

SCE 4310 Teaching Elementary School Science (K-6)

**College of Education, University of South Florida St. Petersburg
Course Syllabus
Spring 2007**

**Please note that this syllabus is tentative and subject to change.
The instructor will communicate any changes to the class.**

Class Meeting Schedule: Wednesdays, 5:30-8:20p, Coquina Hall 208

Instructor Information:

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Course Home Page: USF SCE4310 Course site is available on Blackboard. Please make sure you have an up-to-date myUSF account.

Office Hours: Mondays, 9- 11a; Wednesdays, 3:30-5:30p; others by appointment

Course Description:

Prerequisites: Admission to Elementary Program and completion of General Education Requirements in the Natural Science area. This course is designed for prospective elementary school teachers of science. Throughout the semester, this class will allow students to explore the following issues:

1. How to create, locate, and teach science curriculum which is aligned with national and state science standards (with integration of other subject standards where applicable);
2. How to design and implement an inquiry-based science program for elementary school children;
3. How to assess students' performance by using a combination of traditional and performance-based assessment strategies;
4. Increase their understanding of key science concepts;
5. How to use technology effectively to locate appropriate resources in teaching science;
6. How to adapt and create science lessons that celebrate the contributions of scientists from various cultures; and
7. How to modify your science lessons and activities to meet the needs of various student populations (i.e., English for Speakers of Other Languages, Students with Disability, etc.).

Course Objectives:

By the end of the class, students will be expected to:

1. Expand her/his knowledge of science as a human activity, in the context of the elementary school (Florida's Accomplished Practices 1, 4, 8, 9);
2. Demonstrate the skills related to the process of science, as they apply to the learning of science by elementary school children, including specific ESOL strategies for students at various levels of proficiency (Florida's ESOL Standards 3, 4, 5, 6, 7, 12, 13, 14, 18; Florida's Accomplished Practices 1, 4, 5, 6, 7, 8, 9, 10, 12);
3. Appreciate the importance of science teaching in the intellectual growth of elementary school children (Florida's Accomplished Practices 4, 5, 6, 7, 8, 9);
4. Apply the appropriate assessment strategies to determine the progress of children's learning of science, including specific ESOL strategies for students at various levels of proficiency (Florida's ESOL Standards 13, 14, 15, 16, 17, 18, 19, 20, 21; Florida's Accomplished Practices 1, 4, 5, 8, 9);
5. Apply the knowledge obtained from previous education courses to the teaching of science at the elementary school level (Florida's Accomplished Practices 1, 4, 8, 9, 10, 11);

6. Reflect on their classroom experience in teaching science in assigned school districts in relation to the standards articulated in the National Science Education Standards and Florida Sunshine State Science Standards (Florida's Accomplished Practices 1, 4, 8, 9, 10, 11);
7. Develop lesson plans, which are aligned with the local, state, and national science education standards and Florida Performance Standards for Teachers of English for Speakers of Other Languages (Florida's ESOL Standards, 13-21, (Florida's Accomplished Practices 1, 4, 8, 9, 10, 11, Florida's Accomplished Practices 1, 4, 5, 6, 7, 8, 9, 10, 11, 12).

Textbooks and Materials:

No textbook will be required for this course. However, there will be other materials that students will be expected to purchase during the semester.

Required Reading:

All of these readings can be found online.

1. *Florida Sunshine State Science Standards* [Available] <http://www.firn.edu/doe/curric/prek12/frame2.htm> [SSS]
2. *Benchmark for Science Literacy: Project 2061*. American Association for the Advancement of Science (AAAS, 1993). New York: Oxford University Press. [Available] <http://www.project2061.org/tools/benchol/bolintro.htm> [Benchmarks]
3. *National Science Education Standards*. National Research Council (1996). Washington, DC: National Academy Press. [Available] <http://www.nap.edu/books/0309053269/html/R1.html> [Standards]
4. National Science Resources Center, National Academy of Sciences, Smithsonian Institution. (1996). Resources for Teaching Elementary School Science. Available @ www.nap.edu/catalog/4966.html. Read part one to familiarize yourself with the document.
5. National Research Council. (2000). *Inquiry and the National Science Education Standards*. Washington, DC: National Academy Press. Available @ www.nap.edu/catalog/9596.html. Read Chapters 1, 2, 3, & 4.
6. Other classroom activities and required readings will be provided to you throughout the course.

Recommended Additional Reading

National Science Teachers Association Position Statements. Available @ www.nsta.org/position. Read: The National Science Education Standards: A Vision for the Improvement of Science Teaching and Learning, Elementary School Science, Multicultural Science Education, and Science/Technology/Society: A New Effort for Providing Appropriate Science for All.

