



On-Campus Course Syllabus

EDU 406

EC-6th Science Instructional Methods

Spring 2025

Class Information

Day and Time: Monday- 7:30pm – 10:00pm

Room Number: E202

Contact Information

Instructor Name: Shelby D. Wilson

Instructor Email: Swilson@criswell.edu

Instructor Phone: 469-583-4588

Instructor Office Hours: By appointment

Course Description and Prerequisites

Emphasizes the instructional strategies specifically used in teaching science content according to EC-6th grade Texas Essential Knowledge and Skills (TEKS) in physical science, life science, earth and space science, and universal processes that are common to all sciences. The course also includes the supervision of labs and activities in a safe and professional way, appropriate assessment practices to monitor science learning, and guided individual and group inquiry. **Nine clock hours of field experience are required for this course. (Prerequisite: EDU 301)**

Course Objectives

1. Survey inquiry learning strategies and techniques to use science to teach thinking.
2. Gain an understanding of the goals and objectives for science instruction in Texas elementary schools.
3. Use the skills understanding of science concepts necessary to be an effective EC-6th grade science teacher.
4. Use appropriate teaching strategies to meet the developmental learning needs of EC-6th grade learners.
5. Become familiar with the names and contributions of scientists and their relevance to students.
6. Plan appropriate and differentiated instruction and assessment based on the developmental characteristics of learners.
7. Plan a unit of science instruction for a selected group of EC-6th grade learners.
8. Integrate a rich reading, writing, history and mathematical experience in the study of science through inquiry learning.
9. Become familiar with safety issues and practices in the EC-6th grade science classroom.
10. Develop a list of scriptures that support various scientific concepts.

Recommended Reading

Bass, Joel E., Carin, Arthur A., Contant, Terry L. & Tweed, Anne L., Teaching Science Through Inquiry Based Instruction, Thirteenth Edition, Upper Saddle River, NJ: Pearson Education, 2018. ISBN: 9780134515472

Course Requirements and Assignments

***This course requires a minimum of NINE (9) clock hours of on-site teaching sessions during a Field Experience. * Failure to complete the 9 hours of field observation will result in an automatic failure in the course.**

*****There are 3 required assignments. The remaining assignments are student choice. I will use this format as an example of a method to offer students in the classroom. ** Full details of each assignment are in Canvas.***

Required: Weekly class notes, Class Participation/Demos, Test Prep Questions and Discussion: You are expected to keep a spiral or electronic notebook of class notes, respond to class discussion questions, class demonstrations and test prep questions. You are to maintain it throughout the semester.

DUE: 5/12

POINTS: 10 points

Assignment: Resource Pack: This assignment is to aid you in developing your own list of resources. You will collect **10 resources** in each of the following categories: museums, children's literature, field trip opportunities, films and videos, internet sites, and virtual interactives. Your resource pack is to be typed and submitted in an organized manner. Please include a brief explanation of how each resource can be used in your classroom.

DUE: 3/10

POINTS: 10 points

Assignment: Inquiry Based Lesson Demonstration: You will create and demonstrate a 5E lesson plan for science topics in your text. (Earth/Space Science, Life Science, Engineering and Design or Physical Science) You must include the TEKS. You will **teach** the lesson as part of your 9 hours of field experience. Your lesson is to be student centered, hands-on/inquiry based, incorporate technology, and allow students to work collaboratively. This lesson should also integrate science to another subject area.

DUE: Presentations can be presented on 4/7, 4/14, or 4/21

POINTS: 10 points

Assignment: Integrated Lesson Plan: You are to create an integrated lesson. Your lesson must include a science learning objective with another discipline. It must include the lesson goal, description of student inquiry, level of questioning, and an assessment. **DUE: March 31 Points: 10 points**

Experiment Demonstration: You are to demonstrate an inquiry-based science experiment or experience that can be used in your classroom. Provide any digital or written resources to be used for this lesson.

