COURSE TITLE: Teaching Science in Elementary School
COURSE NUMBER: SCE 4310

COURSE DESCRIPTION (with prerequisites):
This course is designed to provide students with the methodology requisite to effective science teaching in the elementary school classroom. The course centers on using science content knowledge, inquiry, technology, and process skills in the development and implementation of effective instructional and assessment strategies for the elementary level student. Experiences such as: laboratory, environment; problem solving; cooperative learning; and discussion of topics related to the history of science, all contribute to the development of the professional teacher of diverse populations. This course addresses specific National and Sunshine State Standards; subject matter and professional competencies; and pedagogy pertinent to the discipline, and required for certification. Ten (10) hours practicum are required for course completion. 3 semester hours credit. [A]

NAME(S) OF INSTRUCTORS:
Dr. Santine Cuccio

EFFECTIVE ACADEMIC YEAR:
2012-13

REQUIRED TEXTBOOKS AND INSTRUCTIONAL SUPPLIES:
5. Florida Educator Accomplished Practices

GRADING POLICY:
The standing of a student in each course is expressed by one of the following letters and corresponding grading system:
A – 90 – 100
B – 80 – 89
C – 70 – 79
D – 60 – 69
F – 59 or less
The Chipola Catalog provides policies and procedures regarding the grading system. A student’s Grade Point Average is derived from the grading system/quality point scale.

**ATTENDANCE AND WITHDRAWAL POLICIES:**
Chipola College expects regular attendance of all students. Students who are absent from classes for any reason other than official college activities must satisfy the instructor concerned that the absence was due to illness or other clearly unavoidable reasons. Otherwise, the student may suffer grade loss at the discretion of the instructor. Chipola policy allows each instructor to specify in the Instructor First Day Handout whether or not an absence is excusable and what affect the absence or tardy may have on the grade.

A student is allowed to repeat a course a maximum of three (3) times. **On the third attempt a student (1) must bear the full cost of instruction (unless waived by Student Services), (2) cannot withdraw, and (3) must receive a grade.**

**MAKE-UP POLICY:**
Chipola allows each instructor to specify in the Instructor First Day Handout the makeup policy.

**ACADEMIC HONOR CODE POLICY:**
Students are expected to uphold the Academic Honor Code. Chipola College’s Honor Code is based on the premise that each student has the responsibility to (1) uphold the highest standards of academic honesty in his/her own work; (2) refuse to tolerate academic dishonesty in the college community; and (3) foster a high sense of honor and social responsibility on the part of students. Further information regarding the Academic Honor Code may be found in the Chipola Catalog, Student Governance section.

**STUDENTS WITH DISABILITIES POLICY:**
Chipola College is committed to making all programs and facilities accessible to anyone with a disability. Chipola’s goal is for students to obtain maximum benefit from their educational experience and to effectively transition into the college environment. Students with disabilities are requested to voluntarily contact the Office of Students with Disabilities to complete the intake process and determine their eligibility for reasonable accommodations.

**LIBRARY AND ON-LINE REFERENCE MATERIALS:**
The library is a comprehensive learning resource center providing information in print, electronic, and multimedia format to support the educational objectives of the College. On-line catalogs, e-books and electronic databases can be accessed by using the LINCCWeb icon on the Chipola Library website at [www.chipola.edu/library](http://www.chipola.edu/library). If you have questions about database usage consult the “How to Use the Chipola Databases” on the Library website or call the Library at 850/718-2274 during regular hours. Library hours are posted each semester at the building entrance and on the Library website. See your Instructor First Day Handout for individual instructor recommendations and resources.
TECHNOLOGY RESOURCES:
The Information Technology Center, located in the library, is equipped with computer workstations. Lab hours are posted each semester at the building entrance and on the Library website. The ACE Lab, located in Building L, is available for tutoring and is equipped with computer workstations. Lab hours are posted each semester at the room entrance. The college’s learning management system is Desire 2 Learn (d2l). Classes become available on d2l on the first day of the semester. It is the student’s responsibility to log onto the d2l system the first day of class to establish the first day of attendance and to check announcements. For further information, contact your instructor or the Director of Online Learning.

