

PTED 7281-10**INDEPENDENT PROJECT:****LF08 SCIENCE TECHNOLOGY**

Semester Hours: 3

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COURSE DESCRIPTION

Prerequisite: Bachelor's Degree and Academic Advisor's Approval

This course provides overviews of a number of different modern technologies and applications to inquiry based science based instruction. Participants will have opportunities for hands on experience with each different type (including but not limited to interactive whiteboards, graphing calculators and sensors, iPods/MP3 players, robots, digital still and video cameras, and digital microscopes. As a culminating assignment participants are required to develop detailed plans for a project (appropriate for their teaching assignment) which can be used to engage their students in the use of one or more forms of technology.

CONCEPTUAL FRAMEWORK

The conceptual framework of the College of Education UWG forms the basis upon which programs, courses, experiences, and outcomes are created. By incorporating the theme "Developing Educators for School Improvement," the college assumes responsibility for preparing educators who can positively influence school improvement through altering classrooms, schools, and school systems (transformational systemic change). Ten descriptors (decision makers, leaders, lifelong learners, adaptive, collaborative, culturally sensitive, empathetic, knowledgeable, proactive, and reflective) are integral components of the conceptual framework and provide the basis for developing educators who are prepared to improve schools through strategic change. National principles (INTASC), propositions (NBPTS), and standards (Learned Societies) also are incorporated as criteria against which candidates are measured. Depending on the specific nature of the independent project, students would address one or more of the NBPTS propositions.

The mission of the College of Education is to develop educators who are prepared to function in diverse educational settings with competencies that are instrumental to planning, implementing, assessing, and re-evaluating existing or proposed practices. This course's objectives are related directly to the conceptual framework and appropriate descriptors, principles or propositions, and learned societies standards are identified for each objective. Class activities and assessments that align with course objectives, course content, and the conceptual framework are identified in a separate section of the course syllabus.

COURSE OBJECTIVES:

Participants will:

1. Discuss the scientific literature regarding the use of technology for inquiry based science instruction.
2. Demonstrate the basic knowledge and skills required to use the technologies presented.
3. Discuss applications of these and other technologies to enhance inquiry in lessons based on Science Georgia Performance Standards.
4. Explore sources of possible grants and other funding sources to assist with the acquisition of technology and/or technology training for classroom applications.
5. Apply the knowledge and skills gained to develop and present an inquiry based, technology enhanced student project based on Science Georgia Performance Standards with appropriate assessment/evaluation instruments.

TEXTS, READINGS, AND INSTRUCTIONAL RESOURCES

Georgia Department of Education. (2005). Georgia Performance Standards. Atlanta, GA.

Heller Research Associates. (2005). Impact of Handheld Graphing Calculator Use on Student Achievement in Beginning Algebra. Oakland, CA: Joan Heller, Deborah Curtis, Rebecca Jaffe, and Carol Verboncoeur.

Millar, Mark (2005). Technology in the Classroom. *The Science Teacher*, October, 23-41.

National Committee on Science Education Standards and Assessment and the National Research Council,(1995). *National Science Education Standards*. Washington, DC: National Academies Press.

Laine, Phyllis (2003).The use of instructional technology to learn and teach science is a natural approach for today's undergraduate. *The Journal of Interactive Online Learning*, Vol. I, No.

Annetta, Leonard A.,Michelle Cook, and Maya Schultz (2007). Video Games: A Vehicle for Problem-based Learning. *eJournal of Instructional Science and Technology*.Vol. I, No. 10.

LINK TO CONCEPTUAL FRAMEWORK

This course provides an extensive study of the PTED learner, the school curriculum, and selected methods and techniques of instruction and organization appropriate for the selected PTED school setting in light of current trends and issues. The instructor determined assignments will serve as a synthesis for nearly every one of the descriptors found in the COE conceptual framework. Students taking this course are graduate students currently in classroom settings. Field experience related assignments will be drawn from their individual school setting. Assignments and discussion should assist them in internalizing the framework concepts. Collectively, the assignments for this course should allow the students to demonstrate achievement in the areas to be determined by the instructor.

ASSIGNMENTS, EVALUATION PROCEDURES, AND GRADING POLICY

1. **Class Participation.** Participants are expected to attend all sessions of the Learning Festival classes (30 hours) as well as the follow up classes (15 hours). Attendance at the Learning Festival classes will be documented on a log sheet signed by the presenters.
10 points
2. **Course Reflection Log.** The sessions attended each day will be summarized and should include name/contact for the presenter, significant technical and instructional information about the technology presented, resource information, and further ideas to investigate.
20 points
3. **Discussion Board.** Participants will be responsible for locating and sharing information from literature regarding the use of technology to enhance inquiry based science lessons.
15 Points
4. **Student Project/Lesson Plan.** Participants will be expected to develop a grade/subject appropriate inquiry, technology-enhanced project based on Science Georgia Performance Standards. One lesson plan will be outlined in detail incorporating significant student use of one of more of the technologies explored in the course.
20 points
5. **Presentation and Peer Review.** In group settings, students will share their project/lesson plan and will provide peer feedback for suggested improvements.
20 points
6. **Final Evaluation.** Students will complete a pre/post assessment on classroom use of technology for inquiry based science instruction.
15 points

CLASS OUTLINE

Date	Class Activities
6/2/08	AM – Attend 2 concurrent science related sessions PM - Pre-Assessment; Videocameras and Science Instruction
6/3/08	AM – Attend 2 concurrent science related sessions PM - iPods/MP3 Players and Science Instruction
6/4/08	AM – Attend 2 concurrent science related sessions PM - Imaging the “Small” World with Digital Microscopes
6/5/08	AM - Attend 2 concurrent science related sessions PM - Graphing Calculators/Sensors for Data Collection and Analysis

6/6/08	AM - Attend 2 concurrent science related sessions PM - Exploring Science with Interactive Whiteboards
6/9-6/13 6 hrs	Online – Discussion Board sharing web resources and literature on use of technology for inquiry based science instruction; Live Classroom – advice on lesson plans
6/16-6/20 6 hrs	Online - Live Classroom – discussion of grant sources and grant writing; Discussion Board sharing sources for grants
6/23-6/27 Exact date tba 3 hrs	Face to face meeting to present project/lesson plan and to complete post-assessment

ACADEMIC HONESTY

Students are expected to adhere to the highest standards of academic honesty. Plagiarism occurs when a student uses or purchases ghost-written papers. It also occurs when a student utilizes the ideas of or information obtained from another person without giving credit to that person. If plagiarism or another act of academic dishonesty occurs, it will be dealt with in accordance with the academic misconduct policy as stated in Undergraduate Catalog, and Graduate Catalog.