

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

**EDIT 590 2D1 - Spring 2014
Educational Research in Technology
Hybrid Course**

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Catalog 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.

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.

Nature of Course Delivery:

This course is conducted as a hybrid including: (a) three mandatory face-to-face sessions (will be conducted on January 27th, March 24th; and April 14th at 4:30-7:10pm - see the schedule below for locations) and (b) an online 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 590-2D1 Spring 2014 course.

The weekly learning modules will run on a Tuesday through midnight Monday schedule. All new materials, readings, and assignments will be posted on Monday and students will be expected to complete and **submit** due assignments by **midnight on Monday** before the deadline. The instruction will be provided via regular and/or narrated PowerPoint presentations. Presentations, case studies, videos and additional appropriate readings will be provided under the **Learning modules** tab. Assignments and weekly activities will be completed using asynchronous tools such as **Discussion Forum, Blogs**, and/or **Wikis**.

In order to facilitate interaction, the instructor will be available by appointment for office hours by phone, Skype, or in person at Thompson Hall. In addition, **Frequently Asked Questions Blog** will be available to interact with each other by posting questions, comments, and responses. The instructor may also post questions with response to questions sent to the instructor but may be of general concern to classmates.

Learner Outcomes:

Upon completion of this course, students will be able 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.

College of Education and Human Development:*Student Expectations*

- Students must adhere to the guidelines of the George Mason University Honor Code [See <http://oai.gmu.edu/the-mason-honor-code/>].
- 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/>].
- Students must follow the university policy for Responsible Use of Computing [See <http://universitypolicy.gmu.edu/policies/responsible-use-of-computing/>].
- 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.
- Students must follow the university policy stating that all sound emitting devices shall be turned off during class unless otherwise authorized by the instructor.
- Students are expected to exhibit professional behaviors and dispositions at all times.

Campus Resources

- 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/>].
- 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/>].

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 [See <http://gse.gmu.edu/>].

Required Text:

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.

Class Readings, Activities, and Assignments with Due Dates:

Due Date	Learning Module Topic(s)	Textbook Readings, Activities, & Assignments Due
Monday, January 27	1. (a) Introduction to Research in Education (in instructional technology) and (b) Literature Searches <i>F2F, Thompson Hall, L018 4:30 – 7:10 pm</i>	Instructor Mod 1 PPT (Bb) Forum: Introductions (Bb) Ch. 1 (McMillan book) Proposal (Bb): General research topic area
Monday, February 3	2. Research Problem Statements, Variables, Methods and Literature Review	Ch. 2 (all) and Ch. 3, pp. 58 – 73 (McMillan book) Pass CITI training (5 pts) Proposal (Bb): Preliminary research concept Comment on two other student's research proposals
Monday, February 10	3. Non-Experimental and Experimental Quantitative Research Designs	Ch. 7 and Ch. 8 (McMillan book) Proposal (Bb): Draft research concept and search terms Proposal (Bb): Article Perused Table
Monday, February 17	4. Qualitative Research Design and Mixed Methods Design	Ch. 10 and Ch. 11 (McMillan book) Proposal (Bb): Final research concept (5 pts) Proposal (Bb): One article analyzed
Monday, February 24	5. Participants and Sampling	Ch. 4 (McMillan book) Proposal (Bb): Participant description, recruitment, and sampling Proposal (Bb): Two articles analyzed
Monday, March 3	6. Data Collection Techniques	Ch. 6 (all) and Ch. 3, pp. 82 – 92 (McMillan book) Proposal (Bb): One article analyzed (5 pts) Comment on one classmate's article summary
Monday, March 10	GMU School Vacation	

* 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
Monday, March 17	7. Mixed Methods and Action Research	Ch. 11 and Ch. 12 (McMillan book) Proposal (Bb): Final Article Perused Table (5 pts)
Monday, March 24	8. Consumers of Research <i>F2F, Thompson Hall, L018 4:30 – 7:10 pm</i>	Ch. 5 and pp. 379 – 382 (McMillan book) Research proposal presentation (5 pts)
Monday, March 31	9. Statistical Inferences and APA formatting	Ch. 9 (McMillan book) APA Style
Monday, April 7	10. Pulling it all together	Ch. 13 and 14 (McMillan book)
Monday, April 14	11. Consumers of Research <i>F2F, Thompson Hall, L018 4:30 – 7:10 pm</i>	Proposal (Bb): Draft research proposal Research proposal presentation (5 pts)
Monday, April 21	12. Consumers of Your Research Proposals	Constructive feedback to one classmate's proposal
Monday, April 28	13. Research Proposals DUE	Proposal (Bb): FINAL research proposal (40 pts)
Monday, May 5	14. Methods Review	Discussion Forum (Bb): Methods (5 pts)
Monday, May 12	15. Consumer of Research Report DUE	Email Research Consumer Paper (20 pts)

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

Course Requirements, Performance-based Assessment, and Evaluation Criteria:

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, summarizing research articles perused for their research proposal, analyzing one empirical research article relevant to their research study, presenting a brief summary of their research proposal, and participating in an online discussion forum on educational technology.
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. Research Consumer Paper - 30 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.

*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.**

B. Performance-Based Assessments

This course includes four performance-based assessments: participation, assignments (six), research proposal, and research consumer report.

C. Criteria for evaluation

Evaluation of each performance-based assessment are guided by a rubric as follows:

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 Research Consumer Paper

Criteria	Described & Analyzed	Described Only	Missing
1. Title, abstract	2	1	0
2. Introduction of the topic and problem significance	2	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	2	1	0
7. Results	2	1	0
8. Discussion	2	1	0
9. Overall review of the article and suggestions for Improvement	2	1	0
10. Quality of paper presentation and writing:	Clear Parsimonious APA format 2	Muddy Verbose Partial APA 1	Disorganized Poor wording Not APA 0
Total Possible	30	15	0

NOTE: This syllabus may change according to class needs.

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"> • at least 4 primary empirical research studies present • studies are summarized and briefly analyzed <i>noting limitations of previous research</i> • 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> 	10 (2) (4) (4)		
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"> • appropriate research design that fits the research questions described in detail • appropriate variables / phenomena clearly described including operational definitions and how they will be measured 	8 (4) (4)		
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 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

- 4-5 points: submits concept that 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

- 4-5 points: submits table having 10 or more references, more than five columns of data, and provides APA formatted references
- 3-4 points: submits table having five to nine references, 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

- 4-5 points: submits summary describing multiple elements of the study, specifying how the article relates to your study, 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

- 4-5 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

- 4-5 points: posts 4 or more comments parsed across the week that clearly reflect course content
- 3-4 points: posts 2 - 3 comments not parsed across the week that nominally reflects course content
- 0-2 points: posts none or one comment that does not reflect course content

Grading Scale

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

NOTE: This syllabus may change according to class needs.