
ESCI 4420: Science for Early Childhood Education Spring 2008

Class Schedule: Monday & Wednesday, 12:50-2:45PM
Room 215, 2nd floor, Aderhold Hall

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This syllabus is subject to change based on our learning; it will be negotiated throughout the semester.

Welcome. This course is intended to introduce to you the practice of teaching science. It is our desire for you to strengthen your ability to foster science learning and enhance your own science knowledge. This course is designed to give you an opportunity to practice your science teaching skills and engage with science curriculum so that you become comfortable with teaching science at the elementary level. Time will be devoted to examining the state and national science education standards, the inquiry approach, and culturally relevant science teaching and learning. Throughout the course, we will work together to develop as reflective practitioners and improve upon our talents as effective and thoughtful educators.

Required Text

Tippins, D. J., Koballa, T. R., & Payne, B. D. (2002). *Learning from cases: Unraveling the complexities of elementary science teaching*. Boston, MA: Allyn & Bacon.

Additional readings distributed in class and posted on WebCT.

Reference Materials (via WebCT)

Georgia Performance Standards, Science, <http://www.georgiastandards.org/science.aspx>

American Association for the Advancement of Science. (1990). *Science for all Americans: Project 2061*. New York: Oxford University Press.
<http://www.project2061.org/publications/sfaa/online/sfaatoc.htm>

National Research Council. (1996). *National Science Education Standards*. Washington, DC: National Academy Press. <http://www.nap.edu/readingroom/books/nses/>

Resource Materials

Victor, E., Kellough, R. D., & Tai, R. H. (2008). *Science K-8: An integrated approach*. 11th ed. Columbus, OH: Pearson, Merrill, Prentice Hall.

Kerrod, R. & Holgate, S. A. (2002). *The way science works*. New York: DK Publishing, Inc.

Miscellaneous

Project WILD Training Materials, \$15-

Notebooks (to organize course materials) and Nightgazer Journal, ~\$20

Course Objectives

Students who successfully complete this course will:

- Develop positive attitudes towards science, science teaching, and learning.
- Gain confidence and competence in designing science instruction in elementary classrooms.
- Explore children's understanding of scientific phenomena and factors that influence learning.
- Create an awareness of knowledge of current literature and contemporary issues in science education.
- Foster an understanding of science inquiry as a way to motivate students and enhance their creativity.
- Incorporate science content understanding, nature of scientific knowledge, and science process skills.
- Develop an understanding of diversity and equity to meet the needs of all students in an elementary classroom.
- Employ various forms of assessment and questioning to evaluate student learning.
- Increase their familiarity with ways to use an outdoor learning environment for teaching and learning science.

Expectations

- Be an active participant in class discussions and activities.
- Attend **all** course sessions.
- Be **prompt** in attendance.
- Read and reflect **critically** on assigned readings.
- Locate and read additional materials related to elementary science teaching.
- Demonstrate reflection through discussion and writing.
- Share resources, readings, and insights.
- Collaborate with colleagues reading learning.
- Complete **all** assigned tasks to the best of your ability.
- Communicate expectations, frustrations, and ideas.
- Put as much into this course as you expect to get out of it.

Academic Honesty

Instructors are committed to the principles of academic honesty and subscribe to the UGA Academic Honesty Policy guidelines for the definition and processes of academic integrity. All students are subject to these guidelines. Instructors have and will initiate academic dishonesty proceedings if in their courses they find reasonable cause to do so.

All students are encouraged to read and understand *A Culture of Honesty* (the UGA Academic Honesty Policy) found at http://www.uga.edu/ovpi/academic_honesty/culture_honesty.htm.

Printed copies of *A Culture of Honesty* may also be obtained from the office of the University of Georgia Vice President for Academic Affairs or from the Independent and Distance Learning office in summary form. Students may talk with their instructors about academic honesty. E-mail and/or telephone contact information is available in this course guide and in the Independent and Distance Learning Student Handbook.

Disability Policy

The University of Georgia is committed to providing equal educational opportunities for qualified students with disabilities in accordance with state and federal laws including the American Disabilities Act. Help for disabled students is available from Disability Services/Learning Disabilities Center. More information is available at <http://www.uga.edu/stuact/handbook/studaffairs/disability.html>

Evaluation/Grading

There are nine graded assignments to be considered as you evaluate your learning in this course. The quality of work submitted will reflect your personal standards of quality...keep this in mind as you make judgments regarding the conditions of projects you submit. Detailed directions will be provided for each assignment along with performance criteria (as well as available on WebCT).

