GEORGE MASON UNIVERSITY
Graduate School of Education

Course Title: Emerging Educational Technologies (3.3.0)  
EDIT 750

Instructor: Dr. Kay R. McCarron  
Class Date and Time: Fall 2004 – Section 01 Wednesdays, 4:30 – 7:10

Class Location: Commerce I, 100

Contact Information and Campus Hours:  
Office Location: Commerce II 107B  Telephone: (703) 993-4177  
E-mail: kmccarro@gmu.edu  Fax: (703) 993-2722  
Office Hours: Tuesdays - Thursdays – 3:00 – 4:30 p.m.

COURSE DESCRIPTION

This course allows students to explore the arena of emerging technologies and to research the possible educational and corporate training applications of these technologies both now and in the future. Hands-on experiences with new technologies will focus on planning, design, implementation, and evaluation issues. Students will draw on their extensive knowledge of IT theoretical issues to discuss how new approaches to learning through the use of emerging technologies can be integrated into today’s K-12 classrooms, higher education and training in both the public and private sectors.

STUDENT OUTCOMES

At the conclusion of this course, students will be able to:

1. Research and experience the latest emerging technologies relevant to both teachers and trainers.
2. Describe a broad spectrum of current leading-edge research in educational technology, including the latest trends such as game-based learning.
3. Reflect on how innovations such as virtual and augmented realities, 3D virtual environments, intelligent tutoring systems, shared virtual environments, multi-sensory immersion, computer-supported collaborative learning, knowledge networking, and modeling and visualization can support improved teaching and learning.
4. Delineate the likely evolution of information technology in education over the next decade.
5. Describe and assess the challenges to educational equity posed by integrating emerging technologies into educational practice and plan strategies for overcoming these barriers.
6. Compare and contrast emerging technologies from the perspective of the corporate user and the K12 user.

7. Apply research techniques in gaining an in-depth understanding of an emerging technology most relevant to the student’s interest and career choice.

8. Create an innovative project based on the practical application of a cutting-edge technology relevant to the student’s area of interest.

RELATIONSHIP TO PROGRAM GOALS AND PROFESSIONAL ORGANIZATION

Technology Program and Profession Standards (ISTE NETS):

Within the Instructional Design and Development (ID&D) track, this course serves as a capstone class and adheres to the following National Educational Technology Standards (NETS) established by the International Society for Technology in Education (ISTE) under the National Council for the Accreditation of Teacher Education (NCATE).

I. TECHNOLOGY OPERATIONS AND CONCEPTS.

Teachers demonstrate a sound understanding of technology operations and concepts. Teachers:

B. demonstrate continual growth in technology knowledge and skills to stay abreast of current and emerging technologies.

II. PLANNING AND DESIGNING LEARNING ENVIRONMENTS AND EXPERIENCES.

Teachers plan and design effective learning environments and experiences supported by technology. Teachers:

B. apply current research on teaching and learning with technology when planning learning environments and experiences.

III. TEACHING, LEARNING, AND THE CURRICULUM.

Teachers implement curriculum plans, that include methods and strategies for applying technology to maximize student learning. Teachers:

C. apply technology to develop students' higher order skills and creativity.

V. PRODUCTIVITY AND PROFESSIONAL PRACTICE.

Teachers use technology to enhance their productivity and professional practice. Teachers:

B. continually evaluate and reflect on professional practice to make informed decisions regarding the use of technology in support of student learning.
NATURE OF COURSE DELIVERY

This course will utilize a combination of lectures, hands-on experiences, media, guest speakers, field trips, discussions, and projects to help participants understand how emerging technologies can empower educational reform, mastery of complex content, and the use of sophisticated pedagogies.

TEXT AND READINGS:

Required:


Suggested:


Electronic articles and supplementary readings provided by instructor. These reading assignments may be periodically updated on the course website.

COURSE WEB SITE:

[http://blackboard.gmu.edu](http://blackboard.gmu.edu)

COURSE REQUIREMENTS

The following are requirements for successful completion of this class.

A. Reflections/Reactions to Real and Virtual Class Experiences and Readings

Students will be expected to submit a series of personal reflections based on readings and interactive experiences within and outside of class. These reflections may include: (1) a brief synopsis of the experience/reading and the most salient information learned; (2) the relationship between this experience/reading with prior life experiences; (3) future applications of the technology; (4) how the experience/reading is applicable to current teaching/training models. The formats for these reflections will include personal student Weblogs, discussion boards, and virtual chat rooms.

The quality of these reflections will be based on a rubric submitted to students prior to the first due date.

