

TED 5314 - Current Topics – Concept-Based Science Education

Syllabus

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Office hours: By Appointment

Class Meetings

4:30 PM - 7:20 PM MTWR - Education Building Room 405

May 30, 2006 - June 22, 2006

Course Description

Concept-Based Science Education develops and applies understanding of field, community, and cultural resources and develops family and community partnerships in a relevant science context. Students develop a learning unit based on instructional models such as the learning cycle lesson design and the 5-E model. Concept-Based Science Education explores historical perspectives of science and the role of science in societal decisions. The class includes research-based principles in science learning and technology integration.

The class utilizes a Problem-based learning (PBL) approach to curriculum development and delivery. Problem-based learning (PBL) is an inquiry-based approach that can be defined as both a curriculum and a process. The curriculum consists of carefully selected and designed problems that engage the learner in the process of acquiring critical knowledge, developing proficiency in problem solving, engaging in self-directed learning, and participating in collaborative teams. This curriculum integration process engages students in collaborative research that can be shared in the classroom, across a community or around the globe. PBL features open-ended and cooperative activities that deal with real world issues and scenarios.

The curriculum approach will follow the Critical Thinking Curriculum Model (CTCM), which is a multidisciplinary approach designed to encompass computer technology, a current real world issue, and effective learning and teaching practices. As a PBL curriculum, it encompasses the political, social/cultural, economic, and scientific realms in the context of a global issue. In this way, students realize the importance of their schooling by applying their efforts to an endeavor that ultimately will affect their future.

Course Goals

- To provide opportunities to develop and apply critical thinking and problem solving skills through open ended approaches in meeting specific course objectives and goals
- To articulate the connections between scientific concepts and everyday life.
- To identify and articulate conceptual understandings and desired outcomes within a problem-based learning curriculum.
- To engage in class discussions and assignments that requires the integration of skills in content development and content delivery.

- To analyze and synthesize an understanding of course material in both classroom and online environments through multiple classroom interaction strategies.
- To increase understanding of technology integration in articulating a concept-based science education curriculum product.

Required Text

Lynn Erickson (2002) Concept-Based Curriculum and Instruction: Teaching Beyond the Facts, H. Corwin Press, Inc., Thousand Oaks, CA - ISBN # 0761946403 (paperback)

Required Software

Inspiration 7.5 (Educational or Full Version) is the professional choice for building concept maps and schematic diagrams. It provides a powerful combination of visual layout tools, import/export features, and diagramming of models. Students build graphic organizers to represent concepts and relationships and use the integrated outlining capability to further organize ideas for reports.

Other Course Materials

Additional Articles will be posted as links and/or as handouts for students to read prior and will be assigned regularly.

Grading

A: 90% - 100%, B: 80% - 89%, C: 70%-79%, D: 60%-69%, F: <60%

The overall grade for the class for each student will be calculated as follows: 20% Daily Attendance & Participation, 20% Short Research Papers, 20% Online Quizzes (2) and Discussions (3), 30% Final Product Development, 10% Final Product Presentation.

Academic Dishonesty

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another person's as ones' own. And, collusion involves collaboration with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. Violations will be taken seriously and will be referred to the Dean of Students Office for possible disciplinary action. Students may be suspended or expelled from UTEP for such actions.

Students with Disabilities

If you have or believe you have a disability, you may wish to self-identify. You can do so by providing documentation to the Office of disabled Student Services located in Union E Room 203. Students who have been designated as disabled must reactivate their standing with the Office of Disabled Student Services on a yearly basis. Failure to report to this office will place a student on the inactive list and nullify benefits received. If you have a condition which may affect your ability to exit safely from the premises in an emergency or which may cause an emergency during class, you are encouraged to discuss this in confidence with the instructor and/or the director of Disabled Student Services. You may call 747-5148 for general information about the Americans with Disabilities Act (ADA).

Instructions For Accessing Your Course Online

You must have an UTEP e-mail id and password before you can access WebCT.

UTEP automatically generates an e-mail id for you when you are entered into the system.

If you do not have your id or do not remember the id or password call the helpdesk first at (915) 747-5257

All the course content will be delivered via WebCT. You can access WebCT by following the steps outlined below

- Go to <http://my.utep.edu>
- **Your login is your e-mail id and your password is your e-mail password.**
- Once you are in the **my.utep** space, you can find the link to WebCT near the top of the webpage

In case the above URL does not work, you can do the following:

- Go to <http://WebCT.utep.edu>
- **Your login is your e-mail ID but your password is your goldmine password,** which is generally a 6 digit number. You need to have an UTEP e-mail ID to be able to access WebCT.

Once you are logged into WebCT, you will find all the courses you are registered for, under the appropriate semester.

Click on your course title to access the course.