Course Assignments

Case Reaction #1-The Day the Lobster Died	15 pts.
Case Reaction #2- El Secreto de las Ninas	15 pts.
Children's Science Literature	30 pts.
Field Assignment #1 - Students' Ideas about Science	20 pts.
Field Assignment #2 - Student Choice Project	30 pts.
Field Assignment #3 - In class Presentation	10 pts.
Interactive Team Exploratory Center & Share	40 pts.
Nightgazer Journal	30 pts.
Class Notebook & Resource File	<u>10 pts.</u>
Total possible points	200 pts.

Note: If you are unsatisfied with your performance on an assignment, you may revise and resubmit it. You must submit your revised assignment no later than two weeks after the assignment was returned to you.

Course Assignments – In Detail

Case Reaction

Case #1: "The Day the Lobster Died"

The purpose of this assignment is for you to read and reflect on "The Day the Lobster Died" (found in *Learning from Cases: Unraveling the Complexities of Elementary Science Teaching*). You will need to develop a typed, two-page, single spaced response.

This is an opportunity for you to clarify your own beliefs and biases and consider the case in relation to your personal experience as a teacher. Reaction papers will be graded using the following rubric.

Case Reaction #1	Points
Catchy title for the case reaction	1
In-depth insight and reflection	4
Analysis from multiple perspectives	3
Include at least six of the following elements: a. your interpretation of the dilemmas/challenges presented in the case; b. theories about science teaching and learning; c. the solutions you recommend or your evaluation of the solutions found in the case; d. an explanation of why you think your solutions are viable or your justification of other solutions; e. your experiences as a student, teacher, or parent; f. common sense g. any moral or lessons you think you can draw from your reading and interpretation of the case; h. experiences of friends, colleagues, or relations; i. references to any components of the case itself.	6
Typed and submitted on time	1
Total points possible (15 pts.)	

Proposed due date: January 16, 2008 by 1:00pm (uploaded to WebCT)

Case Reaction

Case #2: “El Secreto de las Ninas”

The purpose of this assignment is for you to read and reflect on “El Secreto de las Ninas” (found in *Learning from Cases: Unraveling the Complexities of Elementary Science Teaching*). You will need to develop a typed, two-page, single spaced response. This is an opportunity for you to clarify your own beliefs and biases and consider the case in relation to your personal experience as a teacher. Reaction papers will be graded using the following rubric.

Case Reaction #2	Points
Catchy title for the case reaction	1
In-depth insight and reflection	4
Analysis from multiple perspectives	3
Include at least six of the following elements: a. your interpretation of the dilemmas/challenges presented in the case; b. theories about science teaching and learning; c. the solutions you recommend or your evaluation of the solutions found in the case; d. an explanation of why you think your solutions are viable or your justification of other solutions;	6

One purpose of this assignment is to spend time talking with students about science. Talking with kids is a great way to learn about what they know. These conversations are intended to help you get a sense of what students understand about a particular topic. Therefore, it is important that you write interview questions that are appropriate for the topic and that can help you explore the issue in depth with the student. Think about the questions used by the interviewer in *A Private Universe* (available at www.learner.org.) The questions did not ask the student to simply recall facts. Rather, the questions asked the student to try to make sense of scientific phenomena (in this case the questions targeted a student's ability to understand the cause of the seasons). Questions like these are more useful in figuring out what students understand about a particular topic.

During the initial meetings with your mentor teacher, discuss this assignment. Talk with your mentor about the particular science topic for the conversations, the questions (provide a copy of the interview questions), and which students will be spoken with. Also, arrange a time and location for the student interviews.

For this assignment, prepare a 3-page assessment and commentary. Include the following:

- A description of the students in the class and the students you interviewed (e.g., age, gender, perceived ability level, etc). Use pseudonyms when writing about the students, teachers, and school.
- A list of the questions you asked each student.
- A summary of students' responses to the questions (based on the notes you collected during the conversation).
- A description of any trends you see in terms of students' ideas about the topic (e.g., do students have similar ideas about a certain phenomenon? different ideas?)
- Your assessment of whether or not your questions were effective in tapping into students' ideas.
- Which questions were particularly useful for gaining insight into students' ideas?
- Are there any questions you wished you would have asked?
- A commentary about what you learned by talking with students.

