Fall 2010

SCE 6938 Topics in Science Education

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College of Education

DEPARTMENTAL COURSE SYLLABUS
GRADUATE LEVEL COURSES

The following are the required elements of a departmental syllabus in the College of Education. ***This syllabus should be representative of EVERY section of this course offered in the program/department.***

1. **Course Prefix and Number**: SCE 6938 Credit Hours: 3 Hours Term Offered: Fall 2010

   Course Title: Topics in Science Education: Field Practicum

2. Department of Secondary Education, College of Education
   Regular Instructors: Barbara S. Spector, Ph. D. Professor of Science Education

3. **Course Prerequisites** (if any):
   Admission into a graduate initial certification program in science education. At least 9 hours of SCE (Science Education) courses and at least 1 semester prior to internship.

4. **Course Description**: (As it appears in the catalog)
   This seminar provides teacher candidates an opportunity to interact with peers, public school faculty and university faculty regarding middle-school and high-school classrooms and related early field experiences. The seminar provides a support network for discussing concerns, sharing experiences, and assisting students in the process of becoming science teachers.

(Additional description not in catalog)
This course is a partnership between the College of Education Science Education Program and Suncoast Earth Force (EF), a non-profit community agency. EF's central function is to train educators and support them in conducting successful environmental service learning projects in the community.

The EF and the K-12 school community need to increase the number of teachers willing and able to engage in service learning leading to environmental stewardship. The USF Field Practicum in Science provides access to future teachers, an audience Suncoast Earth Force has not previously served.

Benefits to EF (the community agency) include the following: (a) EF extends its reach by broadening the audience served from inservice teachers to preservice teachers; (b) The practicum teachers are willing and able to implement service learning when they get their own classrooms, thus increasing the impact of EF in multiple school settings (ultimately engaging more K-12 students in service learning projects). (c) EF is able to provide additional support to inservice teachers through practicum participants who assist the teachers for 28 hours. Practicum participants supplement, but do not supplant, the support EF staff provide to current teachers.

Ultimately the middle and high school community benefit by engaging more K-12 students in environmental service learning projects. Middle and high school students benefit by understanding the relevance and importance of science they learn in school.

The service learning dimension of this course meets the course goal and objectives by providing course participants' opportunity to integrate and apply the learning from the rest of the MAT

program to service learning, a new meaningful real world setting.

Practicum participants increase civic awareness and sense of responsibility as they identify and explore multiple dimensions of various environmental issues in their local community to determine ways to help middle and high school students determine the issues they will address. Further, future teachers increase their awareness of the importance of environmental issues by participating with current teachers in schools who allocate significant blocks of times for service learning,

5. **FKL Core Curriculum Information**
NA

6. **Course Goals and Objectives:**
Upon completion of this course, students will demonstrate the following:

1. ability to examine and reflect on one's instructional plans;
2. familiarity with the responsibilities of teachers (e.g., assessment, classroom management, working with students individually and/or in small groups, guiding inquiry in laboratory settings, etc.);
3. familiarity with curricular materials for given districts;
4. the ability to take part in the school culture (e.g., professional development activities and department meetings), and
5. ability to develop a plan for, and assist with implementation of, environmental service learning

(FKL Core Curriculum Objectives, Learning Outcomes, etc. NA)

7. **Textbook(s), Reference List, and Readings** (if applicable):
Required Readings (available on the course website in Blackboard)

- Earth Force (2008). *Earth Force: a curriculum for community action & problem solving*. Denver, CO: Earth Force, Inc.
- Florida Learn and Serve (2009). *Standards for service learning in Florida: a guide for creating and sustaining quality practice.* Tallahassee, FL: Florida Department of Education.
- Lake, J (2008). *Suncoast Earth Force Educational Philosophy* (Unpublished Manuscript, University of South Florida)
- Lake, J (2009). *Combining community resources, service learning, and the science classroom* (Unpublished manuscript, University of South Florida)
- Spector, Barbara S. (1989). *Empowering teachers: Survival and Development* in Spector, Barbara S., & Betkouski Barnes, Marianne (Eds.). **Science teaching in a changing society: Grades 6-12**. Dubuque, Iowa: Kendall/Hunt Publishing Company.
- Spector, Barbara S. (1988). *Community resources for meaningful learning*. in Spector, Barbara S., & Betkouski Barnes, Marianne (Eds.). **Science teaching in a changing society: Grades 6-12.** Dubuque, Iowa: Kendall/Hunt Publishing Company.
- Sloan D. (2009). *Reflection activities: Tried and true teaching methods to enhance students' service-learning experience.* (based on work of Hatcher, J. and Bringle). Miami Dade College
- School district textbook(s) for a specific course selected by course participant and hard copy obtained by the course participant.