DUE: Please schedule a class date in March for this demonstration

Points: 10 points

Assignment: Backward Design Planning: You are to use a science assessment to help you plan lessons for a given science unit. You will include the learning needs of students, objective misconceptions, determine if a project, model, or inquiry experience will help enhance the lessons. The final product will be a lesson timeline, listed objectives, and resources to aid in student learning.

DUE: Please schedule a class date to present this assignment Points: 10 points

Assignment: Scientific Method: You will design an experiment for your students in which they must follow the Scientific Method. They are to include the following research methods: Data Collection- Data Analysis- Report

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.

Science Standard IV The science teacher has theoretical and practical knowledge about teaching science and about how students learn science.

Science Standard V The science teacher knows the varied and appropriate assessments and assessment practices to monitor science learning.

Science Standard VI The science teacher understands the history and nature of science.

Science Standard VII The science teacher understands how science affects the daily lives of students and how science interacts with and influences personal and societal decisions.

Science Standard VIII The science teacher knows and understands the science content appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in physical science.

Science Standard IX The science teacher knows and understands the science content appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in life science.

Science Standard X The science teacher knows and understands the science content appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in Earth and Space science.

Science Standard XI The science teacher knows unifying concepts and processes that are common to all sciences.

Class Attendance

Students are responsible for enrolling in courses for which they (1) anticipate being able to attend every on-campus class session on the day and time appearing on course schedules, or (2) participating in academically related activities as identified in online-course schedules including synchronous class sessions conducted remotely by video, and then making every effort to do so. When unavoidable situations result in absence or tardiness, students are responsible for acquiring any missed information. Professors are not obliged to allow students to make up missed work. Per their independent discretion, individual professors may determine how attendance affects students' ability to meet course learning objectives and whether attendance affects course grades. Professors apprise students of such information in course syllabi.

Students receiving grants, loans, or scholarships must meet specified requirements of various departments at the college and should consult relevant sections of the *Academic Catalog*. To ensure such funds will not be forfeited, students are responsible for contacting the proper departments to ascertain any specific course participation requirements and consequences of not meeting such requirements. Students receiving grants, loans, or scholarships should consult the Financial Aid office.

While Criswell College is a non-attendance taking institution, it nevertheless must demonstrate that students begin their courses in order to comply with Federal Aid regulations. Accordingly, students must participate in academically related activities during census periods. Failure to meet this requirement will result in students being administratively dropped from courses.

Academically related activity is defined as any course-related activity that may be used as evidence of attendance. Examples include:

- physical presence in a classroom during a class session with the instructor present,
- participation in a synchronous remote video class session with the instructor present,

- submission of an academic assignment, quiz, or exam,
- participation in an interactive tutorial or computer-assisted instruction,
- participation in a study group or discussion board that is assigned by the instructor,
- documentation showing that the student and a faculty member corresponded about the academic subject of the course.

NOTE: Logging into a Canvas course alone and logging into a Synchronous Online class session without active participation or with the camera off are not considered attendance.

NOTE: A census period begins on the first day of a semester/term and runs through the end of the last day to drop courses. During the census period, attendance data is collected in order to demonstrate compliance with Federal Aid regulations. There is no census period for winter terms since there is no last day to drop courses.

Campus Closure

To ensure the health and safety of students and employees, college administrators may decide it is necessary on rare occasions to close the campus. Once this decision is announced, instructors will contact students to provide further details regarding the campus closure’s impact on those courses. Students are responsible to watch for communication from their instructors and respond appropriately. (Unless otherwise specified by the instructor in this syllabus, this communication will be sent to the student’s Criswell College e-mail account.)

In order to make progress toward the courses’ objectives, instructors have the freedom during most campus closures to require students to participate in activities as alternatives to meeting on campus. An instructor may, for example, hold class remotely (through Zoom) at the scheduled time, provide a recording of a class or presentation for students to watch independently, or assign other activities that students are to accomplish before returning to campus. Students are responsible for accomplishing these alternative activities as well as any course requirements listed in this syllabus during the period of the campus closure. If, during the period of the campus closure, personal circumstances prohibit a student from accomplishing these alternative activities or course requirements and assignment listed in the syllabus during the campus closure, the student is responsible for communicating with the instructor as soon as possible. Instructors will not penalize students who do not have the means to accomplish the alternative activities during the period of the campus’s closure and will work with students whose circumstances during the campus closure prohibited their timely completion of course requirements and assignments in the syllabus.

