

**GEORGE MASON UNIVERSITY  
COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT  
GRADUATE SCHOOL OF EDUCATION  
INSTRUCTIONAL DESIGN AND TECHNOLOGY**

EDIT 590 DL2: Educational Research in Technology  
3 Credits, Fall 2014  
Online Blackboard

**PROFESSOR(S):**

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**COURSE DESCRIPTION:**

**A. Prerequisites/Corequisites**

None

**B. University Catalog Course Description**

Focuses on developing skills, insights, and understanding basics to performing research with emphasis on interpretation, application, critique, and use of findings in educational settings. Students develop expertise in action research methodology, design, and implementation.

**C. Expanded Course Description**

This course introduces fundamental concepts and practices in educational research in technology. Educational research methods used to address problems involving educational technology will be covered. Readings, discussions, and project assignments systematically follow the research design process to ultimately produce a research proposal as well as develop skills to evaluate educational research articles as a consumer of research.

**DELIVERY METHOD:**

This course will be delivered online using an **asynchronous** format via the Blackboard learning management system (LMS) housed in the MyMason portal. You will log in to the Blackboard course site using your Mason email name (everything before “@masonlive.gmu.edu) and email password. The course site will be available on August 25, 2014.

There are two **highly recommended** but optional synchronous web meetings held via Bb Collaborate. See the schedule below for the time and dates of the online synchronous meeting component using the **Blackboard 9.1** course management system. Please plan to access the Blackboard site several times per

week. Access Blackboard 9.1 at <https://mymason.gmu.edu>. Your login and password is the same as your George Mason e-mail login. Once you enter, select EDIT 590 DL2 - Fall 2014 course.

### TECHNICAL REQUIREMENTS:

To participate in this course, students will need the following resources:

- High-speed Internet access with a standard up-to-date browser, either Internet Explorer or Mozilla Firefox. Opera and Safari are not compatible with Blackboard;
- 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 the course requirements.
- The following software plug-ins for PCs and Macs respectively, available for free downloading by clicking on the link next to each plug-in:
  - Adobe Acrobat Reader <http://get.adobe.com/reader>
- A headset microphone for use with the Blackboard Collaborate web conferencing tool

### EXPECTATIONS:

- **Course Week:** Because asynchronous courses do not have a “fixed” meeting day, our week will **start** on Monday, and **finish** on Monday, except for select Mondays when GMU classes are cancelled. On a week where classes are cancelled on Monday, the week will **start** and **finish** on Tuesday.
- **Log-in Frequency:** Students must actively check the course Blackboard site and their GMU email for communications from the instructor, at a minimum this should be 3 - 4 times per week.
- **Participation:** Students are expected to actively engage in all course activities throughout the semester, which include viewing of 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 are expected to seek assistance if they are struggling with technical components of the course.
- **Technical Issues:** Students should expect that they could experience some technical difficulties at some point in the semester and should, therefore, budget their time accordingly. Late work will not be accepted based on individual technical issues.
- **Workload:** Expect to log in to this course **at least 3-4 times a week** to read announcements, participate in the discussions, and work on course materials. Remember, this course is **not** self-paced. There are **specific deadlines** and **due dates** listed in the **CLASS SCHEDULE** section of this syllabus to which you are expected to adhere. It is the student’s responsibility to keep track of the weekly course schedule of topics, readings, activities and assignments due.

- **Advising:** If you would like to schedule a one-on-one meeting to discuss course requirements, content or other course-related issues, and you are unable to come to the Mason campus, we can meet via telephone or web conference. Send me an email to schedule your one-on-one session and include your preferred meeting method and suggested dates/times.
- **Netiquette:** Our goal is to be **collaborative**, not combative. Experience shows that even an innocent remark in the online environment can be misconstrued. I suggest that you always re-read your responses carefully before you post them to encourage others from taking them as personal attacks. **Be positive in your approach to others and diplomatic with your words.** I will do the same. Remember, you are not competing with each other but sharing information and learning from one another as well as from the instructor.

