

EDU 404

Integrated Methods of Teaching Elementary Science

Methods	Office Hours
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**Email:**

CAEP K-6

International Society for Technology in Education (ISTE)

Undergraduate Educational Competencies

**Dispositions:** Model Code of Ethics for Educators

DTGSS

Global awareness is knowledge of the interrelatedness of local, global, and international cultures. It is the understanding that our world is an interconnected system. Cultivating global awareness involves the ability to understand, respect, and get curious about challenges, trends, and systems present on a global level. College of Education and Liberal Arts Educator Preparation Programs foster global awareness by preparing and empowering teacher candidates to integrate that knowledge in their PreK - 12 classrooms. Candidates will not just study current events, but they will practice making global events part of their own science lessons. The international effects of ocean pollution, deforestation, and climate change will be discussed to emphasize how something happening far away can impact students in the United States. Candidates will gain a perspective of human environmental differences allowing them to respect and work with others from anywhere in the world.

: Culturally responsive practices acknowledge and honor the experiences and perspectives of children and their families as a tool to support them more effectively. This practice emphasizes incorporation of different perspectives that create an inclusive, relevant, and supportive environment for learners from various backgrounds. The College of Education and Liberal Arts Educator Preparation Programs incorporate culturally



Candidates will provide specific implications for instruction and assessment based on student individual differences, community, school, and classroom characteristics that may affect learning in a diverse classroom.

Candidates assess students, plan instruction, and design classroom contexts for learning promoting a full range of competencies for each student. Candidates use ongoing assessments to monitor students' learning and to guide instruction.

Learning Activities/Performance Tasks:

1. Candidates will deconstruct an individualized education program (IEP) and create assessments based on the needs of the student.
2. Candidates will fully align assessments with the instructional outcomes in both content and process.
3. Candidates will develop formative and summative performance expectations and related assessment items and artifacts for elementary school students aligned with Next Generation Science Standards (NGSS).

Candidates will create an assessment plan that includes multiple assessment modes, both ongoing and summative, throughout the instructional sequence promoting intellectual, social, emotional, and physical development of each diverse learner.

Learning Activities/Performance Tasks:

1. Candidates will design units using several methodologies including inquiry and experimentation.
2. Candidates will demonstrate an understanding what science is and is not (Science is a way of knowing).
3. Candidates will demonstrate an awareness of the influence of culture, politics, and society on science.

Candidates' use of content within the Unit is accurate. Focus of major concepts and inquiry to teach Science is congruent with the big ideas and the nature of Science.

One	How can we teach science to make it meaningful for all learners?
Two	What are the key shifts outlined in NGSS and the Framework?
Three	What does <a href="#">three-dimensional learning</a> look like?
Four	What does <a href="#">coherency</a> in instruction look like?
Five	What methods can I use to support all students?
Six	How can educators provide specific implications for instruction and assessment based on student individual differences, community, school, and classroom characteristics that may affect learning in a diverse classroom?

Seven

7. SEA - Age-appropriate Science Unit (20%)
8. Mock Teaching – Peer Review (20%)

These required projects are briefly described in the “Learning Outcomes” section of the syllabus. Additional details and resources, including Open Educational Resources (OERs), and the course outline, can be found on the course site.

### [Academic Policies](#)

### [Procedure/Guidelines for Receiving Special Accommodations](#)

In the College of Education, faculty must approve all requests for absences that are exceptions to the University policy. Vacations are not considered legitimate reasons for missing classes. Faculty must be contacted prior to class in all cases except valid emergencies. Failure to obtain approval for exceptions may result in lowering the final passing grade or assigning a FA (failure due to absence).

Students who have registered for a course and never attended the class at all will receive a grade of NA (never attended). Early departures and late arrivals will be cumulative toward class absences. It is the student’s responsibility to obtain and complete assignments on the due dates. Students who register and enter the course on the drop/add date have four days to complete the first week’s assignments.

No Textbook Required

1. [A Framework for K–12 Science Education](#) The National Research Council's provides the sound, evidence-based foundation for the NGSS by drawing on current scientific research and identifies the science all K–12 students should know.
2. Dewey, John. [Democracy and Education](#). New York: The Macmillan Company, 1916.
3. [Guide to Implementing the Next Generation Science Standards](#) A document from the National Research Council that provides recommendations for implementing the NGSS in states, districts, and classrooms.
4. Hess, F. (2015).

[Group work: Using cooperative learning groups effectively](#)

[Increasing Inclusivity in the Classroom](#)

[How People Learn](#)

[Metacognition](#)

[Mindfulness in the Classroom](#)

[Motivating Students](#)

[Personalized Learning](#)

[Technological Pedagogical and Content Knowledge](#)

Using the \_\_\_\_\_ found in the SEA description on Canvas, and the Next Generation Science and Common Core Standards, the teacher candidate will complete and submit an age-appropriate unit of lesson plans which include a variety of methods and materials to teach Science across content areas, including the application of critical thinking and problem-solving skills. The thematic Unit of lessons must address cultural differences, different developmental levels, different learning styles and ability levels. It must also include both formative and summative assessment strategies, and digital-age learning experiences to plan, evaluate and strengthen instruction that will promote continuous intellectual, social, emotional, and physical development of each elementary student.

Candidate must also incorporate, as appropriate, the performing arts (dance, music, theater) and the visual arts as a primary media for communication, inquiry, and engagement among elementary students within the planned unit.

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Standard 1.a – Candidate uses his/her understanding of how children grow, develop and learn to assess, plan, and implement developmentally appropriate and challenging learning experiences and environments that consider individual children’s strengths and needs.

Candidate demonstrates little or no understanding of how children grow, develop, and learn.  
Candidate does not gather information about learners’ development.

Candidate understands how children grow and develop across the developmental domains, how development in each domain impacts growth in the other domains, and how all together they impact learning, but do not use this knowledge to plan developmentally appropriate and challenging learning experiences or environments.  
Candidate gathers information about learners’ development but





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Standard 3.d – Candidate differentiates instructional plans to meet the needs of every student in the classroom.

Candidate plans differentiated instruction with limited consideration to meet the needs of subsets of students, or individual students in the classroom.

Candidate plans are differentiated based on strengths or needs of a subset of students in the classroom and include modifying content or instructional processes.

Candidate plans specific strategies to scaffold learning for subsets of students but not for individuals.

Candidate plans are differentiated based on strengths and needs of individual students and include using a variety of instructional approaches, modifying content, instructional processes, products, and learning environments that address individual student interests and preferences for learning.

Candidate plans specific strategies to scaffold learning for individual

Standard 4.a – Candidate uses a variety of instructional practices to support the learning of every student.	<p>Candidate uses inconsistent instructional practices to support student learning.</p> <p>Candidate attempts to use appropriate resource materials during instruction to support children’s development of skills requisite to problem solving, and critical and creative thinking, but may fail to consider individual learner needs in planning.</p>	<p>Candidate uses appropriate instructional practices but does not use a variety of strategies or differentiate instruction to meet the individual needs of each student.</p> <p>Candidate uses appropriate resources although the variety of resources is limited and not readily adapted to differentiate instruction.</p>	<p>mathematics, and content learning; and providing thought provoking questions that encourage reasoning individually and collaboratively.</p> <p>Candidate uses a variety of appropriate instructional practices such as direct instruction, inquiry-based learning, and project-based learning, and makes attempts to differentiate instruction that supports the learning of every student.</p> <p>Candidate uses a variety of appropriate resource materials during instruction that supports the learning of every student.</p>	<p>assessment to improve engagement support.</p> <p>Candidate varies the use of instructional practices and differentiates instruction to support the learning of every student.</p>