Optional Readings

- Schwebel, S. L., Schwebel, D. C., Schwebel, B. L. & Schwebel, C. R. (2002). *The student teacher's handbook*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc., Publishers.
- MacDonald, R. E. & Healy, Sean D. (1999). *A handbook for beginning teachers*. New York: Longman.
- Kronowitz, E. L. (2004). *Your first year of teaching and beyond*. Boston: Pearson.
- Pelletier, C. M. (2004). *Strategies for successful student teaching: A comprehensive guide*. Boston: Pearson.
- Payne, D. A. (2000). *Evaluating Service-Learning Activities & Programs.* Lanham, MD: Scarecrow Press.

8. **Content Outline:**
   - Review of similarities and dissimilarities of characteristics of good science teaching as enumerated in the *National Science Education Standards* and the *State of Florida's Next Generation Science Education Standards*
   - Study of the Earth Force model for environmental service learning
     - Six step process
     - Youth Voice (incorporating student centered instruction)
     - Reflection – when, how, and tools
     - Create and maintain community partnerships
       - Acquire resources and develop continuing relationships
     - Democratic decision-making
     - Student cooperation - cooperative and collaborative learning
     - Curriculum integration and academic learning
     - Public reporting – vehicles and tools
     - Sustainability of the service learning project
   - Analysis and participation in school culture
   - Review of local school district curricular materials
   - Analysis of teacher responsibilities

   The course meets once every two to three weeks during the early field experience. Course discussions and on-line support networks will be established and developed depending on the needs of class participants and issues they are facing in the schools.

9. **Critical Course Assignments** - NA

Additional Instructor Assignments

I. Reflections

(a) Reflections on pedagogy
   1. on the instructional practice and cognition of other teachers
   2. on one's own planning, assessment, and analysis of curriculum materials
   3. on one's own instructional practice and cognition

(b) Reflections on becoming a member of the community
   1. on attending a school activity
   2. on meeting with other educational partners
   3. on situations for which one is not prepared

(c) Reflections on service learning
   1. Earth Force model features enacted
   2. National or state standards visible in the Earth Force enactment

Guiding Questions for Structuring Reflections and Seminar Discussions

One of the goals of this course is to help students connect what they have been learning in university-based course work with what they are experiencing in school settings. The following statements and questions will be used to help us make these connections, and to help to ensure that discussions and written reflections are intellectually as well as experientially rich. Students will be expected to adopt these perspectives when they construct their "culminating reflections."

1. It is sometimes said that course work at the university and "the real work of teaching" are different worlds. What are you seeing and hearing in schools that supports this assumption? What are you seeing in schools that indicate this assumption is not accurate?
2. Every school has its own culture: ways of behaving, common knowledge, and relationships that influence how teachers talk and work together, and even how they teach. There are some aspects of school cultures that are common across schools, while each school also has its own unique aspects. As you write your reflections and listen to your classmates, and visit different schools, what aspects do you see that are common among your schools? What do you see that is different?
3. Contemporary recommendations for science teaching (including our science education program at USF) argue that all students should have access to good science teaching, and all students should be supported in learning science and succeeding academically. Look for examples in the schools that indicate that this is happening in the classrooms you visit. How do teachers attend to their students so that all believe that they can and will succeed in science, a field that is often viewed as elitist and "too hard"?
4. The Earth Force Environmental Service learning model is a mechanism for teaching school science through long term inquiry. The primary teacher to whom you are assigned is enacting the Earth Force model with his/her class. Your task is to assist the teacher with this implementation. Reflect on your feelings as a teacher and how you understand students to be learning from this inquiry. How does this initiative enable students to attain the national and state standards?

II. Service Learning Project

Design and plan an environmental service learning project based on the Earth Force model. This includes the critical logistics (what , where, with whom, etc.). Take into account NSES and standards for quality service learning. Project write ups will be three to four pages in length and will be presented to the class.

III. Write a final synthesis paper

Describe the way you will integrate your experience in the schools, environmental service learning, and science education reform into you plans for your first year of science teaching. A minimum of five pages is required.