### **LEARNER OUTCOMES or OBJECTIVES:**

This course is designed to enable students to:

- Identify and understand different methods of educational research suitable for different research purposes in instructional design and technology
- Find, understand, evaluate, and apply published research that is relevant to their field
- Describe and discuss basic theories and methods of survey research in technology based research
- Describe and discuss basic theories and methods of qualitative research in technology-based research
- Describe and discuss basic theories and methods of quantitative experimental and quasi-experimental research in technology-based research
- Describe and discuss basic theories and methods of single-subject research in technology-based research
- Describe and discuss theories and methods of mixed-methods and action research in technology-based research
- Describe and implement most common tools for data analyses in quantitative and qualitative research methods
- Design a mini research study incorporating all research components such as literature review, relevant study purpose and appropriate research questions, detailed description of the methodology (e.g., quantitative, qualitative, etc.) and proposed data analysis
- Analyze and critique each element of the published research study

### **PROFESSIONAL STANDARDS:**

International Society for Technology Education – NETS for Technology Facilitators and Leaders

*TL-II Planning and Designing Learning Environments and Experiences*

Educational technology leaders:

(A) Design developmentally appropriate learning opportunities that apply technology-enhanced instructional strategies to support the diverse needs of learners. Candidates (1) research and disseminate project-based instructional units modeling appropriate use of technology to support learning.

(B) Apply current research on teaching and learning with technology when planning learning environments and experiences. Candidates (1) locate and evaluate current research on teaching and learning with technology when planning learning environments and experiences.

*TL-III Teaching, Learning, and the Curriculum*

Educational technology leaders:

(A) Use current research and district/state/national content and technology standards to build lessons and units of instruction. Candidates (2) investigate major research findings and trends relative to the use of technology in education to support integration throughout the curriculum.

*TL-IV Assessment and Evaluation*

Educational technology leaders communicate research on the use of technology to implement effective assessment and evaluation strategies. Educational technology leaders:

(B) Use technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning.

(C) Apply multiple methods of evaluation to determine students' appropriate use of technology resources for learning, communication, and productivity. Candidates (2) conduct a research project that includes evaluating the use of a specific technology in P-12 environments.

*TL-VI Social, Ethical, Legal, and Human Issues*

Educational technology leaders:

(B) Apply technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities. Candidates: (1) communicate research on best practices related to applying appropriate technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.

(C) Identify and use technology resources that affirm diversity. Candidates (1) communicate research on best practices related to applying appropriate technology resources to affirm diversity and address cultural and language differences.

(D) Promote safe and healthy use of technology resources. Candidates (1) communicate research and establish policies to promote safe and healthy use of technology.

(E) Facilitate equitable access to technology resources for all students. Candidates (1) use research findings in establishing policy and implementation strategies to promote equitable access to technology resources for students and teachers.

*TL-VIII Leadership and Vision*

Educational technology leaders:

(D) Lead in the development and evaluation of district technology planning and implementation.

Candidates (2) use evaluation findings to recommend modifications in technology implementations.

**REQUIRED TEXTS:**

McMillan J. (2011). *Educational research: Fundamentals for the consumer* (6th ed.). Boston: AB Longman.

The textbook will be used as a framework for the course. Additional readings relevant to the instructional design, instructional/assistive technology fields will be provided by the instructor.

**Recommended Text:**

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

## COURSE ASSIGNMENTS AND EXAMINATIONS:

### A. Requirements

Students will complete class readings to include a supplemental set of articles that reflect current educational research trends in technology and will explore different methodologies in published instructional design and technology research.

1. Participation - 10 points: Students will participate in all weekly class activities in order to practice literature searches, article summaries, article evaluations, and relevant research applications as well as be introduced to tools for data analysis. Weekly class activities support the development of their Research Proposal; these activities include summarizing research articles reviewed for the proposal, providing research article analyses, and providing constructive feedback to one classmate's draft research proposal. This work is specifically designed to help students prepare their final Research Proposal assignment one step at a time.
2. Skill Development Assignments - 30 points: Six assignments, at five points each, will be evaluated as significant accomplishments in developing skills as an educational technology researcher. These assignments are passing the CITI training, summarizing their research concept, analyzing one empirical research article relevant to their research study, summarizing research articles perused for their research proposal, selecting appropriate research methods, and presenting a brief summary of their research proposal.
3. Research Proposal - 30 points: During the course of the semester, students will develop a research proposal of benefit to the educational instructional technology community. The proposal will include the literature review, clearly identified study purpose and research questions, operationally defined variables, detailed research methodology (specific research design, appropriate participants/subjects, setting, materials, implementation procedures, and considered threats to validity and reliability) and proposed data analysis. This project is the research **PROPOSAL ONLY, NOT** to include actual research implementation.
4. Consumer of Research Report – 25 points: Students will critique an article in preparation of a research consumer paper. The paper will analyze and critique an empirical research article according to topic/problem significance, literature review, research purpose/questions, selected research design, participants, setting, instrumentation/materials, procedures, issues with validity and reliability of the study, data analysis, results and discussion. Students will be expected to apply research terminology learned in the course of study, critical thinking skills, as well as personal opinions and reflections.
5. Intelligent Consumer of Research Reflection Paper – 5 points: By the end of the course, you will be able to provide examples of what you've learned about being an intelligent consumer of educational research. In this paper, you'll describe what made an impression on you and why; what's the relevance or significance of this course content to you; how can you use this content in the future; how did this course change your way of thinking about educational research; what methodology aligns with your professional needs and why; or whatever was most meaningful, impressive, important, or significant to you.