Your assessment and commentary should be double-spaced, 12 pt font with 1" margins. The following grading rubric will be used for this assignment.

If you are unable to interview students, please feel free to propose a project to fulfill this assignment that helps you assess students' understanding of science. You should consult me prior to beginning your project.

Field Assignment #1 Students' Understanding of Science	Points
A description of the students in the class and the students you interviewed	2
A list of the questions you asked each student	2
A summary of students' responses to the questions	3
A description of any trends you see in terms of students' ideas about the topic	4
Assessment of whether or not questions were effective in tapping into students' ideas	3
A commentary about what you learned by talking with students	4
Typed, 3-page, double-spaced, 12 pt font with 1" margins	2
Total Points Possible (20 pts.)	

Proposed due date: February 20, 2008 by 1:00pm (uploaded to WebCT)

You will have many opportunities to see and do elementary science teaching in the context of your methods class and your school-based practica. A list of science activities and experiences for your school-based practica are described below. Your participation in **one** of the activities is required. In addition to the experience, you should prepare an activity report following the guidelines below.

Suggested experiences:

1. Teach a science lesson that is designed to integrate science with other content areas (perhaps through literature, role play, mathematics, etc.). If you are not assigned to teach science, prepare a lesson (in another subject) that integrates concepts in science and/or technology (e.g., history may integrate scientific developments as factors of change.)
2. Plan and implement a science lesson or series of lessons that start with the learners' questions (e.g., What would you like to learn about rocks? How can we go about learning that?).
3. Teach an inquiry lesson that encourages students to be problem-solvers (e.g., such as the oil spill activity we will do in class).
4. Teach a science lesson which directly relates science content to societal issues.
5. Teach a science lesson in which you use cooperative learning strategies (e.g., assigned roles) to organize the lesson and facilitate learning.
6. Demonstrate a discrepant event (perhaps one you saw in class) and engage students in an activity designed to resolve cognitive dissonance. This activity will enable you to think comprehensively on how to resolve this event in the science classroom.
7. Have students do the "draw-a-scientist" activity and conduct mini-interviews to develop an understanding of how students perceive their role as a scientist.
8. Interview teachers concerning their beliefs about the nature of science, science teaching and science learning.
9. Develop and use a non-paper and pencil task for assessing student learning of a science concept. Discuss thoroughly the concepts involved and the manner by which the assessment will be conducted.
10. Observe/assist with the use of technology in science teaching. In this assignment, you are required to write a description of how technology was used in teaching science (e.g., software used, lesson(s) covered, assessment tool(s) used, etc).
11. Participate in a school-based science activity (e.g., Family Science Night, Science Club meeting, Science Fairs, etc). In this assignment, you are required to write a description of how this event was used to teach science.
12. Observe and critique a peer as they teach a science lesson. In this assignment, focus only on one particular aspect of science teaching (e.g., strategy, questioning techniques, classroom management, dealing with children with special needs, planning, etc) based on the science concept being developed.
13. Design an interactive science exploratory center for the class.
14. Design an invitation around a science-related question or issue that is of mutual interest to your field experience students. According to K. Van Sluys' framework, an invitation addresses a complex problem using an open-ended approach. Learning via an invitation includes educational choice, cooperative learning, and multiple ways of knowing while offering an opportunity for inquiring, making meaning, and questioning. Invitations stem from literacy education; however, its framework can be applied to science themes and issues, especially those that are interdisciplinary and social in nature. Frame the invitation

using a brief 1-2 paragraph introduction, overarching questions associated with the issue, and 6-8 possible student invitation questions (these should not breakout the issue into potentially uninteresting parts, rather individually engaging and open-ended investigations). In addition, provide interesting artifacts and resources (websites, books, videos, etc.)

15. Prepare a brief narrative of a dilemma you encountered in your science class. To do this, ask the assistance of your mentor teacher and come up with a narrative that highlights the nature of the dilemma, the issue(s) involved and the resolution you arrived at.
16. Prepare a brief report of a student's involvement in a science investigatory project. You may also discuss how you helped the student(s) accomplish such project. Ask the permission and assistance of your mentor teacher.

In preparing your paper for this activity, follow the following format of the Activity Report Form. You should respond in depth to the following questions. The report should be organized into three sections based on the following questions and must be single-spaced and two pages in length. At the end of your paper, be sure to have your mentor teacher's signature.