Grading Scale

A	93-100	4.0 grade points per semester hour
A-	90-92	3.7 grade points per semester hour
B+	87-89	3.3 grade points per semester hour

B	83-86	3.0 grade points per semester hour
B-	80-82	2.7 grade points per semester hour
C+	77-79	2.3 grade points per semester hour
C	73-76	2.0 grade points per semester hour
C-	70-72	1.7 grade points per semester hour
D+	67-69	1.3 grade points per semester hour
D	63-66	1.0 grade point per semester hour
D-	60-62	0.7 grade points per semester hour
F	0-59	0.0 grade points per semester hour

Incomplete Grades

Students requesting a grade of Incomplete (I) must understand that incomplete grades may be given only upon approval of the faculty member involved. An "I" may be assigned only when a student is currently passing a course and in situations involving extended illness, serious injury, death in the family, or employment or government reassignment, not student neglect.

Students are responsible for contacting their instructors prior to the end of the semester, plus filing the appropriate completed and approved academic request form with the Registrar's Office. The "I" must be removed (by completing the remaining course requirements) no later than 60 calendar days after the close of the term or semester in which the grade was awarded, or the "I" will become an "F."

Academic Honesty

Absolute truth is an essential belief and basis of behavior for those who believe in a God who cannot lie and forbids falsehood. Academic honesty is the application of the principle of truth in the classroom setting. Academic honesty includes the basic premise that all work submitted by students must be their own and any ideas derived or copied from elsewhere must be carefully documented.

Academic dishonesty includes, but is not limited to:

- cheating of any kind,
- submitting, without proper approval, work originally prepared by the student for another course,
- plagiarism, which is the submitting of work prepared by someone else as if it were his own, and
- failing to credit sources properly in written work.

Course Policy on the use of Artificial Intelligence (AI)

The use of AI to complete assignments is strongly prohibited. Although AI technology has several pros for your future profession, this course will require you to use original thoughts and questioning as you will be teaching your students this valuable skill. Original and thoughtful written responses will be the expectation for this course.

Institutional Assessment

Material submitted by students in this course may be used for assessment of the college's academic programs. Since programmatic and institutional assessment is done without reference to specific students, the results of these assessments have no effect on a student's course grade or academic standing at the college. Before submitting a student's work for this type of assessment, the course instructor redacts the work to remove anything that identifies the student.

Institutional Email Policy

All official college email communications to students enrolled in this course will be sent exclusively to students' institutional email accounts. Students are expected to check their student email accounts regularly and to respond in an appropriate and timely manner to all communications from faculty and administrative departments.

Students are permitted to setup automatic forwarding of emails from their student email accounts to one or more personal email accounts. The student is responsible to setup and maintain email forwarding without assistance from college staff. If a student chooses to use this forwarding option, he/she will continue to be responsible for responding appropriately to all communications from faculty and administrative departments of the college. Criswell College bears no responsibility for the use of emails that have been forwarded from student email accounts to other email accounts.

Disabilities

Criswell College recognizes and supports the standards set forth in Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act (ADA) of 1990, and similar state laws, which are designed to eliminate discrimination against qualified individuals with disabilities. Criswell College is committed to making reasonable accommodations for qualifying students, faculty, and employees with disabilities as required by applicable laws. For more information, please contact the Student Services Office.

Intellectual Property Rights

Unless otherwise specifically instructed in writing by the instructor, students must neither materially nor digitally reproduce materials from any course offered by Criswell College for or with the significant possibility of distribution.

Research and Writing Standards

The default writing style for written assignments in Criswell College Courses is the latest edition of *A Manual for Writers of Research Papers, Theses and Dissertations* by Kate Turabian. However, instructors are free to require alternative writing styles in their courses. These styles include but are not limited to the American Psychological Association (APA), Chicago Manual of Style, Modern Language Association (MLA), and Society of Biblical Literature (SBL) writing guides.

