

Course Competencies Template - Form 112

GENERAL INFORMATION			
Name: Dr. Susan Neimand	Phone #: (305) 237-6152		
Course Prefix/Number: SCE 4643	Course Title: Advanced Topics in Science Education Practicum		
Number of Credits: 3			
Degree Type	<input type="checkbox"/> B.A. <input checked="" type="checkbox"/> B.S. <input type="checkbox"/> B.A.S <input type="checkbox"/> A.A. <input type="checkbox"/> A.S. <input type="checkbox"/> A.A.S. <input type="checkbox"/> C.C.C. <input type="checkbox"/> A.T.C. <input type="checkbox"/> V.C.C		
Date Submitted/Revised: 3/10/08	Effective Year/Term: 20081		
<input type="checkbox"/> New Course Competency <input checked="" type="checkbox"/> Revised Course Competency			
Course to be designated as a General Education course (part of the 36 hours of A.A. Gen. Ed. coursework): <input type="checkbox"/> Yes <input type="checkbox"/> No			
The above course links to the following Learning Outcomes: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Communication <input checked="" type="checkbox"/> Numbers / Data <input checked="" type="checkbox"/> Critical thinking <input checked="" type="checkbox"/> Information Literacy <input checked="" type="checkbox"/> Cultural /Global Perspective </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Social Responsibility <input checked="" type="checkbox"/> Ethical Issues <input checked="" type="checkbox"/> Computer / Technology Usage <input type="checkbox"/> Aesthetic / Creative Activities <input type="checkbox"/> Environmental Responsibility </td> </tr> </table>		<input checked="" type="checkbox"/> Communication <input checked="" type="checkbox"/> Numbers / Data <input checked="" type="checkbox"/> Critical thinking <input checked="" type="checkbox"/> Information Literacy <input checked="" type="checkbox"/> Cultural /Global Perspective	<input checked="" type="checkbox"/> Social Responsibility <input checked="" type="checkbox"/> Ethical Issues <input checked="" type="checkbox"/> Computer / Technology Usage <input type="checkbox"/> Aesthetic / Creative Activities <input type="checkbox"/> Environmental Responsibility
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Course Description (limit to 50 words or less, must correspond with course description on Form 102): This course is designed to introduce and provide the pre-service teacher practice in classroom research. Students will use action research strategies to identify and address issues related to learning science and students' science misconception in grades 6-12. Forty contact hours of field experience are required.			
Prerequisite(s): SCE4863 and SCE4362	Corequisite(s):		

Course Competencies: (for further instruction/guidelines go to: <http://www.mdc.edu/asa/curriculum.asp>)

Competency 1: The student will be able to value the significance of educational research to the teaching and learning of science by:

1. Identifying current educational research pertaining to instructional strategies for science.
2. Summarizing and critiquing a minimum of 5 articles from a refereed science education journal.
3. Identifying the parts of a refereed journal article and stating the purpose, methodology, result, and conclusion.
4. Utilizing the library and electronic databases to find specific information about current science educational research in refereed journals.
5. Applying research-based instructional practices for developing students' critical thinking and conceptual understanding of scientific concepts. (FEAP 4, 7 and 10, NSTA 5)
6. Developing a repertoire of teaching practices that are congruent with current science educational research and personal teaching philosophies

Competency 2: The student will be able to design and manage science learning environments which are responsive to the needs and abilities of all students by:

1. Exploring the current literature/research related to science education and design activities that will enable all students to improve their conceptual understanding of scientific concepts.

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2. Constructing and implementing methods of assessment (formative and summative) for a science unit plan with daily lesson plans.
3. Analyzing the needs of students as demonstrated through their classroom behavior and performance on pre and post data assessment tools.
4. Select teaching and assessment strategies that support the development of student understanding and nurture a community of science learners.
5. Designing appropriate learning activities that address the current literature/research related to science education and design activities that will enable all students to improve their conceptual understanding of scientific concepts. (FEAP 3)
6. Developing and/or selecting and using instructional content, materials, resources, and strategies that respond to cultural, linguistic, communication, disability, and gender differences and are aligned to the State and National Standards and incorporate inquiry. (FEAP 4, 7 and 10 and NSTA 3 and 5)
7. Designing, sequencing, and implementing appropriate lesson plans and instructional units that incorporate inquiry to carry out the goals and objectives of the State and National Standards. (FEAP 4, 7 and 10 and NSTA 3 and 5)
8. Compiling a portfolio of resources for general and specific science teaching activities.