Activity Report

1. Describe in detail the nature of the science teaching/learning activity you participated in during your field experience. Discuss the purpose/goal of the activity. It is also imperative to discuss the extent of your participation and the persons involved.
2. Write a reflective summary of what you learned about elementary science teaching and learning through this activity.
3. Briefly discuss the implications of what you learned for your future role as a teacher.
4. Have your mentor teacher sign the activity report.

Your report will be evaluated based on the following criteria:

Field Assignment #2 Student Choice/Activity Report	Points
Participation in an activity with primary focus of science (based on list)	5
Written report includes:	
a. complete details of the nature of the activity;	5
b. in-depth reflective summary of what you learned;	5
c. implications of what you learned to your future teaching;	5
d. reflective discussion of the things you learned that are most relevant to specific aspects of your teaching;	5
e. relevant title for the report; and	1
f. signature of mentor teacher.	1
Organization and format	3
Total Possible Points	30

Proposed due date: March 31, 2008 by 8:00am (uploaded to WebCT)

Field Assignment #3
In class Presentation Assignment & Rubric

During your field experience, you will talk with students to get a sense of what they understand about a particular topic. You will carry out several science-related activities in a school-setting.

The purpose of this assignment is for you to discuss your experience(s) related to science teaching and learning with your classmates. You will not be expected to upload a file for this assignment. Your presentation will be graded using the following rubric.

Field Assignment #3 In class Presentation	Points
<i>Presentation Skills</i>	
- Engaging (captures audience attention)	1
- Presentation is not read	1
<i>Content</i>	
Synopsis of students' interviews - summary of student responses - description of trends - assessment of questions	3
Summary of student choice project - discussion of the project - reflection of what you learned about science teaching and learning through the activity - suggestions for "next time"	3
- Provides one significant, relevant example from field experience	1
<i>Time</i>	
- 10-15 minute presentation	1
Total Possible Points (10 pts.)	

Proposed due date: varies; signup sheet.

Interactive Team Exploratory Center and Share

As a team, you and your partner(s) will develop a science exploratory center based on one of the themes in the K-5 Georgia Performance Standards for science. The purpose of this activity is for you and your partner(s) to: (1) develop an understanding of a science content area or topic and the process skills common to science, (2) engage with a method for facilitating science learning, (3) collaborate with other teachers in science curriculum development, and (4) communicate the content knowledge, methods, and lessons learned to your peers. Since the primary purpose of this assignment is to engage with content, it is not framed within a specific classroom setting and students. Real world provides you with an understanding of your students' prior knowledge about a scientific phenomenon, associated assumptions, and cultural background. For this assignment, you and your partner(s) should work from previous experiences and personal knowledge about age-appropriate instruction.

The intent of classroom centers vary; they can be designed reinforce a specific part of the regular curriculum and build upon certain skills or spur students' curiosity and interest in areas outside the regular curriculum. For this assignment, the exploratory center model should be used. An exploratory center is designed for more flexible use and offers a variety of materials for exploration. They allow students to interact with materials in ways that provide background or reinforcement for concept development. Planned well, they set the stage for many teachable moments and interaction with materials from a variety of perspectives.

Instructions/Guidelines

1. Select a science-related concept, topic, theme, or issue tied to the K-5 Georgia Performance Standards for science. Frame it around a central question that is of interest to a specific GPSs target grade/age. (E.g., why does it rain, what does drought mean to me, my family, and friends?)
2. Brainstorm a list of possible age-appropriate activities that could be pursued independently by individuals or small groups. Select activities that work together to build science concept development and process skills, but can work independently based on a student’s individual interest.
3. Create:
 - two interactive, hands-on activities/experiments that provide an opportunity for observation, data gathering, problem solving, individual research, and/or creative expression. These activities should focus on key concepts related to your question or issue. **At least one activity should be inquiry-oriented.**
 - a thematic game based on science concepts relevant to your topic. It should allow for self-checking of answers.
 - a writing connection *or* a children’s literature connection that highlights the topic of your exploratory center. A writing connection could include a set of poems; book your write for children; a set of songs you create or another form of writing. A children’s literature connection could include a quality fiction or non-fiction book related to the topic.
4. Develop an exploratory center plan. It should include:
 - key question,
 - instructions (for teacher and students),
 - GPSs, and
 - Science Concept Sheet (discussion of science concepts addressed in center).

