

ED 4314 Science: Instructional Strategies for the Elementary and Middle School Teacher Spring 2010

Dr. Christine Purkiss

Office: CARR EFA 117

Office hours: M & W: 9:00-11:00AM

W: 4:00 – 5:00PM

T & R: 10:00 -12noon; 3:30-4:00PM

F: by appointment

Class Times: Tuesday/Thursday 12:30 – 1:45PM or 2 – 3:15PM

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Course Description

This field-based course emphasizes the integration of research and theories regarding the processes of learning science. The major science processes such as observing, experimenting, measuring, classifying, analyzing, interpreting, sequencing, recognizing properties and patterns, and inferring along with inquiry based science will be used with students in a public school setting. The TEKS addressing basic scientific information, methods, and materials will be addressed.

Required Reading:

Angelo State University, 2010. *Inquiry Based Science for K-8 Classrooms*. Pearson Custom Education.

Campbell, B. & Fulton, L. (2003). *Science Notebooks: Writing About Inquiry*. Portsmouth, NH: Heinemann.

Articles and other readings as assigned

Course Goals:

1. Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course.
2. Learning to *apply* course material (to improve thinking, problem solving, and decisions).
3. Develop awareness and teaching of state and national standards.
4. Foster an appreciation of an inquiry based approach to teaching science.
5. Use strategies and activities to teach a variety of elementary school science topics.
6. Demonstrate the skills of planning to teach, including questioning and meeting the needs of diverse learners.
7. Use technology, where appropriate, to enhance the teaching and learning of science.

Science Competencies and Assessment:

Standard 1: 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.	Safety Paper and Student Contract; Practicum Teaching; Inquiry based lesson plans; Science Portfolio.
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Standard 3: The science teacher understands the process of scientific inquiry and its role in science instruction.	Inquiry based lesson plans; Practicum teaching; Science Notebooks.
Standard 4: The science teacher has theoretical and practical knowledge about teaching science and about how students learn science.	Inquiry based lesson plans; Practicum teaching; Science portfolio.
Standard 5: The science teacher knows the varied and appropriate assessments and assessment practices to monitor science learning.	Inquiry based lesson plans; Science Notebooks.

Methods of Instruction:

The instructional methods used in this class include, but are not limited to: discussion, collaborative groups, individualized projects, demonstrations, media, group presentations, interactive lecture, reading and response. BLACKBOARD is utilized for communication and class assignments and information.

Course Requirements:

Students are expected to complete all classroom and out-of-classroom assignments in order to successfully complete the course. Students are expected to check BLACKBOARD and their ASU emails on a regular basis each week. **You are to check Blackboard for this class each day for notices and information. Print out and bring to class documents as indicated in Blackboard.**

Attendance:

As a developing teacher, your ability to demonstrate a positive and professional attitude toward your peers, assignments, practicum teacher, and the instructor is essential. Students are expected to be in class on time and to attend each scheduled class. Students should notify the professor by email or voice message if they are going to miss class. There are two excused absences that allow for occasions such as illness, bad weather, funeral attendance, and other such personal events. Try to save your two excused absences for emergencies. Excused absences for medical or family reasons permit students to make up work missed yet still results in points deducted. During the practicum only one absence is allowed and any further absences must be made up. The instructor, classroom teacher, and the members of your group MUST be notified.

Being unprepared for class and turning in late assignments will negatively affect the grade you receive in this class. **Before each class session, check Blackboard and print out and bring any documents needed for class.**

Student must access BLACKBOARD for electronic posting of syllabus, assignments, announcements, grading information, etc. Students are to download documents and bring the copies to class. Contact the ASU Help Desk at 325-942-2911 to learn about BLACKBOARD and accessing it. Do this before the second day of class. All written assignments must be typed.

Course Assignments and Grading:

1. *Science Portfolio –10 points:*

Students will develop a science portfolio that will include all lesson plans, instructional strategies, philosophy of teaching science, safety, websites, etc. Students will be expected to collect useful science teaching materials and resources from out of class sources. Portfolio's can be electronic or paper-based. Scoring is based on a portfolio rubric.

2. *Classroom Safety – 10 points:*

Students will be expected to develop a plan and materials for general safety precautions that includes working with chemicals, flames and heat, dead and living animals, equipment and container use and storage, instructions for field studies and teaching these to their students.

4. *Science Notebook Assignment – 5 points:*

Students will keep a science notebook that records their understanding of science content used during the class.

5. *Science Lessons/Activities – 6 x 5 = 30 points:*

Students will be expected to construct written lesson plans that use the various strategies taught in class (6 lesson plans). Lessons will be constructed that can be taught during the science practicum.

6. *Science Practicum Teaching – 20 points:*

Students will be observed teaching 1 lesson in the classroom. Lesson plans for each new lesson taught are required. Scoring is based on a rubric.

7. *Student Reflections on practicum science teaching - 2 x 5 = 10 points:*

Students will prepare two written reflections on their science teaching.

8. *Class Participation/Attendance – 15 points:*

Students will be expected to participate in class activities, discussions and enrich the class. Scoring is based on instructor observations.

Grading:

90 -100 points = A

80 - 89 points = B

70 - 79 points = C

60 - 69 points = D

59 points or below = F

Persons Seeking Accommodations: Persons with disabilities which may warrant academic accommodations must contact the Student Life Office, Room 112 University Center, in order to request such accommodations prior to any accommodations being implemented. Students are encouraged to make this request early in the semester so that appropriate arrangements can be made.

Academic Honesty: Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. Students are responsible for understanding the Academic Honor Code, which is contained in both print and web versions of the *Student Handbook*. *Plagiarism or the use of Internet Web, etc. prepared*

papers is strictly forbidden. Faculty utilize Internet search links that assist in identifying plagiarized materials.

College of Education Cell Phone/Electric Paging Device Policy: Cell phones, pagers, and other electronic devices are to be turned off and put away during class time.

Topics covered in class:

The topics covered in this class include, but are not limited to, the following:

1. Inquiry Based Science
2. The Nature of Science
3. Misconceptions in Science
4. Classroom Safety and Management for Science
5. Age-appropriate science
6. Assessment in the science classroom
7. Models of teaching science and lesson planning
8. National and State Standards
9. Using technology, when appropriate, as a tool of science
10. Science Notebooks