\*Detailed descriptions and step-by-step instructions for each class activity and course assignments will be provided by the instructor and posted in the corresponding Learning Modules (Bb). All assignments must be submitted via Blackboard *on or before* the due date. **In fairness to students who make the effort to submit work on time, points will be deducted from your**

**grade for late assignments. Assignments will not be accepted more than 3 days late unless prior arrangements with the instructor have been made.**

## **GMU POLICIES AND RESOURCES FOR STUDENTS**

- a. Students must adhere to the guidelines of the George Mason University Honor Code (See <http://oai.gmu.edu/the-mason-honor-code/>)
- b. Students must follow the university policy for Responsible Use of Computing (See <http://universitypolicy.gmu.edu/policies/responsible-use-of-computing/>).
- c. Students are responsible for the content of university communications sent to their George Mason University 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.
- d. The George Mason University Counseling and Psychological Services (CAPS) staff consists of professional counseling and clinical psychologists, social workers, and counselors who offer a wide range of services (e.g., individual and group counseling, workshops and outreach programs) to enhance students' personal experience and academic performance (See <http://caps.gmu.edu/>).
- e. Students with disabilities who seek accommodations in a course must be registered with the George Mason University Office of Disability Services (ODS) and inform their instructor, in writing, at the beginning of the semester (See <http://ods.gmu.edu/>).
- f. Students must follow the university policy stating that all sound emitting devices shall be turned off during class unless otherwise authorized by the instructor.
- g. The George Mason University Writing Center staff provides a variety of resources and services (e.g., tutoring, workshops, writing guides, handbooks) intended to support students as they work to construct and share knowledge through writing (See <http://writingcenter.gmu.edu/>).

## **PROFESSIONAL DISPOSITIONS**

Students are expected to exhibit professional behaviors and dispositions at all times.

## **CORE VALUES COMMITMENT**

The College of Education & 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/>.

For additional information on the College of Education and Human Development, Graduate School of Education, please visit our website <http://gse.gmu.edu/>.

### PROPOSED CLASS SCHEDULE:

- Additional support activities and directions will be provided in Bb. Schedule subject to change.

Due Date	Learning Module Topic(s)	Textbook Readings, Activities, & Assignments Due
Tuesday, Sep 2 <i>Highly Recommended: Optional Collaborate meeting in Blackboard 6:00 – 7:00 pm</i>	1. Introduction to Research in Education (in instructional technology) and (b) Literature Searches	Instructor Mod 1 PPT (Bb) Discussion forum: Introductions (Bb) Ch. 1 (McMillan book) Pass CITI training (5 pts) Proposal (Bb): 1. General research topic area
Monday, Sep 8 <i>Highly Recommended: Optional Collaborate meeting in Blackboard 6:00 – 7:00 pm</i>	2. Research Problem Statements, Variables, Methods and Literature Review	Ch. 2 (all) and Ch. 3, pp. 58 – 73 (McMillan book) Proposal (Bb): 2. Preliminary research concept and two empirical study article examples Comment on <b>two</b> other student's research concept and empirical study article examples
Monday, Sep 15	3. Non-Experimental and Experimental Quantitative Research Designs	Ch. 7 and Ch. 8 (McMillan book) Consider reading Ch. 5, pp. 117-131 Proposal (Bb): 3. Draft research concept and search terms Proposal (Bb): 4. Draft article Perused Table
Monday, Sep 22	4. Qualitative Research Design & Mixed Methods Design	Ch. 10 and Ch. 11 (McMillan book) Proposal (Bb): 5. Final research concept (5 pts) Proposal (Bb): 6. One article analyzed