Resources and Supports

Canvas and SONIS: Criswell College uses Canvas as its web-based learning tool and SONIS for student data. Students needing assistance with Canvas should contact the Canvas Help Support line at (844) 358-6140. Tech

support is available at this number, twenty-four hours a day. Students needing help with SONIS should contact the Campus Software Manager at studenttechsupport@criswell.edu.

Student Services: The Student Services Office exists to foster and encourage success in all areas of life—physical, intellectual, spiritual, social, and emotional. Students are encouraged to reach out for assistance by contacting the office at 214.818.1332 or studentservices@criswell.edu. The Student Services Office also works with local counseling centers to ensure that every student has access to helpful mental health resources. More information is located on the college website at [Criswell College Mental Health Resources](#), and students may contact the Director of Student Services if they have any questions.

Wallace Library: Students can access academic resources and obtain research assistance by contacting or visiting the Wallace Library, which is located on campus. For more information, email the Wallace Library at library@criswell.edu. Login credentials are emailed to students near the beginning of the semester.

Tutoring Center: Students are encouraged to consult with tutors to improve and enhance their skills and confidence. Tutors have been recommended by the faculty to ensure that the tutor(s) are qualified to serve the student body. Every tutor brings experience and expertise in an effort to provide the proper resources for the subject matter at hand. To consult with a tutor, students can schedule an appointment through Calendly (<https://calendly.com/criswell-tutoringcenter>) or by visiting the Tutoring Center located on the second floor in room E203. For questions, call 214.818.1373 or email at tutoringcenter@criswell.edu.

Course Outline/Calendar

Date(s)	Discussion Topic	Assignment Resources/Learning Goals	Assignment Due Date (Monday)
January			
1/27	-Introductions -Syllabus Explanation - Chapter 1	Elementary Science TEKS: https://tea.texas.gov/sites/default/files/ch112a.pdf Ch. 1- Curiosity and Learning Science	N/A
February			
2/3	Chapter 2 - Getting Ready for Inquiry Instruction	Certification Preparation Information: https://tea.texas.gov/texas-educators/certification/educator-testing/test-registration-and-preparation	-Return/Complete Classroom Observation Forms
2/10	Chapter 3- Creating a Positive Classroom Environment	Establishing expectations and goals for your classroom	-Discussion Question(s)
2/17	Chapter 4 -Learning Science with Understanding	Science Standards (TEKS) Texas Essential Knowledge and Skills (NGSS)- Next Generation Science Standards (<i>Physical, Life, Earth and Space, and STEM Sciences</i>)	-Discussion Question(s)
2/24	Chapter 5 -	Writing a lesson plan using the 5E Model	

	Engaging in Inquiry Based Instruction using the 5E Model		
March			
3/3	Chapter 6 - Effective Questioning	Types of questions and responses to inquiry-based learning	
3/10	Chapter 7- Assessing Science and Learning	Formative, Summative, and Performance Based Assessments to measure student learning	*Resource Pack/Notebook Due
3/17	Spring Break –	No Classes	
3/24	Chapter 8 – Using Technology Tools and Resources for Learning	Determine appropriate technology to support science instruction	*Schedule your day to present Inquiry Based Lesson
3/31	Chapter 9 – Connecting Science with Other Subjects	Math, Reading, History and English Language Arts in Science	*Integrated Lesson plan
April			
4/7	Chapter 10 – Making Science Accessible for All Learners	Equity, diversity and differentiation and best practices to meet the needs of all learners	
4/14	*Inquiry Based Lesson Demonstration	Using the Scientific Method	Teacher lesson demonstration
4/21	*Inquiry Based Lesson Demonstration	Backwards planning for the science classroom	Teacher lesson demonstration
4/28	*Inquiry Based Lesson Demonstration	Class work session- Final Project Proposal, Lesson Practice	*Weekly class notes, Class Participation/Demos, Test Prep Questions and Discussion Questions
May			
5/5	Final Project Preparation	Lesson presentations in class	*Field Experience Journal and Inquiry Based Lesson presentation Due