GEORGE MASON UNIVERSITY  
College of Education and Human Development  

EDIT 750: Emerging Educational Technologies

Fall 2005, Mondays 4:30-7:10  
3 Credit Hours, Sec. 001

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Phone: 703-993-2069

Office Hours: Mondays and Tuesdays 3:00 - 4:00  
By appointment  
Fax: 703-993-2013

Course Description: This course examines a range of educational technologies expected to become important applications within the next three to eight years. The potential of these emerging technologies to improve practice and to alter the mission and content of education are assessed, and skills in strategic planning are developed.

Student Outcomes: At the conclusion of this course, students should be able to:

- describe a broad spectrum of current leading-edge research in educational technology
- depict how the "affordances" of information technology (e.g., distributed cognition, access across barriers of space and time, sophisticated representations) aid the educational process
- discuss how innovations such as hypermedia, intelligent tutoring systems, shared virtual environments, multisensory immersion, computer-supported collaborative learning, knowledge networking, and modeling and visualization can support improved teaching and learning
- delineate the likely evolution of information technology in education over the next decade
- describe the challenges to educational equity posed by emerging technologies and strategies for overcoming these problems
- assess the challenges of integrating advanced technologies into educational practice and plan strategies for overcoming these problems
- assess the challenges of integrating advanced technologies into educational practice and plan strategies for overcoming these barriers

Educational Standards: This course addresses the following International Society for Technology in Education (ISTE) National Educational Technology Standards (NETS):

I. TECHNOLOGY OPERATIONS AND CONCEPTS. Teachers demonstrate a sound understanding of technology operations and concepts. Teachers:
A. demonstrate introductory knowledge, skills, and understanding of concepts related to technology (as described in the ISTE National Education Technology Standards for Students)

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

VI. SOCIAL, ETHICAL, LEGAL, AND HUMAN ISSUES. Teachers understand the social, ethical, legal, and human issues surrounding the use of technology in PK-12 schools and apply those principles in practice. Teachers:

D. promote safe and healthy use of technology resources.

**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 students understand how emerging technologies can empower educational reform, mastery of complex content, and the use of sophisticated pedagogies.

**Texts and Readings:**

**Course Requirements:** Each student is expect to complete the following two written assignments along with their associated activities. Both a brief individual plan for each of the two assignments (submitted via email or the Blackboard Drop Box) and the assignments themselves are due on the dates specified in the Course Outline. In addition, participation in class and via electronic discussions counts for 20% of the grade; this is assessed by both quality and quantity of interactions.

1) **Research Synthesis (50%)**

This assignment involves selecting an emerging educational technology for detailed analysis; scanning the research literature and related materials for studies about this technology; experiencing hands-on usage of a typical application (if feasible); and synthesizing its merits, demerits, and likely evolution into an eight page paper.

After this paper is submitted, the assignment also involves making a ten minute oral presentation to the class about your findings. This talk/demonstration is required, but ungraded. If several students select the same emerging educational technology to study, longer joint presentations are encouraged. However, each person must submit an individual paper.

Examples of emerging educational technologies suitable for this assignment are given below. Emerging technologies were selected based on whether hands-on experiences or demos could be arranged and whether evaluation studies are available. Most of these resources evolved from research projects funded by the National Science Foundation and
therefore center on science and mathematics education. This list is illustrative, not inclusive; the instructor welcomes suggestions of other possibilities, especially those relating to other disciplinary fields such as the social sciences, literature, history, and the arts:

- **Moose Crossing**
- **The Concord Virtual high School**
- **Science Controversies Online (SCOPE)**
- **One Sky, Many Voices**
- **StageCast**
- **WhaleNet**
- **ImagiWorks**
- **Zoning in on Physics**
- **MUVEES**
- **Alice**
- **ActiveWorlds**
- **Bugscope**
- **ProbeSight**
- **ScienceSpace**
- **Seeing Math**
- **Virtual Manipulatives**

These technologies may also be used for this assignment. There are no evaluation reports on these technologies as they are new and have not yet been evaluated. Students choosing these technologies will need to do more research in order to assess potentials and limitations.

- **Podcasting**
- **Wikipedia**
2) Innovation Assessment and Implementation Plan (30%)

This first part of this assignment involves a) identifying an organization attempting to implement a (relatively) advanced educational technology, b) assessing the opportunities and challenges involved and delineating the underlying causes of problems encountered, and c) describing this situation in an eight page paper. After feedback from the instructor, the second stage of this assignment requires revising the first stage of the assignment (if necessary), then incorporating an additional six pages of analysis that detail implementation strategies for overcoming the problems and barriers described and discussing how these implementation strategies influence the causes underlying the obstacles.