IV. Field Participation in schools

10.Evaluation of Student Learning Outcomes:

Learning outcomes will be demonstrated during face-to-face and online discussions (10%), a series of reflections on various aspects related to the field-based experience (40%), a mid-semester test identifying key features of the Earth Force model for service learning (5%), a written plan for implementing service learning while teaching a middle or high school science course selected by the participant (20%), a final synthesis paper (20%), and professional dispositions as perceived by the instructors (5%).

Please Note: Late assignments will not be accepted except with a verifiable medical or legal excuse. Each unexcused absence will lower the student's grade by one full level (e.g., A to B).

Reflections will be evaluated through the following criteria:
Each reflection should be approximately two 12-pt font, 1"-margin, double-spaced pages long. The order in which reflections are turned in need not follow the list above (under "Evaluation of Student Outcomes"), but each bulleted point must be directly addressed by at least one reflection each. The Earth Force service learning reflection should be a minimum of 4 pages.

A: Reflections clearly demonstrate exemplary thinking that draws on prior course work to illuminate practicum experiences. Reflections indicate ability and willingness to learn from both university and school settings. Reflections indicate respectful and professional behavior toward school personnel and students. No reflections are missing.
B: Reflections clearly demonstrate strong thinking that draws on prior course work to illuminate practicum experiences. Reflections indicate ability and willingness to learn from both university and school settings. Reflections indicate respectful and professional behavior toward school personnel and students. No reflections are missing.
D: Reflections do not adequately demonstrate strong thinking that draws on prior course work to illuminate practicum experiences. Reflections do not always indicate respectful and professional behavior toward school personnel and students. More than two reflections are missing.
F: Student fails to complete reflections, and/or reflections do not demonstrate the criteria listed above.
[these are not very tangible criteria or workable evaluation procedures. Mix of quality and # missing confuses metrics.

Discussion participation will be evaluated through the following criteria:
A: Student regularly draws on prior course work to illuminate practicum experiences. Discussion contributions indicate ability and willingness to learn from both university and school settings, and respectful and professional behavior toward school personnel, students, and classmates.
B: Student occasionally draws on prior course work to illuminate practicum experiences. Discussion contributions indicate ability and willingness to learn from both university and school settings, and respectful and professional behavior toward school personnel, students, and classmates.
C: Student rarely draws on prior course work to illuminate practicum experiences. Discussion contributions show a lack of willingness to learn from both university and school settings. Student demonstrates respectful and professional behavior toward school personnel, students, and classmates.
D: Student does not draw on prior course work to illuminate practicum experiences. Discussion contributions show a lack of willingness to learn from both university and school settings. .

11.**Attendance Policy**
Attendance at face-to-face classes is required. Excused absences will be granted with documentation from a physician or legal counsel. Unexcused absences will lower a students' final grade by one full letter (e.g., A to B). Tardiness to class or leaving early will also be reflected in lowering the final grade as determined by the discretion of the instructor.

All students have a right to expect the University will reasonably accommodate their religious observances, practices, and beliefs. Students who anticipate being absent from class due to observance of a major religious holiday must provide notice of the date(s) to the instructor by the second class meeting.

12. **Grading Policy**
(a) The plus/minus grading system, A+, A, A-, B+, B, B-, . . .F. will be used
(b) The criteria for awarding grades follows:
A. Evidence of excellent/outstanding work and performance; a model for others to follow, a

standard by which other new professionals in the field may be evaluated. Shows imagination, creativity, and significant attempt to develop your unique ideas and perspectives using valid logical arguments and evidence. Extends beyond the assigned tasks. No more than 1 excused absence.

B. Evidence of good work and performance; has demonstrated a high degree of professional growth and achievement. Work on assignments is done in adequate professional way but lacks indication of outstanding thinking and imagination and extensions beyond the assigned tasks. No more than 1 excused absence.

C. Evidence of satisfactory work and performance; in general satisfactory, but lacking in detail and workmanship, has adequately fulfilled the basic requirements for the course.

D. Evidence of poor work and performance; work is not quite satisfactory, but is all there. Lack of evidence to demonstrate good or adequate work and/or performance; basic criteria for the course have not adequately been fulfilled.

