

# College of Education and Human Development

## Teaching, Learning and Culture



### TEFB 413 Syllabus

Section 501 (12805)

Science in the Elementary School

Fall 2025 - College Station

### Course Information

---

**Meeting Times:** Meeting Type: LEC

Meeting Days: M

Start Time: 12:40PM

End Time: 2:40PM

Start Date: 08/25/2025

End Date: 12/16/2025

**Meeting Location:** EDCT 303

**Meeting Times:** Meeting Type: LAB

Meeting Days:

Start Time: N/A

End Time: N/A

Start Date: 08/25/2025

End Date: 12/16/2025

**Credit Hours:** 3

### Instructor Details

---

Rebecca Sansom

**Email:** rebecca.sansom@tamu.edu

**Office:** 203 EDCT

**Phone:** (979) 845-8384

**Office Hours**

Tuesday 10 - 11 am or by appointment

**Preferred Contact Method**

email

**Webpage:** <https://tamu.zoom.us/my/rsansom>

## Course Description

---

TEFB 413 will help preservice elementary teachers design and conduct developmentally appropriate science instruction. Students will apply and enhance their science background by experiencing a variety of elementary science curricula and ultimately develop a science instructional unit for their future use. Students will examine and practice science-related teaching models, including the learning cycle and three-dimensional science instruction.

This course is based on the notion that effective and appropriate teaching requires systematically planning instruction, teaching, reflecting, and revising instruction. Teachers can effectively design and implement a high-quality science program through a deliberate integration of these critical elements. This course is designed to promote the development of the knowledge base necessary to move from science content knowledge to well-reasoned, relevant, and appropriate science teaching.

## Course Prerequisites

---

**Prerequisite/Corequisite(s):** Admission to educator preparation program; concurrent enrollment required in RDNG 467, TEFB 410 and TEFB 412.

## Special Course Designation

---

ACST|QFLE

## Course Learning Outcomes

---

Upon completion of this course, the learner will be able to:

- review and analyze state and national standards documents and identify relevant standards for building a science instructional sequence
- examine and design appropriate methods of assessing student learning and use assessment data to inform teaching practice
- experience, critique, and modify existing elementary science curriculum materials
- plan appropriate science instruction that reflects research on how people learn, including utilizing the three dimensions of science and the learning cycle.

## Textbook and/or Resource Materials

---

**This material is: Optional**

No Textbook Required

## Grading Policy

---

Grades will be determined by a weighted average of assignments as follows:

- 15% Weekly Reflections
- 15% Reading Assignments
- 50% Lesson Plan Progressions
- 10% Rationale for Teaching Science
- 10% Classroom Participation

Course letter grades will be determined using the weighted average of scores across the categories described above using the following grade scale: A 93-100, B 85-92, C 75-84, D 65-74, F 64 or below.

***Weekly Reflection Assignments*** – Each week, you will submit a reflection assignment that addresses your experience of the science lesson in class, the ways you observed principles of good science teaching or ways the science teaching could be improved, the ways you observed effective teacher behaviors or ways those behaviors could be improved, and what connections you observe between the reading for that week and the lesson that you experienced. These reflections should be thoughtful, content-rich, and demonstrate your understanding of the principles you are learning in the course. These will be submitted online via Canvas. 15% of your course grade will be determined by the weekly reflection assignments.

***Reading Assignments*** – Each week, you will be asked to read literature about science teaching and learning to develop greater understanding of the principles of good science instruction. You

will use Perusall, a social annotation software, to comment on these readings, asking questions, replying to your classmates' comments, and interactively developing a shared understanding of the content. These readings are an essential part of your preparation for class. 15% of your course grade will be determined by the weekly reading assignments.

*Lesson Plan Progressions* – During the semester, you will collaboratively develop a lesson plan sequence with your team to address your chosen science standards. Several checkpoint assignments will help you make weekly progress toward this goal. You will also have an opportunity for peer feedback and revisions prior to teaching your lesson to the class. After your microteaching experience, you will analyze your recording of your teaching, make final revisions, and submit the final lesson plan at the end of the semester, along with your reflections on the process of lesson planning and revision. 50% of your course grade will be determined by your work on this series of lesson plan assignments.

*Rationale for Teaching Science* – This assignment is limited to three double-spaced typed pages (12-point font, 1-inch margins). Provide a thoughtful reflection on the course, the course readings, your personal experiences with science instruction, and your goals for yourself and your students to articulate: 1) why science is in the curriculum; 2) what is the current state of science education for elementary students; 3) a vision of what science education should/could be; and 4) concrete ways you can realize the goals you have in your classroom with your students, even with constraints that commonly exist in elementary classrooms. 10% of your course grade will be determined by the rationale for teaching science assignment.

