GEORGE MASON UNIVERSITY
COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT
INSTRUCTIONAL TECHNOLOGY

EDIT 590 Fall 2010
Educational Research in Technology
Internet Course

Instructor: Dr. Anna Evmenova
Office phone: 703.993.5256
Office location: Finley Bld., Room 201B
Office hours: T and TR 2pm -4pm
Email address: aevmenov@gmu.edu

Course Description from the University Catalog:
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 describes fundamental concepts and practices in educational research in technology. Specific applications of educational research methods to problems in instructional design, instructional and/or assistive technologies will be covered. Emphases is on reviewing and critiquing technology-based research, as well as preparing research proposals for the needs assessment, usability testing, and/or classroom research for teachers.

Nature of Course Delivery:
This course is conducted entirely online using the Blackboard course management system. Assignments will be completed using asynchronous tools such as discussion boards. The weekly learning modules will run on a Thursday through midnight Wednesday schedule. All new materials, readings, and assignments will be posted on Thursday and students will be expected to complete and submit due assignments by midnight on Wednesday. The instruction will be provided via regular and/or narrated PowerPoint presentations, as well as podcasts. Case studies, videos and additional appropriate readings will be provided. Students will be divided into groups. During group activities, there will be a facilitator chosen from the group. Students will explore different research methods through the group wiki discussion/analysis of research articles provided by the instructor. Additional weekly activities and interactive quizzes will provide opportunities for participations and practice in independent library/literature searches and reviews, exploration of relevant research applications and tools for the data analyses. Students will individually develop a research proposal for the hypothetical/actual needs assessment and/or usability testing and/or classroom research based on their interests. Students will also individually critique a research article in preparation of the research consumer report.

Student 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/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.

Graduate School of Education Statements of Expectations:
All students must abide by the following:
- Students are expected to exhibit professional behavior and dispositions. See gse.gmu.edu for a listing of these dispositions.
- Students must follow the guidelines of the University Honor Code. See http://www.gmu.edu/catalog/apolicies/#TOC_H12 for the full honor code.
- Students must agree to abide by the university policy for Responsible Use of Computing. See http://mail.gmu.edu and click on Responsible Use of Computing at the bottom of the screen.
- Students with disabilities who seek accommodations in a course must be registered with the GMU Disability Resource Center (DRC) and inform the instructor, in writing, at the beginning of the semester. See www.gmu.edu/student/drc or call 703-993-2474 to access the DRC.

Required Text:

McMillan J. (2007). *Educational research: Fundamentals for the consumer* (5th 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 assigned and provided by the instructor.

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

A. Requirements –

1. 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/technology research.

2. Participation - 55% or 55 points:

    a. Class activities - 32% or 32 points (4 points each): Students will participate in class activities and interactive quizzes in order to practice literature searches, reviews, relevant research applications, and tools for data analysis.

    b. Group Research Analysis - 15% or 15 points: Students will develop group wiki pages guided by the wiki facilitator, in which they will collaboratively analyze and critique published articles (provided by the instructor) in instructional design/technology research utilizing various methodologies. The guidelines for research analysis will be provided and discussed during the corresponding Learning Module.

    c. Wiki Facilitator - 8% or 8 points: Students will serve as a wiki facilitator for their group research article analysis assignments during one week in the course. Facilitators will have an early access to the article and will need to confirm with the instructor that they are ready to facilitate the corresponding wiki page.

3. Research Proposal – 30% or 30 points: During the course of the semester, students will design a research proposal for the hypothetical needs assessment and/or usability testing and/or classroom intervention, which will include the literature review, clearly identified purpose of the study and research questions, detailed research methodology (specific research design, appropriate participants/subjects, setting, materials, implementation procedures, considered threats to internal and external validity) and detailed proposed data analysis. This project is the research proposal only, **not** to include actual research implementation. Students, who would like to actually implement the research study for extra points, need to contact the instructor early in the semester.

    a. As part of class activities, students will provide constructive feedback to at least one classmate on their literature review, method tweets, and the proposed research methodology draft.

4. Research Consumer Report: 15% or 15 points: At the end of the class, students will critique an article of their choice in preparation of research consumer report. The report will need to analyze and critique chosen article in the areas of topic/problem

significance, literature review, research purpose/questions, selected research design, participants, setting, instrumentation/materials, procedures, issues with internal/external validity 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.

Brief Description of Class Activities* (besides group research analyses)

Learning Module 1: Complete GMU Mandatory Training for Persons Conducting Research Using Human Subjects (http://www.citiprogram.org). Certification of completion document is due by September 9th.

Learning Module 2: Participate in the Literature Search Scavenger Hunt. As part of the activity find at least 5-7 RESEARCH (identification criteria will be provided) articles on your topic of interest.

Learning Module 3: Prepare a draft of the Literature Review that you will later use in your Research Proposal. Post your literature review on the blackboard. Provide constructive feedback to at least one of your classmates.

Learning Module 4: Start brainstorming your Research Proposal project. Post ideas for your research problem/statement, research questions, and method (research design, participants/subjects, settings, materials, procedures) in form of tweets on the blackboard. Provide constructive feedback to at least one of your classmates.

Learning Module 5: Explore existing survey tools (list will be provided by the instructor). Prepare an evaluation of one tool guided by the instructor's directions.

Learning Module 9: Complete an EXCEL/SPSS practice activity. Consider demonstrated statistical tests for the data analysis to be described in detail in your Research Proposal.