B. Cutting-Edge Technology Research/Presentation
This assignment involves selecting a “cutting-edge” example of an emerging educational technology that is currently presented in the scientific literature/public media. Students will present the article describing the technology in an oral presentation that includes a detailed discussion of the technology, its current applications and future possibilities in learning environments. Students will be expected to have researched background information from at least 3 other sources on the topic and the history/theory behind the technology. Students will be expected to lead an active discussion either in class or via electronic formats on the importance of the technology.

The quality of these presentations/discussions will be based on a rubric submitted to students prior to the due date.

C. Interactive Project
Student teams will design, development and implement an educational game for K12 or corporate/private sector environments. These games will be based on current educational gaming literature. Student teams will interact with all of the games designed in this class and use their knowledge of educational game principles to evaluate the games of the other teams based on a rubric created by the class. Project points will be based on this rubric.

Each team will be required to submit a manual in addition to an electronic format of the game. The manual must include detailed instructions for the user, a discussion of the history and theoretical basis for this type of educational game and its potential as an instructional tool in learning environments.

D. Participation
Participation, both face-to-face and virtual, is assessed by both quality and quantity of interactions. Students will receive a full 30 participation points by actively participating in EDIT 750. Students are expected to participate fully in all classroom experiences (both real and virtual) and all fieldtrips. Specific requirements include the following:

- Attendance and participation in class sessions -- whether face-to-face or virtual -- is mandatory, as discussions and shared experiences are important parts of the course. The class schedule may change as the course progresses; changes will be posted on the Blackboard course website.
- Each student is expected to complete all readings, exercises, field trips, and written assignments, as well as to participate in class and electronic discussions.
- Students missing a class are responsible for completing any exercises, readings, etc. before the start of the next class. Students missing the due date for an assignment must make immediate arrangements with the instructor to fulfill that requirement before the next class meeting.
- To enable individualization of the course to the needs of each student, special arrangements on requirements and assignments may be negotiated in writing with the instructor. Revised assignments typically involve direct, extensive involvement in some project engaged in the design, development, implementation, or evaluation of an emerging educational technology.
• This is an advanced class; participants are expected to have substantial experience in using technology-based educational applications and a general background in educational theory and research methods. Students are expected to be in their final year of degree work.
• Internet access is required.
• If you have a documented disability and wish to discuss academic accommodations, please contact the instructor immediately.

For more specific grading information, see the participation rubric.

EVALUATION

This course is graded on an A, A-, B+, B, B-, C and F basis. Grades will be based on completion of course requirements and on the scope, quality and creativity of the assignments as specified in the assignment rubrics. Incompletes in the course will be given only under unusually extenuating circumstances.

Required Assignments and Values:

A. Reflections/ Reactions to Real and Virtual Class Experiences (50 possible points)
   a. Weblogs (35 possible points)
   b. Discussion Boards/ Virtual Chats (15 possible points)

B. Research Synthesis/ Presentation (20 possible points)

C. Interactive Project (100 possible points)

D. Participation (30 possible points)

Grading Scale (Points):

A   185-200
A-  180-184
B+  176-179
B   166-175
B-  160-165
C   140-159
F   Below 140
Course Topics and Schedule: NOTE: Any changes in the schedule and assignments will be announced on the Blackboard EDIT 750 Course Web Site. IMPORTANT: In case of inclement weather, classes will be held virtually rather than face-to-face. If in doubt, always check the Blackboard course site for the latest information.