ELECTRONIC DEVICE USAGE:
All electronic devices such as cell phones, beepers, pagers, and related devices are to be silenced prior to entering classrooms and/or laboratories to avoid disruption. Should it become necessary for a student to leave his/her “device” on to send or receive an emergency call and/or text message, the student must inform the instructor prior to class. If the student finds it necessary to send and/or receive an emergency call and/or text message during class/lab time, he/she is instructed to take all books and belongings and step outside the classroom to deal with the situation. To minimize classroom disruption and the distraction to classmates, the student will not be permitted to reenter the classroom during that class period. Any time a test is being administered, all such devices must be turned off and put away. If a device is seen or heard during an exam, a score of zero will be given for that exam. Initial and repeated infractions may result in disciplinary action.

DISCIPLINE SPECIFIC COMPETENCIES / LEARNING OUTCOMES:
E – 1 Demonstrate understanding of instructional design and lesson planning by applying concepts from human development and learning theories.
E – 2 Demonstrate ability to maintain a student-centered learning environment that is safe, organized, equitable, flexible, inclusive and collaborative.
E – 3 Demonstrate effective instructional delivery and facilitation by utilizing deep and comprehensive knowledge.
E – 4 Demonstrate understanding of assessment by analyzing and applying data from multiple assessments to diagnose learning needs and inform instruction.
E – 5 Demonstrate continuous improvement by designing purposeful goals to strengthen instructional effectiveness and impact student learning.
E – 6 Demonstrates professional responsibility and ethical conduct and fulfills expected obligations to students, the public, and the education profession.

1. Task CC1ES (FEAP 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.3, 2.5, 2.6, 2.8, 3.1, 3.3, 3.4, 3.5, 3.6, 3.7, 3.9, 3.10): The candidate selects a Big Idea from among the 17 NGSSS for concept development, inquiry, and science literacy. It includes approximately 6 formal lesson plans for practice at the college and implementation at the elementary
They contain at least the following components (skills/strategies): concept map; observation; measurement; communication; classification (multistage); prediction; inference; researchable question; lab/nature/activity; two (theorists) – one in education and one in science (related to the methodology and topic chosen, respectively). Assessment instruments must be included with results; and reflections subsequent to teaching.

2. **Task CC8B (FEAP 5.4):** The candidate completes a series of performance tasks that require specific content knowledge (**see competencies and NGSSS**) in the areas of: nature of matter; forces, motion, and energy; life science; nature of science; relationship of science and technology; instruction and assessment. *If the student has passed the subject area exam for his/her major, then this task has been completed.* For this exemption, a copy of a passing score must be recorded in the database by end of the first week of classes.

### LINKING COURSE-LEVEL STUDENT LEARNING OUTCOMES WITH DISCIPLINE-SPECIFIC COMPETENCIES, ASSESSMENT METHODS, AND ARTIFACTS

<table>
<thead>
<tr>
<th>STUDENT LEARNING OUTCOMES FOR SCE 4310</th>
<th>NSES/NGSSS Standards</th>
<th>FEAPs (Discipline Outcomes)</th>
<th>FL Competencies and Skills:</th>
<th>Assessment Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>The student will:</td>
<td></td>
<td></td>
<td>Science K-6</td>
<td>Professional Ed.</td>
</tr>
<tr>
<td>Explain NSES Science Teaching, Assessment, professional Development and Content Standards (emphasizing their unifying concepts, processes, inquiry and their overall purpose of science literacy); and NGSSSS.</td>
<td>All</td>
<td></td>
<td>1.1, 1.4, 13.1, 13.2</td>
<td>Test</td>
</tr>
<tr>
<td>Develop a well thought out position on why science should be taught in the elementary school.</td>
<td>Selected NSES Standards</td>
<td>26.1</td>
<td></td>
<td>Test</td>
</tr>
<tr>
<td>Plan inquiry based science lessons (with collaboration) for students, which include objectives adapted to: national, and state goals; experiences, interests, questions and ideas of students.</td>
<td>NSES Teach Standards NGSSS</td>
<td>(E-1)1.1-3, 1.6, (E-2) 2.3-4, 2.8</td>
<td>25.1-5, 27.1-3</td>
<td>Task 4.1_2.1ES - RU</td>
</tr>
<tr>
<td>Ascertain prior knowledge (naïve concepts) in science for given grade levels as well as culture and experiential background of students, and their effects on learning.</td>
<td>NSES Teach Standards</td>
<td>(E-1)1.2, (E-3) 3.3-5</td>
<td>27.3</td>
<td>Test</td>
</tr>
<tr>
<td>Build a repertoire of teaching strategies/skills (to be used in each part of the lesson plan) which promote NSES inquiry: laboratory/demonstrations</td>
<td>All NSES Teaching Standards</td>
<td>(E-1) 1.1, 1.3, 1.6</td>
<td>27.1-3</td>
<td>CC10M-RU</td>
</tr>
</tbody>
</table>
(safety); questions/ discussion; technology; critical/creative thinking, problem solving.

