Exceeds Standards
LMS Learning Analytics Data Part 1 (Total possible points – 10)				
Created a report of learning analytics and inferred meaning from data.	7 Planning & Analysis: Identify and describe target population and environmental characteristics.	No evidence of report creation.	Evidence of learning analytics report created with meaning inferred from data.	Detailed learning analytics report created with meaning inferred from data.

LMS Learning Analytics Data Part 2 (10%)

Criteria	IBSTPI Standard	Does not Meet Standards	Meets Standards	Exceeds Standards
LMS Learning Analytics Data Part 2 (Total possible points – 10)				

Interpreted personal data and explained online behavior to suggest improvements aligned with proxy variables related to online learning.	7 Planning & Analysis: Identify and describe target population and environmental characteristics.	Limited or no data documented or explanation.	Evidence of raw data documented with inferred explanations and suggested improvements for instruction and learning related to identified proxy variables.	Excellent evidence of data documented with inferred explanations and suggested improvements for instruction and learning related to identified proxy variables.

Learning Analytics Executive Summary/Business Case/Briefing (35%)

Criteria	IBSTPI Standard	Does not Meet Standards	Meets Standards	Exceeds Standards
Learning Analytics Executive Summary/Business Case/Briefing (Total possible points – 35)				
Integrated perspectives about learning analytics with required elements: 1. identify a relevant learning or performance context, the stakeholders associated with that context, and a question(s) you would like to address using learning analytics; 2. justify what makes these questions worthwhile and why they are worth addressing; 3. identify what data collection or analysis directions might you consider investigating further based on your current knowledge of learning analytics and who might you collaborate with to accomplish your goals; 4. explain what actionable insights or recommendations might result 5. explain what real-world impact your recommendations may have 6. an argument that would convince your stakeholders of the value of learning analytics 7. an answer to the question: how could you learn more	4 Professional Foundation: Apply data collection and analysis skills in instructional design projects.	Minimum assignment requirements are not met. Content lacks organization and/or is difficult to understand. Writing is unstructured, and/or hard to follow. Writing lacks clarity and suffers from excessive grammar, language, and punctuation errors or overall errors that significantly affect clarity. Assignment is delayed and no coordination with the instructor is made prior to the due date.	All required elements of the assignment are fully complete. Content is presented in an organized and easy to understand method. Writing is generally clear with minimal errors in grammar, language, and punctuation that do not affect clarity. Assignment is completed on time or may be slightly delayed as long as it is coordinated with the instructor well in advance of the due date.	All required elements of the assignment are fully complete, and student may go beyond the minimum requirements where appropriate (*i.e.*, greater than minimum response posts). Content is well-organized and easy to understand. Writing is clear and easy to follow with few or no grammar, language, or punctuation errors. Assignment is completed on time.

about how to integrate learning analytics into this context?				
Total Points- Learning Analytics Executive Summary/Business Case/Briefing 35% of grade				