Assessment:

Grades will be based on completion of course requirements and on the scope, quality, and creativity of the four assignments. Assignments are assessed using a rubric, which will be provided to students prior to assignment due dates. The extent and quality of contribution to the course asynchronous discussions count as 15% of the final grade and are not subject to revision; an interim grade will be provided at mid-semester for informational purposes. Incompletes in the course will be given only under unusual extenuating circumstances.

All work prepared outside of class will be assessed for content AND for presentation. Since this is a graduate level course, high quality work is expected on all assignments and in class. High quality means that words are properly spelled; punctuation is appropriate; sentences are complete; verb/subject, pronoun/antecedent agree; and writing is appropriately concise and clear. All written assignments must be completed on a word processor. Proofread all assignments and correct errors before submitting the final paper. All assignments are due at the beginning of class. Late assignments will not be accepted without making prior arrangements with the instructor.
### Grading Scale:

- **A** = 93 - 100
- **A-** = 90 - 92
- **B+** = 86 - 89
- **B** = 80 - 85
- **C** = 79 — 70
- **F** = Below 70

### Course Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>In Class Topics</th>
<th>Out of Class Assignments</th>
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</thead>
<tbody>
<tr>
<td>8/29</td>
<td>Introduction to class</td>
<td>Read: first half of <em>Prey</em></td>
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<td></td>
<td>Review syllabus</td>
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<tr>
<td>9/5</td>
<td><strong>Labor Day - No Class</strong></td>
<td>Read: second half of <em>Prey</em> Post introduction on <a href="https://blackboard.com">Blackboard</a></td>
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<tr>
<td>9/12</td>
<td>Blogging</td>
<td>Skim the <a href="https://educationpodcastnetwork.com">Education Podcast Network</a> Definition and background on <a href="https://rss.org">RSS Feeds</a> Read: <em>Into the Blogosphere: Rhetoric, Community, and Culture of Weblogs</em> Discuss reading in <a href="https://blackboard.com">Blackboard</a></td>
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<td>Fan Fiction</td>
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<tr>
<td>9/19</td>
<td>Learning about Podcasting</td>
<td>Skim <a href="https://www.fiction.net">Harry Potter fanfiction</a> Read: <em>Emerging Technologies</em> Discuss reading in <a href="https://blackboard.com">Blackboard</a></td>
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<td><strong>Research Synthesis Topic Due (via email)</strong></td>
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<td>9/26</td>
<td>Visualization Tools</td>
<td>Skim <a href="https://educationarcade.com">The Education Arcade</a> Skim <a href="https://pulse.com">Pulse</a></td>
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<tr>
<td>10/3</td>
<td>3-D Animation Tools</td>
<td>Skim <a href="https://activeworlds.com">ActiveWorlds</a></td>
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<tr>
<td>10/11</td>
<td>Virtual MOOs and MUDs</td>
<td>Read: <em>Students’ Motivation and Learning in a Multi-User Virtual Environment</em> Discuss reading in <a href="https://blackboard.com">Blackboard</a></td>
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<td>(Tuesday)</td>
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<tr>
<td>10/24</td>
<td>Virtual Reality Environments</td>
<td>Read: first half of <em>Utopia</em> Download and install <a href="https://skype.com">Skype</a> Download and install <a href="https://marratech.com">Marratech</a></td>
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<tr>
<td>Date</td>
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<tr>
<td>10/31</td>
<td>Virtual Conferencing tools</td>
<td>Note: This will be a virtual class. Students who do not have the equipment at home to use these virtual tools may access them on campus.</td>
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<tr>
<td>11/7</td>
<td>Robotics in Education</td>
<td>Skim <em>Handheld Devices for Ubiquitous Learning</em></td>
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<td>Skim <em>PDA Participatory Simulations</em></td>
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<td>11/14</td>
<td>Handheld Devices</td>
<td>Skim <em>Environmental Detectives</em></td>
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<td>Skim <em>MIT Handheld Augmented Reality Simulations</em></td>
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<td>Read: <em>A Platform for Augmented Reality Gaming</em></td>
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<td>Discuss reading in Blackboard</td>
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<td>11/21</td>
<td>Augmented Reality</td>
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<td>11/28</td>
<td>Student Presentations</td>
<td>Work on final project.</td>
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<tr>
<td>12/5</td>
<td>Student Presentations</td>
<td>All of Innovation Assessment and Implementation Due (via email)</td>
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<tr>
<td>12/12</td>
<td>Student Presentations</td>
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**CEHD Syllabus Statements of Expectations**

The College of Education and Human Development (CEHD) expects that all students abide by the following:

Students are expected to exhibit professional behavior and dispositions. See [http://gse.gmu.edu/facultystaffres/profdisp.htm](http://gse.gmu.edu/facultystaffres/profdisp.htm) 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](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](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](http://www.gmu.edu/student/drc) or call 703-993-2474 to access the DRC.

Students are asked to turn off all cell phones and beepers at the start of each class.