E. Evidence of unsatisfactory work, and, or, significant portions were not completed.

Note: Late assignments will not be accepted unless a verifiable medical or legal excuse is provided. All assignments must be typed. The grading system will follow that of USF catalogue. Please arrive on time for class. Consistently late arrivals may be counted as an absence at the discretion of the instructor. The following expectations are used for each letter grade range:

A	94-100	B-	80-82	D+	67-69
A-	90-93	C+	77-79	D	63-66
B+	87-89	C	73-76	D-	60-62
B	83-86	C-	70-72	Failing	below 60

13. Accommodation for Students with Disabilities

Students with disabilities are responsible for registering with the Office of Student Disabilities Services in order to receive special accommodations and services. Please notify the instructor within the first week of classes if a reasonable accommodation for a disability is needed for this course. A letter from the USF Disability Services Office must accompany the request.

- See Student Responsibilities- http://www.asasd.usf.edu/Students.htm
- See faculty Responsibilities – http://www.asasd.usf.edu/faculty.htm

14.Academic Integrity/Academic Dishonesty

Cheating constitutes an automatic assignment of and FF grade.

- Procedures for Alleged Academic Dishonesty or Disruption- http://www.ugs.usfedu/catalogs/0608/adadap.htm
- Student Academic Grievances Procedures –
- http://www.ugs.usfedu/catalogs/0608/arcsagp.htm

To be completed on a separate page(s).

Please complete Attachment I (for College of Education files).
Complete Attachment I, including the matrix by listing:

(a) the course objectives and related topics,

(b) evidence of achievement (including performance-based assessments, as appropriate) to be used to ensure that students have acquired the objectives for Master's Plan II and Ed.S. School of Psychology programs. Identify the correlated Accomplished Practices. (See Attachment II for listing of Accomplished Practices.)

COLLEGE OF EDUCATION
DEPARTMENTAL COURSE SYLLABUS
Graduate Level Course

ATTACHMENT I

Please respond to each of the following questions and complete the attached Matrix:

1. ***Rationale for Setting Goals and Objectives*: What sources of information (e.g., research, best practices) support the formulation and selection of course goals and objectives?**

The seminar is designed to give MAT students an opportunity to discuss concerns, share experiences, and build a support mechanism throughout the early field experiences. The purpose of this seminar is also to provide a venue to help prospective teachers become reflective about their learning, about teaching and learning through their field experiences and their process of transferring their course knowledge to the process of becoming a teacher. Service learning and learning to participate in a school/district community are central to the course.

2. What aspects of the COE conceptual framework is/are specifically addressed in this course?

- USF professionals achieve positive outcomes with learners. USF education candidates engage in a continuous cycle of planning, implementing, and evaluating instruction in a variety of learning environments.
- USF professionals are reflective and analytical problem-solvers. USF education candidates engage in continuous professional improvement for self and school through a commitment to life-long learning.

3. List the specific competencies addressed from the *relevant national guidelines*.

National Science Teachers Association Standards for Professional Preparation

Standard 3: Inquiry:

b. Engage students successfully in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.

Standard 10: Professional Growth

a. Engage actively and continuously in opportunities for professional learning and leadership that reach beyond minimum job requirements.

d. Interact effectively with colleagues, parents, and students; mentor new colleagues; and foster positive relationships with the community.

4. Are there field-based experiences in this course? If so, please briefly indicate nature and

duration.

The course requires 14 field experience hours in middle-school science classrooms and 14 field experience hours in high-school science classrooms.

5. a. Is technology used in this course?

Students will use word processing software as they prepare their reflections and use on-line discussions for the evaluation and reflection of materials. They use on-line communication technology, search engines, and goggle earth.

b. Are students required to access and demonstrate use of technology in instruction or record keeping in this course?

No.

6. How are issues of diversity addressed in this course? Indicate which aspect of the course (e.g., instructional strategies and/or experiences) provides the candidate the opportunity to acquire and/or apply knowledge, skills and/or dispositions necessary to help all students learn. ("All students" includes students with various learning styles, students with exceptionalities and different ethnic, racial, gender, language, religious, socioeconomic, and regional/geographic origins and achievement levels.)

Reflections about their own instructional planning as well as about the school culture provide teacher candidates an opportunity to indicate their dispositions toward working with a diverse population of students.

7. (For initial certification programs)

a. List the specific competences addressed from the *Florida Adopted Subject Matter Content Standards or the Florida Adopted Subject Area Competencies*.

It is expected that each student will demonstrate the relevant pedagogical competencies from the Florida Adopted Subject Area Competencies for their program area and reflect on those competencies.

b. Describe any component of the course designed to prepare teacher candidates to help PK-12 students achieve the Sunshine State Standards.

It is expected that each student will assess instruction and students' learning based on the State of Florida's Next generation Science Standards.

