

**ECED 4500**  
**Science and Technology in Early Childhood Education**  
**3 SEMESTER HOURS**

**Dewar College of Education and Human Services**  
**Valdosta State University**  
**Department of Early Childhood and Special Education**

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**Conceptual Framework: Guiding Principles (DEPOSITS)**

*(adapted from the Georgia Systemic Teacher Education Program Accomplished Teacher Framework)*

Dispositions Principle: Productive dispositions positively affect learners, professional growth, and the learning environment.

Equity Principle: All learners deserve high expectations and support.

Process Principle: Learning is a lifelong process of development and growth.

Ownership Principle: Professionals are committed to and assume responsibility for the future of their disciplines.

Support Principle: Successful engagement in the process of learning requires collaboration among multiple partners.

Impact Principle: Effective practice yields evidence of learning.

Technology Principle: Technology facilitates teaching, learning, community-building, and resource acquisition.

Standards Principle: Evidence-based standards systematically guide professional preparation and development.

**InTASC Model Core Teacher Standards\***

*(To be used for all teacher preparation program courses. Identify those that apply specifically to this course.)*

Standard #1: Learner Development. The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.

Standard #2: Learning Differences. The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.

Standard #3: Learning Environments. The teacher works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self-motivation.

Standard #4: Content Knowledge. The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.

Standard #5: Application of Content. The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.

Standard #6: Assessment. The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making.

Standard #7: Planning for Instruction. The teacher plans instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.

Standard #8: Instructional Strategies. The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.

Standard #9: Professional Learning and Ethical Practice. The teacher engages in ongoing professional learning and uses evidence to continually evaluate his/her practice, particularly the effects of his/her choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.

Standard #10: Leadership and Collaboration. The teacher seeks appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.

\*Council of Chief State School Offices, (2013, April). *InTASC model core teacher standards and learning progressions for teachers 1.0*. Retrieved from [http://www.ccsso.org/Documents/2013/2013\\_INTASC\\_Learning\\_Progressions\\_for\\_Teachers.pdf](http://www.ccsso.org/Documents/2013/2013_INTASC_Learning_Progressions_for_Teachers.pdf)

## **COURSE DESCRIPTION**

**Prerequisites: Appropriate 2999 course.**

Application of developmentally appropriate science instruction in the context of standards-based inquiry and focusing on constructivist models of student learning of content, attitudes, and skills. Instructional technology will be integrated with curriculum for grades P-5. ECED 4690 or a practicum approved at the program level is required as a co-requisite of this course.

## **REQUIRED TEXTBOOKS / RESOURCE MATERIALS**

Martin, R., Sexton, C., Franklin, T., Gerlovich, J. & McElroy, D. (2009). *Teaching science for all children: An inquiry approach (5th ed)*. Upper Saddle River, NJ: Pearson.

**Additional Readings:** As determined by the course instructor

## **COURSE OBJECTIVES** *(Show alignment to InTASC Model Core Teacher Standards for all educator preparation courses).*

The teacher Candidate will:

1. Use a variety of STEAM resources, materials and technologies appropriate for science instruction with P-5 children. (IS 3, 7, 8) TL 2.2
2. Use a variety of developmentally appropriate instructional strategies for teaching science to P-5 children in order to develop a deep understanding of science concepts, and their connections. (IS 3, 7, 8) CPL 2.3
3. Develop multiple methods of assessment to improve knowledge of content, to engage learners in their own growth, to monitor progress, and to guide the teacher's and learner's decision making. (IS 6) AL 3.2
4. Design and implement a safe environment in which hands on science activities engage learners in critical thinking and collaborative problem solving to emphasize the student learner as a scientist. (IS 4, 5) CPL 2.3
5. Analyze and select a variety of community and internet resources such as Project Learning Tree to ensure and support inclusive learning environments that enable each learner to meet high standards. (IS 1, 2) EDL 2.1
6. Develop, implement, and evaluate the effectiveness of an inquiry-based lesson plan using the 5E model that encourages learner collaboration, positive social interactions, and engagement in learning and self-motivation. (IS 3, 4, 5, 6, 7, 8) CPL 2.3, APL 3.3