Schedule

The class takes place from Tuesday, May 30th to Thursday June 22nd. Each day will include activities and discussion based around tools and techniques which can enhance courses delivered via technology. The basic schedule is as follows:

- 4:30 PM-5:00 PM** **Daily Recap & Experience Sessions** – immediate, hands-on sessions to introduce a core concept for the day
- 5:00 PM-6:00 PM** **Think Sessions** – Presentations and discussions about the core concepts
- 6:00 PM-6:15 PM** **Break**
- 6:15 PM-7:15 PM** **Learning the Technology** – Workshops for learning the actual technological tools needed to apply the core concepts
- Development Sessions** – open discussions about the day and homework assignments

Date	In-class activity	Online activity	Homework
Tuesday, May 30 th	<p>Introductions and Class Overview</p> <p>Syllabus Review and Class Web site overview</p> <p>Problem-Based Learning Introduction and Overview</p>	<p>Use of MySpace and WebCT at UTEP for Class materials</p> <p>Introductions using WebCT discussion boards</p>	
Wednesday, May 31 st	<p>Inspiration Instruction and Practice</p> <p>The Critical Thinking Curriculum Model</p>	<p>Inspiration Overview and Hands-on Practice – Handout and CD for each student (update from Web development course)</p> <p>Seminars on Science Research</p>	<p>Read Chapter 1 in <u>Concept-Based Curriculum and Instruction: Teaching Beyond the Facts</u></p>
Thursday June 1 st	<p>Inspiration Products – Concept Maps of PBLs to National and State Standards</p> <p>Guiding Questions for Reflection Papers 1 - discussion</p>	<p>Seminars on Science Research – guided login using “demo” and “demo”</p> <p>Research into Problem-Based Science Sites - Links</p>	<p>Read Chapter 2 in <u>Concept-Based Curriculum and Instruction: Teaching Beyond the Facts</u></p>
Monday June 5 th	<p>ONLINE CLASS ONLY</p> <p>No FACE To FACE Meeting</p>	<p>Discussion 1 on Principles of Problem Based Learning – due by June 5 at 9 PM</p>	<p>Read Chapter 3 in <u>Concept-Based Curriculum and Instruction: Teaching Beyond the Facts</u></p>

Date	In-class activity	Online activity	Homework
Tuesday June 6 th	Overview of Technology Tools – MS Word, MS PowerPoint	Classroom Development of PBL	Identify PBL topic and share on 6/8 in class Continue Working on PBL identification and project for presentation
Wednesday June 7 th	PBL Review and Questions Guiding Questions for Reflection Papers 2 - discussion	Classroom Development of Problem-Based Learning Final Products	Student Development (on your own) of Problem-Based Learning Final Products
Thursday June 8 th	Sharing of PBL Topics	Reflective Paper 1 Due in WebCT – due by June 8 at 9 PM	Student Development (on your own) of Problem-Based Learning Final Products
Monday June 12 th	ONLINE CLASS ONLY No FACE To FACE Meeting	Discussion 2 on PBL and Concept Design – due by June. 12 at 9 PM Classroom Development of PBL	Read Chapter 4 <u>Concept-Based Curriculum and Instruction: Teaching Beyond the Facts</u> Continue Working on PBL identification and project for presentation
Tuesday June 13 th	Project and Presentation Overview and Rubrics Class Development of PBL Final Products	Quiz 1 on Chapters 1-3 of <u>Concept-Based Curriculum and Instruction: Teaching Beyond the Facts</u> - In WebCT – due by June 13 at 9 PM	Continue Working on PBL identification and project for presentation

Date	In-class activity	Online activity	Homework
Wednesday June 14 th	Class Development of PBL Final Products		Read Chapter 5 <u>Concept-Based Curriculum and Instruction: Teaching Beyond the Facts</u>
Thursday June 15 th	Class Development of PBL Final Products	Reflective Paper 2 Due on assignments section in WebCT – due by June 15 at 9 PM	Student Development (on your own) of Problem-Based Learning Final Products
Monday June 19 th	ONLINE CLASS ONLY No FACE To FACE Meeting	Discussion 3 on the Relevance in Creating Integrated PBL Units – due by June 19 at 9 PM	Continue Working on PBL identification and project for presentation
Tuesday June 20 th	Project and Presentation Preparation Sharing of PBL Topics	Quiz 2 on Chapter 4-5 of <u>Concept-Based Curriculum and Instruction: Teaching Beyond the Facts</u> – due by June 20 at 9 PM	Continue Working on PBL identification and project for presentation
Wednesday June 21 st	PBL Review and Questions Final Topics overview Class Development of PBL Final Products		Student Development (on your own) of Problem-Based Learning Final Products
Thursday June 22 nd	PBL Product Finalized and Delivered Class Presentations	PBL Product Finalized and Delivered Class Presentations	