Policies & Procedures:

A. Attendance and Assignments: Attendance at all class sessions is the minimum expectation. The activities in class will be the focus of the learning. When a class is missed, no amount of reading or theorizing can 'make-up' the physical act of being in class and actually 'doing' the activities. We will be participating, teaching, critically thinking, learning, discussing, and observing during our class activities. Therefore, absences and tardiness are frowned upon except in cases of extreme emergency. If you cannot attend a class due to an extreme emergency, please inform the instructor as soon as possible via email (mbuttoner@stpt.usf.edu) or via a phone call to the instructor's office (727-873-4058). If an extreme emergency occurs, students will be required to bring in a doctor's note prior to returning to class. It is the student's responsibility to be in the class on time and be ready for discussion and activities. Tardiness will affect your class participation and possibly your final grade. If you miss two classes (excused and/or unexcused), you will be encouraged to withdraw from the class.

B. Academic Dishonesty and Punishment Guidelines: Students attending USF are awarded degrees in recognition of successful completion of coursework in their chosen fields of study. Each individual is expected to earn his/her degree on the basis of personal effort. Consequently, any form of cheating on examinations or plagiarism on assigned papers constitutes deceit and dishonesty.

Disruption of the classroom or teaching environment is also unacceptable. This will not be tolerated in the University community and will be punishable, according to the seriousness of the offense, in conformity with this rule. Punishment for academic dishonesty will depend on the seriousness of the offense and may include giving the student an "F" or "Zero" on the subject paper, lab report, etc.; or an "F" in the course. If the offense is serious enough, it may warrant the student's suspension or expulsion from the University. The University drop and forgiveness policies may not be used for a course in which the student has been accused of academic dishonesty. The internal transcript of a student who is awarded an "F" for academic dishonesty will read "FF." Note: A grade of "F" for academic dishonesty, resulting in a grade of "FF" in the student's record, requires notification of the intent to award the grade to the student and subsequent approval by the Graduate Dean or Undergraduate Dean as appropriate. Notice that a student has been dismissed for reasons of academic dishonesty may be reflected on the student's transcript.

C. Disruption of Academic Process and Punishment Guidelines: Disruption of academic process is defined as the act or words of a student in a classroom or teaching environment which in the reasonable estimation of a faculty member: (a) direct attention from the academic matters at hand, such as noisy distractions; persistent, disrespectful, or abusive interruptions of lecture, exam or academic discussions, or (b) presents a danger to the health, safety, or well being of the faculty member or students. Punishments for disruption of academic process will depend on the seriousness of the disruption and will range from a private verbal reprimand to dismissal from class with a final grade of "W," if the student is passing the course. If the student is not passing, a grade of "F" will be shown on the student record. Available at: <http://www.stpt.usf.edu/sacs/FHChapter5.htm> - [academicdishonesty](#)

D. Americans with Disability Act (ADA) Statement - It is USF's policy to provide reasonable accommodations to students with disabilities under the ADA. At the beginning of the semester, any student with a disability should inform the course instructor if instructional accommodations or academic adjustments will be needed. For more information about the ADA and academic accommodations or adjustments, contact the Office of Disability Resources and Services.

Cell Phones

Prior to the beginning of each class, please remember to turn off your cell phone, or place it in the "vibrate" or "ringer off" mode.

Course Assignments Overview

Expectations (often via rubrics) for each assignment will be discussed and used in grading all assignments. Please help me to clarify anything that is unclear concerning the directions, expectation, or grading requirements **BEFORE** an assignment is due. Please keep in mind that you choose the quality of the work you submit.

All **assignments** must be **typewritten** and turned in on time. **Late assignments will not be accepted** unless an extreme circumstance occurs.

Intermittent Course Assignments: Throughout the semester, you will be reading and discussing several pieces of material related to science teaching and learning. These assignments will be discussed in class, with the due date usually being the following class meeting. (10 points)

Science Photo Autobiography: You will put together a visual and text-based piece of work that reflects your science experiences from elementary school, middle/junior school, high school and college. (10 points)

Midterm Examination: Midway the semester for us to evaluate where we are as a class in our understanding of the ideas addressed at that point in the course. (20 points)

Reading Children's Science Literature: You will select one storybook to read to the class and create at least three possible questions for class discussion. You will also write and submit a short summary critique of the book, explaining why you chose the book and what science concepts it teaches. (10 points)

Culturally Relevant Lesson: You will modify an activity to develop a "culturally relevant" lesson. You will develop a description of the lesson; provide copies of the modified lesson, the necessary materials to carry out the lesson. (10 points)

Academic Community Service Project Report: As a result of our work in a local school, you will reflect on this experience based on some prompts to guide you in your thinking about student learning, teaching, and school and community engagement. (15 points)

