SCE4363 Advanced Topics in Science Education Practicum

Course Description: The student will plan and implement science instruction that meets the needs of a diverse population of learners. The student will learn to utilize action research methodology, assessment principles, educational neuroscience research, and best practices to identify and address issues related to science learning in grades 6-12. Sixty hours of clinical experience are required. (3 hr. lecture)

Prerequisite: RED3393, SCE4362, TSL4324C, EDF4430, EDG3321

Pre/Corequisite: EEX3071, SCE3893

<table>
<thead>
<tr>
<th>Course Competency</th>
<th>Learning Outcomes</th>
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<tr>
<td>Competency 1: The student will utilize concepts from human development and learning theories by:</td>
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<td>1. Quality of Instruction a. Aligning instruction with state-adopted standards at the appropriate level of rigor. b. Sequencing lessons and concepts to ensure coherence and required prior knowledge. c. Designing instruction for students' to achieve mastery. d. Selecting appropriate formative assessments to monitor learning. e. Using a variety of data, independently, and in collaboration with colleagues, to evaluate learning outcomes. f. Using a variety of data, independently, and in collaboration with colleagues, to evaluate learning outcomes, adjust planning, and continuously improve the effectiveness of the lessons. g. Developing learning experiences that require students to demonstrate a variety of applicable skills and competencies.</td>
<td>2. Numbers / Data</td>
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<td>Competency 2: The student will maintain a student-centered environment that is safe, organized, equitable, flexible, inclusive, and collaborative by:</td>
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<td>1. The Learning Environment a. Organizing, allocating, and managing the resources of time, space, and attention. b. Managing individual and class behaviors through a well-planned management system. c. Conveying high expectations to all students. d. Respecting students’ cultural, linguistic, and family background. e. Modeling clear, acceptable oral and written communication skills. f. Maintaining a climate of openness, inquiry, fairness, and support. g. Integrating current information and communication technologies. h. Adapting the learning environment to accommodate the differing needs and diversity of students. i. Utilizing current and emerging assistive technologies that enable students to participate in high-quality communication interactions and achieve their educational goals.</td>
<td>5. Cultural / Global Perspective 8. Computer / Technology Usage</td>
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<td>Competency 3: The student will utilize a deep and comprehensive knowledge of the subject taught by:</td>
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<td>1. Instructional Delivery and Facilitation a. Delivering engaging and challenging lessons. b. Deepening and enriching students' understanding through content area literacy strategies, verbalization of thought, and application of the subject matter. c. Identifying gaps in</td>
<td>3. Critical thinking</td>
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students’ subject matter knowledge. d. Modifying instruction to respond to preconceptions of and misconceptions. e. Relating and integrating the subject matter with other disciplines and life experiences. f. Employing higher-order questioning techniques. g. Applying varied instructional strategies and resources, including appropriate technology, to provide comprehensible instruction and to teach for student understanding. h. Differentiating instruction based on an assessment of student learning needs and recognition of individual differences in students. i. Supporting, encouraging, and providing immediate and specific feedback to students to promote student achievement. j. Utilizing student feedback to monitor instructional needs and to adjust instruction.

**Competency 4:** The student will **practice assessment** by:

1. **Assessment**
   a. Analyzing and applying data from multiple assessments and measures to diagnose students’ learning needs, inform instruction based on those needs, and drive the learning process.
   b. Designing and aligning formative and summative assessments that match learning objectives and lead to mastery.
   c. Using a variety of assessment tools to monitor student progress, achievement, and learning gains.
   d. Modifying assessments and testing conditions to accommodate learning styles and varying levels of knowledge.
   e. Sharing the importance and outcomes of student assessment data with the student and the student’s parent/caregiver(s).
   f. Applying technology to organize and integrate assessment information.

**Competency 5:** The student will **demonstrate improvement, responsibility, and ethics** by:

1. **Continuous Improvement, Responsibility, and Ethics**
   a. Designing purposeful professional goals to strengthen the effectiveness of instruction based on students’ needs.
   b. Examining and using data-informed research to improve instruction and student achievement.
   c. Using a variety of data, independently, and in collaboration with colleagues, to evaluate learning outcomes, adjust planning, and continuously improve the effectiveness of the lessons.
   d. Collaborating with the home, school, and larger communities to foster communication and to support student learning and continuous improvement.
   e. Engaging in targeted professional growth opportunities and reflective practices, both independently and in collaboration with colleagues.
   f. Implementing knowledge and skills learned in professional development in the teaching and learning process.

**Competency 6:** The student will **understand that educators are held to a high moral standard in the community, the effective educator adheres to the Code of Ethics and Principles of Professional Conduct of the Education Profession pursuant to State Board of Education Rules 6B-1.001 and 6B-1.006, F.A.C., and fulfills the expected obligations to students, the public, and the teaching professions** by:

1. **Applying the Code of Ethics and Principles of Professional Conduct** to professional and personal situations.
   a. Applying the Code of Ethics and Principles of Professional Conduct to professional and personal situations.
   b. Identifying statutory grounds and procedures for disciplinary action, the penalties that can be imposed by the Educational Practices Commission against a certificate holder, and the appeals process available to the individual.
   c. Applying knowledge of rights, legal responsibilities, and procedures for reporting incidences of abuse, neglect, or other signs of distress.
   d. Identifying and applying policies and procedures for the safe, appropriate, and ethical use of technologies.
   e. Determining and applying the appropriate use and maintenance of student’s information and records.