Due Date	Learning Module Topic(s)	Textbook Readings, Activities, & Assignments Due
Monday, Sep 29	5. Participants and Sampling	Ch. 4 (McMillan book) Proposal (Bb): 7. Draft participants and sampling Comment on one classmate's article summary
Monday, Oct 6	6. Data Collection Techniques	Ch. 6 (all) and Ch. 3, pp. 82 – 92 (McMillan book) Proposal (Bb): 8. Second 2 articles analyzed (5 pts) Proposal (Bb): 9. Draft data collection techniques
Tuesday, Oct 14	7. Action Research	Ch. 12 (McMillan book) Proposal (Bb): 10. Final Article Perused Table (5 pts)
Monday, Oct 20	8. Educational Measurement, Statistical Inferences	Ch. 5 and Ch. 9 (McMillan book) Proposal (Bb): 12. Draft data analysis techniques <b>*Complete availability poll, if you want to present in Collaborate</b>
Monday, Oct 27	Alignment between Research Questions, Method, and Design & APA formatting	APA Style Discussion Forum (Bb): Alignment between Research Questions, Method, and Design (5 pts)
Monday, Nov 3	9. Intelligent Consumers of Research	Ch. 13 and 14 (McMillan book) Proposal (Bb): 13. Draft research proposal <b>*Sign up for optional presentation time &amp; date</b>
Monday, Nov 10 <b>Highly Recommended: *Optional Collaborate meeting in Blackboard</b>	10. Consumers of Your Research Proposals 11.	Constructive feedback to one classmate's proposal Proposal (Bb): Research proposal presentation (5 pts) Choose one: <ul style="list-style-type: none"> <li>• Post link to recording with software of your choice (screen-o-matic, youtube, vimeo, etc.)</li> <li>• Present live* in Bb Collaborate</li> </ul>
Monday, Nov 17	12. Pulling it all together	Begin working on Consumer of Research Paper Revise draft research proposal
Monday, Nov 24	13. Consumer of Research Report	Email Consumer of Research Paper (25 pts) Revise draft research proposal
Monday, Dec 1	14. Research Proposals and Reflections	Proposal (Bb): 14. FINAL research proposal (30 pts) Proposal (Bb): 15. Reflection on being an intelligent consumer (5 pts)

\* Additional support activities and directions will be provided in Bb. Schedule subject to change.

## **ASSESSMENT RUBRIC(S):**

### **Rubric for Participation**

**Exemplary (8-10 points):** The student:

- Correctly completes and posts all activities on time;
- Actively participates and supports the members of the class. When appropriate, provides constructive feedback to classmates in a professional respectful manner.

**Adequate (3-7 points):** The student:

- Completes and posts the majority of the activities that are partially correct, partially on-time;
- Occasionally participates in discussions and provides limited feedback in a professional manner.

**Inadequate (1-3 points):** The student:

- Does not complete class activities;
- Does not actively participate in discussions and does not provide constructive feedback;
- Does not exhibit professional behavior.

### **Rubric for Skill Development Assignments**

#### **CITI Training**

- 5 points: passes and submits certificate
- 4 points: passes and submits certificate late
- 0 points: does not pass or does not submit certificate

#### **Summarized Research Concept**

- 5 points: submits concept that adequately describes all elements of their research, parsimoniously
- 3-4 points: submits concept that inadequately describes all elements of their research, verbosely
- 0-2 points: submits concept that inadequately describes some elements of their research or no submit

#### **Article Perused Table**

- 5 points: submits table having 10 or more references, more than five columns of data, and provides APA formatted references
- 3-4 points: submits table with at least five to nine references, at least four or five columns of data, and provides references but not in APA
- 0-2 points: submits table having less than five references, less than three columns of data, and does not provide references

#### **Article Summarized for Proposal**

- 5 points: submits summary describing multiple elements of the study, specifying how the article relates to your study theory, design, or methods, and summarizing results related to your study in a clear parsimonious writing style
- 3-4 points: submits summary describing some elements of the study, inadequately specifying how the

article relates to your study, and poorly summarizing results related to your study in a muddy verbose writing style

- 0-2 points: submits summary describing few or no elements of the study, does not specify how the article relates to your study, and does not summarize the results related to your study in a disorganized poor writing style

**Research Proposal Presentation**

- 5 points: presents content clearly, for required slides (format to be provided), within allotted time
- 3-4 points: presents content disorganized, for some slides, and extends past allotted time
- 0-2 points: presents but not to format or extends past twice the time allotted or does not present

**Online Discussion Forum**

- Total possible: 5 points
- Rubric Detail

Criteria	Levels of Achievement			
	Proficient	Competent	Novice	Missing
<b>Participation Weight 33.00%</b>	<b>100 %</b> Posts 4 or more comments parsed across the week	<b>89 %</b> Posts 3 or more comments parsed across the week	<b>70 %</b> Posts 3 or more comments not parsed across the week	<b>0 %</b> Posts less than 3 comments
<b>Required content Weight 34.00%</b>	<b>100 %</b> Posts nominally reflect initial entry and response requirements	<b>89 %</b> Posts reflect most of the initial entry and response requirements	<b>70 %</b> Posts clearly reflect all initial entry and response requirements	<b>0 %</b> Posts barely reflect initial entry and response requirements
<b>Correctness Weight 33.00%</b>	<b>100 %</b> Posts are either logical or correct	<b>89 %</b> Posts are generally logical and correct	<b>70 %</b> Posts are logical and correct	<b>0 %</b> Posts include substantial errors in logic and correctness