Final Paper: For your final exam, you will synthesize in a final paper your ideas about elementary science teaching and learning. We will discuss at a later date how you wish to organize your paper. This paper will be due on the day scheduled for the final exam. (20 points)

Participation: This part of your grade involves a combination of class attendance and my perception of the contributions you have made to the group. I am aware that contributions can be made in myriad ways and involve not just instructor-student interactions, but also student-student interactions. In a similar way, the spoken contributions during class discussion are not the only way to promote a positive learning environment. (10 points- 5 based on the academic community service project)

Grading Policy and Procedures: Your final grade will be based on the points that you earn throughout the course:

Grade	Points Needed
A	90 and above
B+	89-85
B	84-80
C+	79-75
C	74-70
D	69-65
F	below 65

I look forward to an exciting course in which each of us will learn a great deal about science teaching and learning!

Tentative Calendar

Weeks/Dates	Topics	Required Reading for the following week
Week 1 Jan. 10	<ul style="list-style-type: none"> • Course Introduction • Resources • Science Inquiry • What is a scientist? Students as scientists. • Water Drop and Coin Activity 	(1) Course Syllabus (2) Benchmarks: Chap. 1 read online (3) Standards: read online (4) Selected Reading: Eisenkraft, A. Expanding the 5-E Model. download
Week 2 Jan. 17	Standards and The Nature of Science	(1) Benchmarks: Chap. 12 read online (2) Standards: read online (3) SSS download K-2 download 3-5
Week 3 Jan. 24	Habits of mind <ul style="list-style-type: none"> • Outdoor Science • Science Notebooks • Grade appropriate activities 	(1) Standards: read online
Week 4 Jan. 31	<ul style="list-style-type: none"> • Constructivist Learning Environment • District Curriculum • Literature Enhancement • Reading & Research in Science 	(1) Standards: read online
Week 5 Feb. 7	<p style="text-align: center;">Assessment</p> <ul style="list-style-type: none"> • Assessment in the science classroom: alternatives • Preparing for standardized tests Long-term learning	(1) Standards: read online
Week 6 Feb. 14	Earth & Space Science	(1) Standards: read online
Week 7 Feb. 21	Addressing Diversity in the Science Classroom	(1) Standards: read online
Week 8 Feb. 28	Physical Science (Physics & Chemistry)	
Week 9 Mar. 7	Science through Children's Literature	
Week 10 Mar. 21	Life Science (Biology)	
Week 11 Mar. 28	Ecology	
Week 12 Apr. 4	Community Science Night Prep @ Gulf Beaches	
Week 13 Apr. 11	COMMUNITY SCIENCE NIGHT @ GULF BEACHES ELEMENTARY!!!	
Week 14 Apr. 18	Science Night Wrap Up	
Week 15 Apr. 25	Course Wrap Up and Final Exam Guidelines	

Holidays during the Semester: Martin Luther Day: Jan. 15 (Monday); Spring Break: March 12-16

Academic Community Service Project

"Come One, Come All: Family Fun Science Night at Gulf Beaches Elementary"

Wednesday, April 11, 2007, 6:00-7:30p

This unique, exciting and fun opportunity to engage in the workings of a school and its community will be used to address Course Objectives 1, 2 and 6, as listed on page one of the syllabus:

- ❖ Develop a thorough understanding of a science concept taught in elementary schools (Objective 1);
- ❖ Plan an activity that showcases science as a *process* and a *product* for diverse student populations (Objective 2); and
- ❖ Reflect on the science night experience via an Academic Community Service Learning Project report (Objective 6).

As a result of our classroom discussions, we will work as partners to develop science-related activities that we can use to engage families in fun and exciting ways. The attached article will give some insights into what we will be doing. Our science night will be similar- but not exactly, like what is discussed in the article. We will be engaged in the promotion of the science night event, development of surveys and brochures related to the event, as well as the set up and clean up for the night of the event.

We will spend at least six (6) hours at the school site, where we will have at least one of our three-hour class meetings. This school-site meeting will allow us to get a sense of what resources are available at the school, get a visual of the school's physical layout, and prepare our activities accordingly.

In addition to submitting a reflective report on this project (see Course Assignments Overview section of the syllabus), five (5) of your participation points will be earned through this experiential activity.

Materials generated for this project will be made available to the USFSP Center for Civic Engagement to aid in its ongoing efforts to assist the university in developing students who are both citizens and scholars. These materials may include artifacts from the science night event (advertising, pictures, surveys, etc.) and student reports.

For any student who has a valid objection to participating in this activity, an alternative assignment will be developed in consultation with the course instructor. Students who think they have a valid objection should notify the instructor as soon as possible so that an evaluation of the objection can be made, and if deemed valid, an alternative assignment can be developed in a timely manner.