Matrix

Course Objectives	**Evidence of Achievement**	**Accomplished Practices**
1.0 The ability to examine and reflect on one's instructional plans.	Reflections	#3 Continuous Improvement #4 Critical Thinking #11 Role of Teacher
2.0 Familiarity with the responsibilities of teachers (e.g., assessment, classroom management, working with students individually and/or in small groups, etc.);	Reflections	#2 Communication #5 Diversity #7 Human Development and Learning #9 Learning Environments #11 Role of Teacher
3.0 Familiarity with curricular materials for given districts;	Analysis of Classroom Materials	#3 Continuous Improvement #11 Role of Teacher
4.0 The ability to take part in the school culture (e.g., professional development activities and meetings).	On-line discussion of school culture / climate issues	#5 Diversity #9 Learning Environments
5.0 The ability to develop a plan for, and assist with implementation of, environmental service learning	Reflections Face-to-face and online discussion; Assisting an Earth Force teacher in a school implement a project	# ALL

College of Education

DEPARTMENTAL COURSE SYLLABUS
GRADUATE LEVEL COURSES

ATTACHMENT II

Preprofessional Benchmarks for the Accomplished Practices

Practice #1 -- Assessment: *The preprofessional teacher collects and uses data gathered from a variety of sources. These sources will include both traditional and alternate assessment strategies. Furthermore, the teacher can identify and match the student's instructional plan with their cognitive, social, linguistic, cultural, emotional, and physical needs.*

Practice #2 -- Communication: *The preprofessional teacher recognizes the need for effective communication in the classroom and is in the process of acquiring techniques which she/he will use in the classroom.*

Practice #3 -- Continuous Improvement: *The preprofessional teacher realizes that she/he is in the initial stages of a life-long learning process and that self-reflection is one of the key components of that process. While her/his concentration is, of necessity, inward and personal, the role of colleagues and school-based improvement activities increase as time passes. The teacher's continued professional improvement is characterized by self reflection, work with immediate colleagues and teammates, and meeting the goals of a personal professional development plan.*

Practice #4 -- Critical Thinking: *The preprofessional teacher is acquiring performance assessment techniques and strategies that measure higher order thinking skills in students and is building a repertoire of realistic projects and problem solving activities designed to assist all students in demonstrating their ability to think creatively.*

Practice #5 -- Diversity: *The preprofessional teacher establishes a comfortable environment which accepts and fosters diversity. The teacher must demonstrate knowledge and awareness of varied cultures and linguistic backgrounds. The teacher*

creates a climate of openness, inquiry, and support by practicing strategies [such] as acceptance, tolerance, resolution, and mediation.

Practice #6 -- Ethics: *The preprofessional teacher adheres to the Code of Ethics and Principles of Professional Conduct of the Education Profession in Florida.*

Practice #7 -- Human Development and Learning: *Drawing upon well established human development/learning theories and concepts and a variety of information about students, the preprofessional teacher plans instructional activities.*

Practice #8 -- Knowledge of Subject Matter: *The preprofessional teacher has a basic understanding of the subject matter and is beginning to understand that the subject is linked to other disciplines and can be applied to real world integrated settings. The teacher's repertoire of teaching skills include a variety of means to assist student acquisition of new knowledge and skills using that knowledge.*

Practice #9 -- Learning Environments: *The preprofessional teacher understands the importance of setting up effective learning environments and has techniques and strategies to use to do so including some that provide opportunities for student input into the processes. The teacher understands that she/he will need a variety of techniques and is working to increase knowledge and skills.*

Practice #10 -- Planning: *The preprofessional teacher recognizes the importance of setting high expectations for all students. The preprofessional teacher works with other professionals to design learning experiences that meet students' needs and interests. The teacher candidate continually seeks advice/information from appropriate resources including feedback, interprets the information, and modifies her/his plans appropriately. Planned instruction will incorporate a creative environment and utilize varied and motivational strategies and multiple resources for providing comprehensible instruction for all students. Upon reflection, the teacher continuously refines outcome assessment and learning experiences.*

Practice #11 -- Role of the Teacher: *The preprofessional teacher communicates and works cooperatively with families and colleagues to improve the educational experiences at the school.*

Practice #12 -- Technology: *The preprofessional teacher uses technology as available at the school site and as appropriate to the learner. She/he provides students with opportunities to actively use technology and facilitates access to the use of electronic resources. The teacher also uses technology to manage, evaluate, and improve instruction*