7. Identify specific strategies and science classroom management practice to support students with diverse needs. (IS 1, 2, 3, 7, 9)
8. Review and incorporate the appropriate Georgia mandated P-5 science standards in lesson plans. (IS 7)

## COURSE ACTIVITIES/ASSIGNMENTS/REQUIREMENTS

1. Complete written tests including a midterm test and a final examination. (CO 1, 2, 4)
2. Participate in Project Learning Tree (PLT), Project Wild, or Project WET for certification, or other approved community science resource activities (to be documented) (CO 3, 4, 5, 6)
3. Present hands-on science activities as described in *Teaching Science for All Children* (or other approved source) using an understanding of individual differences to ensure inclusive and safe learning environments. (CO 1, 2, 3, 4, 5, 9)
4. Big Book Assignment (CO 1, 2, 8)
5. One integrated science/math inquiry lesson plan must be developed and implemented during your practicum experience. This lesson plan must include modifications and or accommodations to meet the needs of diverse learners and will be entered into LiveText. (CO 1, 2, 3, 4, 6, 9)
6. Conduct an investigation into the research literature on an assigned topic in science education following an assigned format to produce a report. (CO 1, 6, 7)

## COURSE EVALUATION

- This class is part of your professional preparation. Appropriate dispositions are expected and required. You may earn the maximum number of points for all assignments and activities, contingent upon the knowledge, originality, and quality demonstrated in your work. Demonstrated mastery of formal Standard English is required in all facets of the course. Therefore, evaluation of all written work will be made based upon both content and mechanics.
- **Each** spelling, punctuation, syntax, grammatical, and typographical **error** will result in up to a **one-point deduction** from the total score, regardless of the point value of the assignment.
- All assignments prepared outside of class must be produced using a word processing computer program (**Microsoft Word** is best), **12-point font** (Times New Roman is best), and **double-spaced** (unless otherwise noted) and **include the teacher candidate's name, course number and section, and date**. This includes any e-mail assignments sent to the instructor.
- All assignments must be the original work of the teacher candidate submitting the work. All assignments must be completed by the teacher candidate during the current semester and not submitted to another instructor to fulfill requirements for any other course. References and citations (**using APA 6th edition format**) are required when referring to the work of others. (See POLICY STATEMENT ON PLAGIARISM AND CHEATING, which follows).

- Assignments must be submitted at the **beginning of the class period on the day they are due**. An assignment is considered late if it is not available at the start of class. Late assignments will be accepted up to one week after the due date. Ten percent (10%) of the grade/points will be deducted for each day an assignment is late. If the late assignment is not completed within one week, a grade of zero (0) will be assigned.
- **Make-up exams will be given at the discretion of the instructor.**

## ATTENDANCE POLICY

"The University expects that all students shall attend all regularly scheduled class meetings held for instruction or examination.... Instructors are required to maintain records of class attendance... It is recognized that class attendance is essentially a matter between students and their instructors. Instructors must explain their absence policy in the course syllabus. All students are held responsible for knowing the specific attendance requirements as prescribed by their instructors and for the satisfactory make-up work missed by absences. When students are compelled for any reason to be absent from class, they should immediately contact the instructor. A student who misses more than 20% of the scheduled classes of a course will be subject to receiving a failing grade in the course" (VSU Undergraduate Catalog 2013-2014, p. 77).

## PROFESSIONALISM

As a teacher candidate, you are expected to conduct yourself in the professional educator role as defined by the Georgia Professional Standards Commission Code of Ethics for Educators. You will be provided with a copy of the Code of Ethics for Educators which can be found on the following URL <http://www.gapsc.com/Rules/Current/Ethics/505-6-.01.pdf>. Failure to follow the Code of Ethics will result in disciplinary actions through the Professional Improvement Plan process.