Learning Module 10: Post a draft of your Research Proposal project on the blackboard. Provide constructive feedback to at least one of your classmates.

Learning Module 11: Complete a Word/NVivo practice activity. Consider demonstrated qualitative data analysis procedures to be described in detail in your Research Proposal.

*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. 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, 5% of the total assignment points will be deducted each day from your grade for late assignments. Assignments will not be accepted more than 3 days late.** Allow additional time for as well as plan for additional participation during activities that require constructive feedback.

B. **Performance-Based Assessments -** This course includes five performance-based assessments: Online participation in class activities, group research analysis, wiki facilitator, research proposal, and research consumer report.

C. **Criteria for evaluation** - Assessment of each performance assessment is guided by a rubric. The rubrics are as follows:

Rubric for participation in Class Activities:
Exemplary (4 points): The student completes all activities on time; actively participates and supports the members of the learning group and the members of the class; when appropriate provides constructive feedback to at least one of the classmates in a respectful manner.
Adequate (1-3 points): The student completes the majority of the activities; actively participates in discussions and provides feedback occasionally and not over the entire course period.
Inadequate (0 points): The student does not complete class activities. The student does not actively participate in discussions and does not provide constructive feedback. The student may fail to exhibit professional behavior and dispositions.

Rubric for Participation in Online Collaboration and Group Research Analyses

Category	Exceeds Expectations 5 points	Meets Expectations 4 points	Does Not Meet Expectations 3 points or <
Quantity of Participation			
Takes responsibility for appropriate percentage of the group's wiki work			
Assists in combining, revising, and editing the group's wiki pages			
Quality of Participation			
Contributes work that is of graduate quality in content and format; cites sources/ uses quotes when appropriate			
Provides constructive feedback and valuable input through edits/changes to the group wiki page in a respectful manner			
Timeliness			
Meets activity deadlines			
Reads & responds promptly and regularly to group research analysis			
Average of points from above:			
Above & Beyond (*Optional; describe & add 1 point*):			
Comments:			

Research Proposal Rubric:
Exemplary paper (25-30 points): Appropriate topic, thorough and thoughtful purpose and research questions with appropriate previous research cited for replication and extension, appropriate and clearly described research design, participants, materials, data sources, implementation procedures, possible threats to internal and external validity, and careful detailed description of the proposed data analyses. Good writing style, free of mechanical or style errors.
Adequate paper (20-25 points): 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 (15-20 points): 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 (1-15 points): 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 field of instructional design/technology.
Unacceptable/no paper (0 points): Paper with no value whatsoever relative to the assignment, or no paper turned in at all.

Consumer Report Rubric:

	Well-Described & Complete	Needs Improvement	Missing
Quality of Report Presentation: Clear, concise writing, edited, follows format			
Quality of Critique Elements			
1. Topic/problem significance			
2. Literature review			
3. Research purpose/questions			
4. Method			
a. Research design			
b. Participants/subjects/setting			
c. Materials/instrumentation			
d. Procedures			
e. Internal/external validity			
5. Data analysis			
6. Results			
7. Discussion			
8. Personal reflections			

Grading Scale

Requirements	Percentage
Participation in class activities	32%
Group Research Analysis including facilitating wikis	23%
Research Proposal	30%
Research Consumer Report	15%

Grade	Point 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. If you need course adaptations or accommodations because of a disability or if you have emergency medical information to share with instructor or need special arrangements, please email and/or make an appointment with the instructor as soon as possible.

Tentative Class Topics and Due Dates
(Subject to change for any unforeseen interruptions)

Date	Learning Module	Textbook Readings*, Weekly Activities, & Assignments Due
Thursday, September 2	1. Introduction to educational research in technology	
Thursday, September 9	2. Literature searches and reviews	chapter 1 **CITI Training**
Thursday, September 16	3. Research components Part I: Research problems & participants	chapters 3, 4 **Literature Search Scavenger Hunt**
Thursday, September 23	4. Research components Part II: Measurements and procedures	chapters 2, 5 **Literature Review Draft & Peer Feedback**
Thursday, September, 30	5. Non-experimental quantitative research designs	chapters 6, 7 **Research Proposal: Method Tweets & Peer Feedback**
Thursday, October, 7	6. Survey research	chapter 8 (pp.186-204) **Exploration of Survey Tools**
Thursday, October, 14	7. Qualitative research design	chapter 8 (pp. 204-215) **Group Research Analysis: Non-experimental Study**
Thursday, October, 21	8. Experimental and single-subject research designs	chapter 11 **Group Research Analysis: Qualitative Study**
Thursday, October, 28	9. Tools for quantitative research analysis	chapter 9 **Group Research Analysis: Experimental Study**
Thursday, November, 4	10. Mixed-method and action research	chapter 10 **EXCEL, SPSS Practice Activity**
Thursday, November, 11	11. Tools for qualitative research analysis	chapter 12 **Research Proposal Draft & Peer Feedback**
Thursday, November, 18	12. Discussion and conclusions	chapter 13 **WORD, NVivo Practice Activity**
No Class – Thursday November 25th (Thanksgiving Break)		
Thursday, December, 2	13. Intelligent Research Consumer	**Research Proposal Due**
Thursday, December, 9	14. EDIT 590 memory lane	**Research Consumer Report Due**

* Additional readings will be provided by the instructor for each Learning Module.