**Rubric for Research Consumer Paper**

<b>Criteria</b>	<b>Described &amp; Critiqued</b>	<b>Described Only</b>	<b>Missing</b>
1. Title, abstract	1	.5	0
2. Introduction of the topic and problem significance	1	1	0
3. Literature review	2	1	0
4. Research purpose/questions	2	1	0
5. Method			
a. Research design	2	1	0
b. Participants/Selection/Setting	2	1	0
c. Variables/Measures/Data Sources	2	1	0
d. Instruments/Materials	2	1	0
e. Data Collection Procedures	2	1	0
f. Validity and Reliability	2	1	0
6. Data analysis	1	.5	0
7. Results	2	1	0
8. Discussion	2	1	0
9. Overall review of the article and suggestions for Improvement	1	.5	0
10. Quality of paper presentation and writing:	Clear Parsimonious APA format 1	Muddy Verbose Partial APA .5	Disorganized Poor wording Not APA 0
Total Possible	25	12.5	0

**Rubric for Research Proposal**

Criteria	Points Possible	Points Received	Comments
Appropriate, significant, clearly described and justified research topic/problem (introduction)	4		
Appropriate previous research (lit. review section) <ul style="list-style-type: none"> <li>• at least 4 primary empirical research studies present (2)</li> <li>• studies are summarized and briefly analyzed <i>noting limitations of previous research</i> (4)</li> <li>• previous research is related to the proposed study (similar features across) and <i>there is an explicit statement about how existing research with its limitations justifies the proposed study</i> (4)</li> </ul>	10		
Appropriate, clearly described research purpose and research questions that fit the research problem	4		
Appropriate and clearly described methodology for the proposed study (method) <ul style="list-style-type: none"> <li>• appropriate research design that fits the research questions described in detail (4)</li> <li>• appropriate variables / phenomena clearly described including operational definitions and how they will be measured (4)</li> </ul>	8		
Overall clear, good writing in APA style, free of mechanical errors with references in APA format	4		

Total Possible      **30**

**Exemplary paper:** Appropriate topic, thorough and thoughtful purpose and research questions with appropriate previous research summarized and analyzed, appropriate and clearly described variables and appropriate research design suggested. Good writing style, free of mechanical or stylistic errors, appropriate use of APA format.

**Adequate paper:** Good overall paper, lacking in one or two of the criteria for an exemplary paper. Not entirely reflective and thoughtful, or minor writing style errors may be present.

**Marginal paper:** Overall, acceptable but with one or more significant problems. Contains some useful information but may have substantial problems with evaluation, writing style, unclear or inappropriate description of implementation of project.

**Inadequate paper:** Paper with substantial problems in important areas such as writing, proposed implementation of intervention, procedures for evaluation of results, or overall thoughtfulness; contains little or no information of value to the field of instructional design and technology.

**Unacceptable/no paper:** Paper with no value whatsoever relative to the assignment, or no paper submitted at all.

**Rubric for Intelligent Consumer of Research Reflection Paper**

Criterion	Points if Yes
Demonstrates reflection	1
Indicates content mastery	1
Well organized	1
Professional, academic tone	1
Free from grammatical, spelling, and mechanical errors	0.5
Meets 1 – 2 page requirement	0.5
Total	5

**Exemplary:** Demonstrates reflection, thoughtful and thorough, indicates content mastery and understanding of research, relates significance of research to professional practitioner performance, selects methodology aligned with professional needs, well organized, professional, mostly free from writing errors.

**Adequate paper:** Good overall paper, lacking in one or two of the criteria for an exemplary paper. Not entirely reflective and thoughtful, or minor writing style errors may be present.

**Marginal paper:** Overall, acceptable but with one or more significant problems. Contains some reflection and valuable connections but may have substantial problems with writing style, unclear or inappropriate description of implementation of information in professional contexts.

**Inadequate paper:** Paper with substantial problems with terminology, cursory insight, little or no information of value to professional performance as a practitioner in the field of instructional design and technology.

**Unacceptable/no paper:** Paper with no value whatsoever relative to the assignment, or no paper submitted at all.

**Grading Scale**

Grade	Range
A	94-100%
A-	90-93%
B+	86-89%
B	80-85%
C	70-79%
F	69%-below