- Arrive for class on time and prepared by having read all assigned materials, including other materials distributed during the semester.
- Sign the Class Sign-in Sheet at every class meeting (even when arriving late to class).
- Plan to stay for the entire class period.
- Remain on task and actively participate in class activities and discussions.
- Avoid distracting yourself, others, and the instructor during class by turning off (or making inaudible) all cell phones, pagers, or other electronic devices and leaving such devices packed away. Continued violation of this policy will result in a concern form. If you have extenuating circumstances in which you need your cell phone, inform the instructor before class.
- Use of laptops is allowed for instructional/academic purposes only. Laptops may not be used to access email or websites not related to class discussions/activities or for checking social networking pages (such as Twitter, Facebook, etc.). Teacher candidates who violate this policy will lose the

privilege of using their laptops in class. Laptops must be packed away during individual and group presentations, during guest lectures, and during quizzes, tests, and exams.

- Contact the instructor concerning missed assignments.  
NOTE: If you experience extenuating circumstances (illness, emergency, etc.) that will require more than one absence, please contact the Office of the Dean of Students at **(229) 333-5941** and give them the details of your illness/emergency. They will notify all of your instructors of the situation.
- Use only VSU e-mail accounts for corresponding with the instructor for this course. Please check your VSU e-mail at least once a day. Be sure to check your Junk Email box. When e-mailing the instructor of this course for any reason, place the name of the course and the section in the subject line (for example: ECSE 3210 Section A). If you have problems with your VSU email account, call the Information Technology Help Desk **(229-245-HELP)**.

## **DEWAR COLLEGE OF EDUCATION & HUMAN SERVICES POLICY ON PLAGIARISM**

<http://www.valdosta.edu/colleges/education/deans-office/policy-statement-of-plagiarism.php>

### **Access Statement:**

Students with disabilities who are experiencing barriers in this course may contact the Access Office for assistance in determining and implementing reasonable accommodations. The Access Office is located in Farbar Hall. The phone numbers are 229-245-2498 (V), 229-375-5871 (VP) and 229-219-1348 (TTY). For more information, please visit VSU's Access Office or email: [access@valdosta.edu](mailto:access@valdosta.edu).

### **Title IX Statement:**

Valdosta State University (VSU) is committed to creating a diverse and inclusive work and learning environment free from discrimination and harassment. VSU is dedicated to creating an environment where all campus community members feel valued, respected, and included. Valdosta State University prohibits discrimination on the basis of race, color, ethnicity, national origin, sex (including pregnancy status, sexual harassment and sexual violence), sexual orientation, gender identity, religion, age, national origin, disability, genetic information, or veteran status, in the University's programs and activities as required by applicable laws and regulations such as Title IX. The individual designated with responsibility for coordination of compliance efforts and receipt of inquiries concerning nondiscrimination policies is the University's Title IX Coordinator: Director of the Office of Social Equity, [titleix@valdosta.edu](mailto:titleix@valdosta.edu), 1208 N. Patterson St., Valdosta State University, Valdosta, Georgia 31608, 229-333-5463.

## **STUDENT OPINION OF INSTRUCTION**

At the end of the term, all students will be expected to complete an online Student Opinion of Instruction survey (SOI) that will be available on BANNER. Students will receive an email notification through their VSU email address when the SOI is available (generally at least one week before the end of the term). SOI responses are anonymous, and instructors will be able to view only a summary of all responses two weeks after they have submitted final grades. While instructors will not be able to view individual responses or to access any of the responses until after final grade submission, they will be able to see which students have or have not completed their SOIs, and student compliance may be considered in the determination of the final course grade. These compliance and non-compliance reports will not be available once instructors are able to access the results. Complete information about

the SOIs, including how to access the survey and a timetable for this term is available at <http://www.valdosta.edu/academic/OnlineSOIPilotProject.shtml>.