*Graded Class Participation* – Active participation in class includes arriving prepared for class, including completing reading assignments in advance so you can engage in meaningful discussions with the group, being on time for class, and taking careful notes about what you're learning during class. Additionally, this includes participating in science lessons as they occur in class. Unless specifically directed to do so, using electronic devices during class is not allowed. 10% of your course grade will be determined by attendance and participation.

*Graded Attendance* –Some absences are considered excused by the university (See Student Rule 7 <http://studentrules.tamu.edu/rule07>). The fact that these are university-excused absences does not relieve the student of responsibility for prior notification and documentation. Failure to notify and/or document properly may result in an unexcused absence. **Unexcused absences will result in one letter grade reduction per absence.** Make up work is provided only for university excused absences.

- During the senior methods semester, attendance is expected and counts. Each unexcused absence will drop your final grade by a letter grade.
- Only university approved absences are considered excused. To be considered an excused absence, students will need to provide documentation (electronic or paper) to each instructor by the end of the second working day following the absence. If an electronic copy is given then a paper copy will need to be provided to each instructor at the next class meeting.
- 20% Absenteeism (2 classes): The Teaching, Learning, and Culture Undergraduate Committee stipulates the following absenteeism policy: Students are expected to be in attendance for at least 80% of field experiences and 80% of class meetings. Faculty will

recommend withdrawal or Q drop of the course(s) when a student reaches 20% absenteeism. Class discussion and participation are vital as students learn to apply research and theory in a classroom setting. The goal is for students to move forward to a successful clinical teaching experience and, ultimately, a teaching career.

## Late Work Policy

---

Work submitted by a student as makeup work for an excused absence is not considered late work and is exempt from the late work policy ([Student Rule 7](#)).

Late assignments submitted within one week of the due date will be considered for grading with a 50% penalty. Late work submitted more than one week past the due date will not be accepted for credit.

Work submitted by a student as makeup work for an excused absence is not considered late work and is exempted from the late work policy ([Student Rule 7](#)).

## Course Schedule

---

Week	Date	Focus Area	Assignments Due
1	August 25, 2025	Course Introduction & New TEKS Standards	N/A
	September 1, 2025	Labor Day—No Classes	
2	September 8, 2025	Three-Dimensional Science: SEPs	Weekly Reflection 1 Reading 1
3	September 15, 2025	Three-Dimensional Science: CCCs	Weekly Reflection 2 Reading 2
4	September 22, 2025	Scope and Sequence: Science Learning Progressions Across Grades	Weekly Reflection 3 Reading 3 Lesson Plan: Standards
5	September 29, 2025	Formative Assessment Strategies	Weekly Reflection 4 Reading 4 Lesson Plan: Progression
6	October 6, 2025	The Learning Cycle	Weekly Reflection 5 Reading 5 Lesson Plan: Formative Assessments

	October 14, 2025	Fall Break—No Classes	
7	October 20, 2025	Concept Development Strategies	Weekly Reflection 6 Reading 6 Lesson Plan: Activities
8	October 27, 2025	The Role of Questions *Microteaching Week 1	Weekly Reflection 7 Reading 7 Lesson Plan: Peer Feedback
9	November 3, 2025	Responding to Student Thinking: SHARE Questions *Microteaching Week 2	Weekly Reflection 8 Reading 8 *Lesson Plan: Reflection
10	November 10, 2025	STELLA Question Types *Microteaching Week 3	Weekly Reflection 9 Reading 9 *Lesson Plan: Reflection
11	November 17, 2025	Conceptual Change Teaching *Microteaching Week 4	Weekly Reflection 10 Reading 10 *Lesson Plan: Reflection
12	November 24, 2025	Online class meeting: Rationale for Teaching Science	*Lesson Plan: Reflection Lesson Plan: Final
13	December 1, 2025	Reflective Practice, Final Class Meeting	Rationale for Teaching Science
	December 10, 2025	All C3 students required to attend the clinical teaching meeting delivered through Zoom	N/A

## Technology Support

### Technology Services (IT) - Main Campus

Hours: 24/7

Phone: (979) 845-8300

Email: [helpdesk@tamu.edu](mailto:helpdesk@tamu.edu)

Call/Chat/Email/visit: <https://it.tamu.edu/help>

### Canvas LMS Technical Support

Hours: 24/7/365

Phone: (877) 354-4821

Email: [support@instructure.com](mailto:support@instructure.com)

Support is available by clicking the Help button at the far left in the Canvas global navigation menu.

Canvas Resources are also linked on the home page of every Canvas course.

## University Policies

---

This section outlines the university-level policies that must be included in each course syllabus. The TAMU Faculty Senate established the wording of these policies.