<table>
<thead>
<tr>
<th>CLASS</th>
<th>DATE</th>
<th>CLASS ACTIVITY</th>
<th>ASSIGNMENTS For This Week</th>
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<tbody>
<tr>
<td>1</td>
<td>Sept. 1</td>
<td>• Welcome</td>
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<td>• Introduction to Course Format, Web Site, Syllabus, Schedule</td>
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<td>• What you expect to gain and what you can offer.</td>
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<td>• Workshop: What is an Emerging Technology?</td>
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<td>2</td>
<td>Sept. 8</td>
<td>• Wearable Computers/ Augmented Reality</td>
<td>1) Review Course Web Site</td>
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<td>• Guest Presentation: Dr. Jose L. Hernandez-Rebollar, George Washington University</td>
<td>2) Begin “Cutting-edge” Technology Research.</td>
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<td>• Human/ Computer Interactions</td>
<td>3) Begin your reading of <em>Prey: A Novel</em></td>
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<td>• Project Rubrics</td>
<td>4) Read augmented reality handout.</td>
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<td>3</td>
<td>Sept. 15</td>
<td>• Introduction to Simulations</td>
<td>1) Continue your reading of <em>Prey: A Novel</em></td>
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<td>• Introduction to my TI Virtual Office and Classroom</td>
<td>2) See additional assignments in Blackboard</td>
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<td></td>
<td>• Project Rubrics</td>
<td>3) Reflection Weblog Due</td>
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<td>• Workshop: GPS</td>
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<td>4</td>
<td>Sept. 22</td>
<td><strong>NO REGULAR CLASS:</strong></td>
<td>1) Complete your reading of <em>Prey: A Novel</em></td>
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<td>Students will complete at least 1 of the following during the week:</td>
<td>2) See additional assignments in Blackboard</td>
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<td>1. Experience a simulation (suggested sites to be given by instructor)</td>
<td>3) Reflection Weblog Due</td>
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<td>• NBC4 Digital Expo 2004 (Sept. 18-19)</td>
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<td>• Smithsonian Museums</td>
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<td>• Air and Space</td>
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<td><a href="http://www.nasm.si.edu/museum/udvarhazy/">http://www.nasm.si.edu/museum/udvarhazy/</a></td>
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<td>2. Find and participate in online simulations.</td>
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<td>(Your online experience should be at least a 3-hour experience.)</td>
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<td>You will describe your experiences in your Reflective Blog.</td>
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<td>5</td>
<td>Sept. 29</td>
<td>• “Cutting-edge” technology research presentations</td>
<td>1) Begin reading the Gee text: Chapter 1</td>
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<td>• Class discussion of simulation experiences: students will share experiences</td>
<td>2) Reflection Weblog Due</td>
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<td>• Artificial Intelligence</td>
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<td>• Discussion of <em>Prey: A Novel</em></td>
<td>3) Prepare your “Cutting-edge” technology research presentations</td>
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<td>Week</td>
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<td>Topics</td>
<td>Assignments</td>
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| 6    | Oct. 6  | * Introduction to Educational Games  
          * Workshop: Platform Games – Meet XBox                         | 1) Read Gee text: Chapters 2-3  
          2) Participate in Online Discussion Board  
          3) See additional assignments in Blackboard |
| 7    | Oct. 13 | * Class discussion of the Gee text.  
          * Online Immersive Environments  
          * MOO’S and MUD’S  
          * MOVEES (Multi-user Virtual Environments in Education)  
          * Workshop: Active Worlds                  | 1) Read Gee text: Chapters 4-5  
          2) Participate in Online Discussion Board  
          3) Reflection Weblog Due                   |
| 8    | Oct. 20 | NO REGULAR CLASS: Students will attend at least 1 of the following learning opportunities:  
          1) Lemelson Center’s 2004 symposium continuing its theme of ”Inventing Ourselves,” by exploring the enhancement of human beings through invention.  
          Friday, October 22  
          2) Actively participate in a special workshop presented by Kristine Neuber, Director of the GMU Assistive Technology Lab. | 1) Reflection Weblog Due  
          2) See additional assignments in Blackboard |
| 9    | Oct. 27 | * Class discussion of the Gee text.  
          * Introduction to Adobe Atmosphere  
          * The Use of Game Engines  
          * Choose teams for final project  
          * Digital Storytelling               | 1) Read Gee text: Chapters 6-8  
          2) Participate in Online Discussion Board  
          3) Reflection Weblog Due  
          4) See additional assignments in Blackboard |
| 10   | Nov. 3  | * Adobe Atmosphere  
          * Game Engines                                           | 1) See assignments in Blackboard |
| 11   | Nov. 10 | * Teamwork on Game Designs                                            | 1) See additional assignments in Blackboard  
          2) Teamwork on Game Designs  
          3) Reflection Weblog Due |
| 12   | Nov. 17 | * Project planning  
          * OPEN LAB                                               | 1) See additional assignments in Blackboard  
          2) Teamwork on Game Designs  
          3) Reflection Weblog Due |
| 13   | Nov. 24-26 | * THANKSGIVING BREAK                               | 1) See additional assignments in Blackboard  
          2) Teamwork on Game Designs  
          3) Reflection Weblog Due |
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<tr>
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<th>Dec. 1</th>
<th>OPEN LAB</th>
<th>Dec. 8</th>
<th>FINAL PROJECT PRESENTATIONS: LET THE GAMES BEGIN!</th>
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<td>• Peer Evaluations</td>
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<td>• Project Evaluations</td>
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<td>15</td>
<td>Dec. 8</td>
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<td>• Course Evaluation</td>
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**GSE Syllabus Statements of Expectations**

The Graduate School of Education (GSE) expects that all students 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.