| Demonstrate knowledge of science concepts(and respective technologies, strategies, community resources) for Competencies and Skills; and NGSSS Bodies of Knowledge: Nature of Science, Earth and Space, Physical and Life Science | All NSES All NGSSS | All | CC8B - RU |
| Demonstrate competencies in implementing inquiry, using science process skills and critical thinking strategies in methods of teaching science content, and in defining and solving problems for diverse learners | Selected benchmarks depending on student lesson topics | (E-1)1.1-6; (E-2) 2.3-6, 2.8; (E-3) 3.1, 3.4-7, 3.9-10 | 25.1-2 | 2.2, 2.4, 4.1-2, 5.1-2; 10.1-3; 14.3 | 4.1.2.1ES -RU |
| Use assessment techniques which are authentic and help students learn (through feedback) and the pre-professional to become a reflective practitioner | NSES Assessment Standards | (E-3) 3.3 (E-3); (E-4) 4.2-3 | 27.3 | 1.2, 1.3, 1.4 | 4.1.2.1ES -RU |
| Participate in professional growth opportunities. | NSES Professional Development | (E-5) 5.4-5 | 3.1 |

**Assessment Codes**
- **T** = Tests
- **Pre/Post** = Pre- and Post-Tests
- **OT** = Objective Tests
- **UT** = Unit Tests
- **Q** = Quizzes
- **F** = Final Examination
- **CF** = Cumulative Final
- **EX** = Departmental Exam
- **SE** = Nat’l or State Standardized Exam
- **RPT** = Report/Presentation
- **SP** = Skills Performance
- **SD** = Skills Demonstration
- **W** = Writing Assignments
- **E** = Essays
- **DE** = Documented Essays
- **RP** = Research papers
- **J** = Jury
- **R** = Recital
- **Proj.** = Projects
- **Exp.** = Experiments
- **Cap. Proj.** = Capstone Project
- **Cap. Course** = Capstone Course
- **Prac.** = Practicum
- **Intern.** = Internship
- **H** = Homework
- **PS** = Problem Solving
- **DB** = Discussion Board
- **BO** = Behavioral Observation
- **Clin.** = Clinicals
- **CS** = Case Study
- **CP** = Case Plan
- **Port.** = Portfolio
- **Obs.** = Teacher Observation
- **Sk. Check** = Skills Check-off
- **Curriculum Frameworks**
- **JP** = Judged
- **Performance/Exhibition**

**MEANS OF ACCOMPLISHING STUDENT LEARNING OUTCOMES:**
1. Attend and participate in class regularly.
2. Read all assigned material before class.
3. Study in-class notes and on-line (d2l) materials.
4. Complete assigned projects in a timely manner to enable reflections and revisions on the final product.
5. Seek opportunities to practice teaching skills through tutoring and substituting in K – 12 schools.
6. Collaborate with peers and other professionals.

**ASSIGNMENT AND/OR COURSE OUTLINE**

See your Instructor First Day Handout for individual instructor assignment schedule.