### University Attendance Policy

---

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to [Student Rule 7](#) in its entirety for information about excused absences, including definitions, and related documentation and timelines.

**Graded Attendance** –Some absences are considered excused by the university (See Student Rule 7 <http://studentrules.tamu.edu/rule07>). The fact that these are university-excused absences does not relieve the student of responsibility for prior notification and documentation. Failure to notify and/or document properly may result in an unexcused absence. **Unexcused absences will result in one letter grade reduction per absence.** Make up work is provided only for university excused absences.

- During the senior methods semester, attendance is expected and counts. Each unexcused absence will drop your final grade by a letter grade.
- Only university approved absences are considered excused. To be considered an excused absence, students will need to provide documentation (electronic or paper) to each instructor by the end of the second working day following the absence. If an electronic copy is given then a paper copy will need to be provided to each instructor at the next class meeting.
- 20% Absenteeism (2 classes): The Teaching, Learning, and Culture Undergraduate Committee stipulates the following absenteeism policy: Students are expected to be in attendance for at least 80% of field experiences and 80% of class meetings. Faculty will recommend withdrawal or Q drop of the course(s) when a student reaches 20% absenteeism. Class discussion and participation are vital as students learn to apply research and theory in a classroom setting. The goal is for students to move forward to a successful clinical teaching experience and, ultimately, a teaching career.

### Makeup Work Policy

---

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to [Student Rule 7](#) in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" ([Student Rule 7, Section 7.4.1](#)).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" ([Student Rule 7, Section 7.4.2](#)).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. ([See Student Rule 24](#).)

## **Academic Integrity Statement and Policy**

---

*"An Aggie does not lie, cheat or steal, or tolerate those who do."*

"Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case" (Section 20.1.2.3, [Student Rule 20](#)).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at [aggiehonor.tamu.edu](http://aggiehonor.tamu.edu).

## **Notice of Nondiscrimination**

---



Texas A&M University is committed to providing safe and non-discriminatory learning, living, and work environments for all members of the University community. The University provides equal opportunity to all employees, students, applicants for employment or admission, and the public, regardless of race, color, sex (including pregnancy and related conditions), religion, national origin, age, disability, genetic information, or veteran status.

Texas A&M University will promptly, thoroughly, and fairly investigate and resolve all complaints of discrimination, harassment (including sexual harassment), complicity, and related retaliation based on a protected class in accordance with [System Regulation 08.01.01](#), [University Rule 08.01.01.M1](#), [Standard Administrative Procedure \(SAP\) 08.01.01.M1.01](#), and applicable federal and state laws. In accordance with Title IX and its implementing regulations, Texas A&M does not discriminate on the basis of sex in any educational program or activity, including admissions and employment.

The following person has been designated to handle inquiries and complaints regarding the non-discrimination policies: Jennifer M. Smith, TAMU Associate VP & Title IX Coordinator at YMCA Ste 108, College Station, TX 77843, 979-458-8407, or email [civilrights@tamu.edu](mailto:civilrights@tamu.edu). For other reporting options, visit the [U.S. Department of Education Office for Civil Rights Complaint Assessment System](#) to locate the address and phone number of the office that serves your area, or call 1-800-421-3481.

## **Civil Rights, Free Speech, and Title IX Policies**

---

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit discrimination and harassment based on an individual's race, color, sex, (including pregnancy and related conditions), religion, national origin, age, disability, genetic information, veteran status, or any other legally protected characteristic. This includes forms of sex-based violence, such as sexual assault, sexual harassment, sexual exploitation, dating/domestic violence, and stalking.

Students can report discrimination/harassment, access supportive resources, or learn more about their options for resolving complaints on the [University's Civil Rights & Title IX webpage](#).

Students should be aware that all university employees (except medical or mental health providers) are mandatory reporters, which means that if they observe, experience or become aware of an incident that they reasonably believe to be discrimination/harassment alleged to have been committed by or against a person who was a student or employee at the time of the incident, the employee must report the incident to the university.

## **Americans with Disabilities Act (ADA) Policy**

---

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact the Disability Resources office on your campus (resources listed below). Disabilities may include, but are not limited to, attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability-related needs with Disability Resources and their instructors as soon as possible.

To request academic accommodations, contact the designated ADA office based on your location:

- Texas A&M University, College of Nursing, College of Dentistry, Irma Lerma Rangel College of Pharmacy College Station, College of Medicine, School of Public Health, Institute of Biosciences and Technology, EnMed Program, Bush School in Washington DC, Mays Business School – CityCentre, TAMU Engineering Academies, Texas A&M University Higher Education Center at McAllen and Texas A&M University at Galveston should contact Disability Resources at (979) 845-1637 or [disability@tamu.edu](mailto:disability@tamu.edu).
- Texas A&M University School of Law should contact the Office of Student Affairs at (817) 212-4111 or [law-disability@law.tamu.edu](mailto:law-disability@law.tamu.edu) to request accommodations.