Competency 3: The student will be able to design and manage a variety of classroom demonstrations, field experiences and laboratory experiments to enhance specific instructional objectives and address the needs and abilities of all students by:

1. Exploring the current literature related to science education and design classroom demonstrations, field experiences and laboratory experiments that will enable all students to improve their conceptual understanding of scientific concepts.
2. Planning and implementing an inquiry laboratory experiment and lessons to address the common misconceptions that are commonly held by the student they teach.
3. Constructing and implementing methods of assessment for a science unit plan with daily lesson plans including home learning and laboratory/field situations as appropriate.
4. Engaging students successfully in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner. (FEAP 4, 7 and 10 and NSTA 3)
5. Observing and analyzing the effectiveness of science teachers' strategies and procedures for managing laboratory and hands on science lessons.
6. Analyzing a variety of classroom demonstrations, field experiences and laboratory experiments for safety concerns and planning effective strategies for avoiding accidents.
7. Discussing the legal issues associated with laboratory and field trip experiences.
8. Creating an educational climate that foster openness, inquiry and concern for others.

Competency 4: The student will be able to effectively communication with parents, students, community partners, and school-based colleagues by:

1. Communicating and sharing action research findings accurately and effectively orally and in writing.
2. Creating a science safety contract and letter.
3. Observing and identifying techniques for leading effective classroom discourse.
4. Providing students with clear and specific instructions for completing lesson activities, especially in the laboratory.
5. Orchestrating discourse among all students about scientific ideas and processes. (FEAP 2 and 5 and ESOL S&C 6)
6. Facilitating ongoing formal and informal discussion based on a shared understanding of rules of scientific discourse. (FEAP 2 and 5 and ESOL S&C6)
7. Utilizing verbal, nonverbal, and written language effectively.
8. Interacting with colleagues, supervisors, and students to develop effective lesson plans. (FEAP 10, NSTA 10)

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9. Interacting effectively with colleagues, parents, and students; mentor new colleagues; and foster positive relationships with the community.
10. Integrating information and feedback from students, faculty supervisors, cooperating teachers, and others to improve their teaching and student learning.

Competency 5: The student will be able to assess the learning of their students to guide their teaching by:

1. Utilizing student data, observations of teaching, and interactions with colleagues to report student achievement and opportunities to learn to students, teachers, parents, policy makers, and the general public.
2. Utilizing multiple methods and systematically gather data about student understanding and ability.
3. Utilizing multiple assessment tools and strategies to achieve important goals for instruction that are aligned with methods of instruction and the needs of students.
4. Analyzing assessment data and using the results of these multiple assessments to guide and modify instruction, the classroom environment, or the assessment process.
5. Utilizing the results of assessments as vehicles for students to analyze their own learning, engaging students in reflective self-analysis of their own work.
6. Reflecting constantly upon their teaching and identify ways and means through which they may grow professionally.

Competency 6: The student will be able to value the importance of continuous personal and professional growth and change to meet the needs of their student, school community, and profession by:

1. Exploring the theoretical and practical literature related to effective learning environments and design and establish a classroom environment that is conducive to the high achievement of all students.
2. Conducting an action research project at their field experience site in order to identify aspects of the educational process in that they wish to enhance.
3. Implementing a scientific investigation to develop skills for implementing the education change.
4. Utilizing student data, observations of teaching, and interactions with colleagues to reflect on and improve teaching practice.
5. Using the results of multiple assessments and data (both qualitative and quantitative) as part of their action research project to guide and modify instruction to shape learning experiences for students, keeping in mind both cultural and political influences.
6. Utilizing information from students, supervisors, colleagues and others to improve their teaching and facilitate their professional growth.
7. Engaging in self-reflection regarding research-based performance and pursue opportunities for feedback to demonstrate commitment to continuous improvement in effective goal-setting through a professional development plan.
8. Engaging in science education professional development activities sponsored National, State, and/or Local professional organizations. (FEAP 3, NSTA 10)
9. Participating in science teaching professional organizations and conferences.
10. Engaging actively and continuously in opportunities for professional learning and leadership that reach beyond minimum job requirements.

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