

*The wicked leader is he who the people despise.
The good leader is he who the people revere.
The great leader is he of whom the people say,
"We did it ourselves."
Loa Tzu*

MSED 4311

Teaching Science in Intermediate and Middle Grades
Grades 4 through 8
Fall 2014
Wednesdays, noon to 2:50 p.m.
EDUC 405

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COURSE DESCRIPTION

This course is designed to help you critically examine the perspectives, philosophies, materials, and strategies for effective learning in intermediate and middle grade science classrooms. The ultimate goal is to understand how to design science inquiry curricula where every student is held to high expectations and achieves maximum learning. The course is designed for all students who are seeking certification in intermediate and middle grade science. In this learning situation, students will participate in and critically analyze a nationally recognized inquiry science curriculum delivery with an aim of ultimately designing your own inquiry science lesson.

COURSE OBJECTIVES from TExES Standards

You will be practicing teaching using a constructivist/inquiry curriculum designed to provide successful learning experiences for all students. Through these teaching and learning experiences, you will be practicing concepts from Standards I, II, and III of the Pedagogy and Professional Responsibilities Standards (PPR) with particular emphasis on planning and designing inquiry-based instruction and strategies, informally and formally assessing students' and your own progress, and managing the science classroom environment. You will have opportunities to examine the remaining standards for advancing toward mastery in all levels.

- **Science Standard I:** The science teacher manages classroom, field and laboratory activities to ensure the safety of all students and the ethical care and treatment of organisms and specimens.
- **Science standard II:** The science teacher understands the correct use of tools, materials, equipment and technologies.
- **Science standard III:** The science teacher understands the process of scientific inquiry and its role in science instruction.
Standard IV Assessment – Written submissions provide evidence (rubric on Blackboard). Contribution to discussion in class and reflections posted in Blackboard identify pedagogical knowledge.
- **Science standard IV:** The science teacher has theoretical and practical knowledge about teaching science and about how students learn science.
Standard IV Assessment – Written submissions provide evidence (rubric on Blackboard). Contribution to discussion in class and reflections posted in Blackboard identify pedagogical knowledge.
- **Science standard V:** The science teacher knows the varied and appropriate assessments and assessment practices to monitor science learning.

Standard V Assessment – Written submissions provide evidence (rubric on Blackboard). Contribution to discussion in class and reflections posted in Blackboard identify knowledge of assessment strategies used in course activity.

- **Science standard VI:** The science teacher knows unifying concepts and processes that are common to all sciences.

LEARNING OUTCOMES

Demonstrate the following components vital to quality science education:

- Understanding of inquiry-based science curriculum and how students learn
- Ability to assess students in investigations using scientific inquiry
- Understanding of the role of underrepresented groups in science decisions and science careers
- Exhibit professionalism as a science teacher
- Understanding of quality curriculum materials to assist your future science program
- Improvement in your personal understanding of science concepts
- Understanding of standards for excellence (National Science Education Standards, and TEKS)

TExES

To adequately prepare for the TExES examination(s), if relevant, please refer to the (1) the preparation manual from http://cms.texas-ets.org/files/9213/2949/6357/116_science_4_8.pdf and (2) the PPR manual available on Blackboard. Additionally, sessions will be provided during the semester to review and prepare for these examination(s). As a reminder, passing both of these examinations will qualify you for registration into your student teaching course in spring 2015.

STUDENT EVALUATION

Because this class is based on collective construction of knowledge rather than mastery, it is essential that students fully participate in all assignments. Distribution of points follows:

- (30 points) **CLASSROOM PARTICIPATION:** Read assigned papers as indicated in calendar listing for individual and whole class reflection/discussion. Go to Blackboard for details and uploading. You need to bring a copy to class, or able to access it on your mobile device, to guide your participation. Lack of a reflection indicates you are not ready for participating in a class discussion and will result in loss of points.

The points will be awarded at the end of the semester per Rubric Reflection guidelines posted on Blackboard. The remaining 10 points are derived from your active participation in whole class discussions/ participation. Possible pop quizzes may be given and will be part of this grade.

- (25 points) **BLACKBOARD DISCUSSIONS**

Learning is lateral. An optimum learning space is in a peer group where you are challenged to think about an experience or a written document and to express your thinking with peers. Therefore, your participation in the discussion group is very important. Successful participation includes these components:

- You post in a timely manner.
- Your posting shows that you have read and understand the material, or that you have accomplished the assigned task.
- You respond to your discussion group members' postings with comments that show one or more of these traits: probing questions, ask for clarification, elaboration on a point, and expanding a concept.
- Discussion group posting is informal, so sentence structure and formatting will be less formal. Occasional typos, punctuation and spelling errors are acceptable. However, as a future teacher, you must take care in using correct

grammar and in expressing yourself in a cogent manner.