- Irma Lerma Rangel College of Pharmacy in Kingsville should contact the Disability Resource Center at Texas A&M University-Kingsville at (361) 593-3024 or [drc.center@tamuk.edu](mailto:drc.center@tamuk.edu) to request accommodations.
- Texas A&M University College of Veterinary Medicine & Biomedical Sciences in Canyon should contact the Office of Student Accessibility at West Texas A&M University – Canyon at (806) 651-2335 or [osa@wtamu.edu](mailto:osa@wtamu.edu).

If you are experiencing difficulties with your approved accommodations, contact the office responsible for approving your accommodations or the Texas A&M ADA Coordinator Julie Kuder at [ADA.Coordinator@tamu.edu](mailto:ADA.Coordinator@tamu.edu) or (979) 458-8407.

## **Pregnancy Accommodations**

---

Texas A&M provides reasonable accommodations to students due to pregnancy and/or related conditions, such as childbirth, recovery, and lactation. Students should contact the University's [Pregnancy Coordinator](#) as soon as they become aware of the need for accommodation. Depending on the circumstances, accommodations could include extended time to complete assignments or exams, changes in course sequence, or modifications to the physical classroom environment.

Texas A&M will also allow a voluntary leave of absence, ensure the availability of lactation space, and maintain grievance procedures to provide for the prompt and equitable resolution of complaints of sex discrimination. For information regarding pregnancy accommodations, email [TIX.Pregnancy@tamu.edu](mailto:TIX.Pregnancy@tamu.edu).

## **Statement on Mental Health and Wellness**

---

Texas A&M University recognizes that mental health and wellness are critical factors influencing a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care practices by utilizing the resources and services available through [University Health Services](#). The [TELUS Health Student Support app](#) provides access to professional counseling in multiple languages anytime, anywhere by phone or chat, and the 988 Suicide & Crisis Lifeline offers 24-hour emergency support at 988 or [988lifeline.org](https://988lifeline.org).

## **Texas A&M College Station**

Students needing a listening ear can contact University Health Services at 979.458.4584. Call 911 or visit your nearest emergency room if you are currently experiencing a life-threatening situation or if your safety is at risk. 24-hour emergency help is also available through the 988 Suicide & Crisis Lifeline (988) or at [988lifeline.org](https://988lifeline.org).

## **Statement on the Family Educational Rights and Privacy Act (FERPA)**

---

FERPA is a federal law designed to protect the privacy of educational records by limiting access to these records, to establish the right of students to inspect and review their educational records, and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings.

Currently enrolled students wishing to withhold any or all directory information items can do so within [howdy.tamu.edu](https://howdy.tamu.edu) using the Directory Information Withholding Form. The complete [FERPA Notice to Students](#) and the student records policy is available on the Office of the Registrar webpage.

Items that can never be identified as public information are a student's social security number, citizenship, gender, grades, GPR, or class schedule. All efforts will be made in this class to protect your privacy and to ensure confidential treatment of information associated with or generated by your participation in the class.

Directory items include name, UIN, local address, permanent address, email address, local telephone number, permanent telephone number, dates of attendance, program of study (college, major, campus), classification, previous institutions attended, degrees, honors and awards received, participation in officially recognized activities and sports, medical residence location, and medical residence specialization.

## **Free Speech and Civil Discourse**

---

Texas A&M recognizes that the pursuit of truth through open and robust discourse is critical to academic inquiry. However, as a community of scholars, the university has an aspirational expectation that such discourse will be conducted in accordance with Aggie Core Values. In this “marketplace of ideas,” we encourage civil dialogue creating an environment that allows individuals to express their ideas and to have their ideas challenged in respectful and responsible ways. Students can learn more about Freedom of Expression and Free Speech on the [University's website](#) about the [First Amendment](#).

## **AI Statement**

---

According to the Texas A&M University Definitions of Academic Misconduct, plagiarism is the appropriation of another person's ideas, processes, results or words without giving appropriate credit ([aggiehonor.tamu.edu](http://aggiehonor.tamu.edu)). You should credit your use of anyone else's words, graphic images, or ideas using standard citation styles. Artificial Intelligence (AI) text generators and natural language processing tools (colloquially, chatbots - such as ChatGPT), audio, computer code, video, and image generators should not be used for any work for this class without explicit permission of the instructor and appropriate attribution. This includes, but is not limited to,

- i. Creating or revising drafts
- ii. Editing your work
- iii. Reviewing a peer's work

This excludes pre-existing software additions such as spelling and grammar checkers, which are acceptable.