For each of the science activities,

 - state its purpose,
 - detail the procedures and materials needed, and
 - provide student handouts (if necessary) and productive questions that the teacher can ask of students.

For the thematic game and writing connection or children’s literature connection, provide a brief description.

Include any special notes, such as safety considerations.
5. Present your exploratory center to the class. As part of your team presentation, share and demonstrate **one** of the interactive, hands-on activities/experiments with the class. Also, share the thematic game, writing connection, or children’s literature connection with the class. For the activities and game or connections used during your presentation, provide each class member a copy of the procedures, Science Concept Sheet, student handouts, and productive questions.

Interactive Team Exploratory Center and Share	Points
<i>Center includes:</i>	
<ul style="list-style-type: none"> • two interactive, hands-on activities/experiments that focus on key concepts related to the key question or issue. At least one activity is inquiry-oriented. 	4
<ul style="list-style-type: none"> • <i>Activities</i> with: <ul style="list-style-type: none"> - stated purpose, - detailed procedures and list of materials needed, 	4

- student handouts (if necessary), and - productive questions that the teacher can ask of students.	
• a thematic game with brief description	4
• a writing connection <i>or</i> a children’s literature connection with brief description	4
• an <i>exploratory center plan</i> with a: - key question, - instructions (for teacher and students), - GPSs, and - Science Concept Sheet (discussion of science concepts addressed in center).	4
• <i>Materials and Resources</i> for the activities, game, and connection.	4
<i>Center is:</i>	
• Engaging and captivating	1
• Organized (storage method considered)	1
• Displayed on a three-panel table top poster board or alternative presentation format	1
<i>Presentation is:</i>	
• Engaging and captivating	1
• Shared between all team participants	2
• Structured to encourage questions and interaction	1
<i>Presentation includes:</i>	
• Demonstration of <i>one</i> of the center’s interactive, hands-on activities/experiments	2
• Discussion of the center’s thematic game, writing connection, or children’s literature connection	2
• Discussion of science concepts addressed in center	2
• Distribution of center procedures, Science Concept Sheet, student handouts, and productive questions.	1
• Reflection of what you and your partners have learned about science teaching and learning through the exploratory center.	2
Total Possible Points (40 pts.)	

Proposed due date: Varies, depends on topic.

Nightgazer Journal Assignment

The night sky has guided travelers and delighted people around the world for centuries. Constellations and bright stars have been used to mark a person location and calculate how far a person has traveled. Today, it is important for students to “know Earth's place in the universe, to understand the scale of vast interstellar distances, to gauge time all the way back to the beginning, and to satisfy the tenets of science literacy, students should understand how to find and map the stars and other objects in the night sky” (NSTA, <http://www.nsta.org/publications/interactive/aws-din/din.aspx>, retrieved 12.30.2007).

The purpose of this activity is for *you to observe the moon on a regular basis and notice that it changes over time*. Using a nightgazer journal, you will make observations and ask questions that arise while watching the night sky. After three months of observation, you will be able to recognize basic patterns that later can be used to make predictions of where and when you can see the moon, and what it looks like.

Instructions

Starting the week of January 7th, observe the moon the same time every night.

1. Select a location and time to observe the moon every night. Record the information in your journal.
2. Each night, go to the same place at the same time and observe the moon (and other objects in the sky). Notice exactly where the moon is in the sky. Is it above your neighbor's house or a light post? In your journal, draw a picture of how the moon looks (its phase, its location in the sky, and its size). If desired, document other objects in the sky as well. If the moon is not present or clouds block its view, document these conditions in your journal.
3. In your journal, at least once a week, write a question(s) you have about the moon's appearance. Include inferences you have drawn about the night sky. These might include responses such as why does the moon change its shape or why is the moon not visible at times?

Attempt to view the moon on a daily basis. However, if you feel you are unable to meet the requirements of this assignment, please see the instructors.

Nightgazer Journal	Points
Journal is comprehensive <i>Includes:</i> - at least 4 entries/week from January 10, 2008-April 16, 2008. - each entry has a drawing of the moon and gives its location and size.	10
Includes at least one question/week about the moon's appearance.	10
Includes inferences drawn about the night sky. At least one inference/two weeks from February 10, 2008-April 16, 2008.	10
Total Possible Points (30 pts.)	

Proposed due date: April 16, 2008 by 1:00pm

Class Notebook & Resource File Assignment & Rubric

Throughout the semester you should be collecting materials/ideas you can use in your classroom. The purpose of this assignment is for you to organize those materials, as well as those obtained from the class, into a notebook or file. This assignment will be graded using the following rubric.