A rubric for discussions will be posted on Blackboard.

(20 points) INQUIRY MODULE LESSON(S)

These modules will be taken from a commercial curriculum unit in order for you to experience first-hand a high quality curriculum unit meeting national science standards. It is expected that you will be able to:

- Identify and be able to critically reflect on relevant components, such as assessment and an inquiry approach to teaching and learning
- Demonstrate alignment to TEKS
- Provide evidence of your contribution to both teaching and analysis
- Actively engage all participants

These aspects will be a major component of the Final Project (for full 20 point credit). Thus, it is imperative that you maintain a journal during these lessons, preferably a composition book with quadrille paper, in order to maintain detailed notes.

(25 points) FINAL PROJECT: Due December 3 (see Blackboard for assignment details).

Grades will be determined as follows:

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| A | 90 – 100 points |
| B | 80 – 89 points |
| C | 70 – 79 points |
| D | 60 – 69 points |
| F | Below 60 points |

STUDENTS WITH DISABILITIES OR IN NEED OF CLASSROOM ACCOMMODATIONS If you have or believe you have a disability and/or need classroom accommodations, you may wish to self-identify. You can do so by providing documentation to The Center for Accommodations and Support Services (CASS) located in Union East Room 203. Students who have been designated as disabled and/or in need of classroom accommodations must reactivate their standing with on a yearly basis. Failure to report to CASS 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 director of Disabled Student Services. Call 747-5148 or email cass@utep.edu for more information about the American Disabilities Act (ADA).

ACADEMIC INTEGRITY

In accordance with University regulations, scholastic dishonesty on a given assignment will be referred to the Dean of Students and may result in a zero on the assignment, an "F" in the course, or even suspension from the university. If you need assistance with your assignments, please consult authorized sources of help. "Plagiarism" is the unattributed use of someone else's work -- a classmate's, a website's, even a teacher's from another course. For more information on Scholastic Dishonesty and/or Plagiarism, consult the Handbook of Operating Procedures: Student Affairs, which is available in the Office of the Dean of Students and on the homepage of the Dean of Students at www.utep.edu/dos

COURSE CALENDAR

DATE	CLASS ACTIVITIES	ASSIGNMENTS DUE
August 27 Week 1	Introduction to Course & Syllabus Overview Lesson Assignment	N/A
September 3 Week 2	Lesson Plan Presentations Discussion on Reading 1	Blackboard Post: Reading 1 Reflection <ul style="list-style-type: none"> • How Students Learn
September 10 Week 3	Discussion on Reading 2	Blackboard Post: Reading 2 Reflection <ul style="list-style-type: none"> • Constructivism: Brooks & Brooks • Aspects of Constructivism
September 17 Week 4	Discussion on Reading 3	Blackboard Post: Reading 3 Reflection <ul style="list-style-type: none"> • Subtractive Schooling • Hidden Curriculum
September 24 Week 5	Discussion on Reading 4 Introduction to Forces and Motion	Blackboard Post: Reading 4 Reflection <ul style="list-style-type: none"> • FOSS and STC • Activitymania
October 1 Week 6	Teaching module assignments (team and module) Begin teaching preparation	Blackboard Post: Reading 5 Reflection <ul style="list-style-type: none"> • Meaningful Content • Assessment
October 8 Week 7	Prepare teaching module lessons	Update on progress
October 15 Week 8	Lessons 1-3	Update on progress
October 22 Week 9	Lessons 4-6	Blackboard Post: Reflection on lesson activities (see Blackboard for details)
October 29 Week 10	Lessons 7-9	Blackboard Post: : Reflection on lesson activities (see Blackboard for details)
November 5 Week 11	Lessons 10-12 NOTE: Career Fair, 11/7	Blackboard Post: Reflection on lesson activities (see Blackboard for details)
November 12 Week 12	Lessons 13-16	Blackboard Post: Reflection on lesson activities (see Blackboard for details)
November 19 Week 13	Debrief inquiry lessons Final Project assignment and rubric	See Blackboard for details on Final Project.
November 26 Week 14	No face-to-face class Blackboard discussion	Blackboard discussion Work on final project
December 3 Week 15	Discussion on Final Project	Final Project
Finals Week	FINAL EXAMINATION	