Class Notebook & Resource File	Points
<i>Includes:</i>	
- Table of Contents	1
- Additional Science Teaching and Learning "Ideas from the Field"	3
<i>Should be:</i>	
- Logically organized	2
- Comprehensive	2
- Neat	2
Total Points Possible (10 pts.)	

Proposed due date: April 23, 2008, 1:30pm

Course Agenda

DATE	TOPIC	READING Read prior to the class (for the day reading assignment is posted)	ASSIGNMENTS DUE
January 7	<ul style="list-style-type: none"> Why should children learn science? Inquiry and Science Course Introduction Physical Science, <i>Magnetism</i> 		
January 9	<ul style="list-style-type: none"> Nature of Science Physical Science, <i>Buoyancy and Density</i> 	The Nature of Science, Science for All Americans Online (via WebCT, Course Content)	
January 14	<ul style="list-style-type: none"> What science to teach? Georgia Performance Standards and National Science Education Standards Physical Science, <i>Heat and Electricity</i> 	Visit and skim K-5 Georgia Performance Standards for science (via WebCT, Course Content) The Physical Setting, Science for All Americans Online (via WebCT, Course Content)	
January 16	<ul style="list-style-type: none"> Science process skills, <i>observing, inferring, and classifying</i> Physical Science, <i>Light</i> 	Handout, Process Skills Teaching Observation , (via WebCT, Course Content) The Day the Lobster Died, Tippins et al., (2002). <i>Learning from cases: Unraveling the complexities of elementary science teaching</i>	Case Reaction #1, <i>The Day the Lobster Died</i>
January 21 No Class – Holiday			
January 23	<ul style="list-style-type: none"> Developing process skills, <i>measuring, predicting, and communicating</i> Experimenting and Variables Physical Science, <i>Sound</i> . 	Variables and Student Inquiry , (via WebCT, Course Content)	
January 28	<ul style="list-style-type: none"> Approaches to science instruction Why might some science concepts be taught as guided inquiry/discovery? Physical Science, <i>Force and simple machines</i> 	Guided Inquiry , (via WebCT, Course Content)	

January 30	<ul style="list-style-type: none"> • Considering the learning cycle as a model • Biological science, <i>Plants</i> 	Examining the Learning Cycle , (via WebCT, Course Content) 5 E Learning Cycle Model , (via WebCT, Course Content)	
February 4	<ul style="list-style-type: none"> • Using the learning cycle to teach plants • Video: <i>Plant Changes</i> • Biological science, <i>Plants; Fungi and Lichens</i> 	El Secreto de las Ninas, Tippins et al., (2002). <i>Learning from cases: Unraveling the complexities of elementary science teaching</i>	Case Reaction #2, <i>El Secreto de las Ninas</i>
February 5	Meet Your Teacher Day		
February 6	<ul style="list-style-type: none"> • Discussion of field experience assignments • Assessing student's science learning • Biological science, <i>Worms, Spiders, and Insects</i> 		
February 8	In the Field/School Visit		
February 11	<ul style="list-style-type: none"> • Video: <i>A Private Universe</i> • Questioning strategies • Biological science, <i>Mammals and Birds</i> 	Handout, Guiding Questions	
February 13	<ul style="list-style-type: none"> • Productive questions • Alternative concepts and science learning • Biological science, <i>Ecology</i> 		Bring interview questions to class
February 15	In the Field/School Visit		
February 18	<ul style="list-style-type: none"> • How can science be used to improve writing skills? • Biological science, <i>Human Body</i> 	Writing and Science (via WebCT, Course Content)	
February 20	<ul style="list-style-type: none"> • Safety • <i>Chemistry</i> 		Field Experience Assignment #1- Students' Ideas about Science
February 22	In the Field/School Visit		
Field Experience (February 25-March 28)			
Field Experience Assignment #2 due before or on March 31			
March 31	<ul style="list-style-type: none"> • Earth Science, <i>Rocks, Minerals, Weathering, and Erosion</i> 		Field Experience Assignment #2-Student Choice

April 2	<ul style="list-style-type: none"> • Field Experience Presentations (5 students) • Earth Science, <i>Landforms and Earthquakes</i> 		
April 7	<ul style="list-style-type: none"> • Project WILD Training, Room 215 (joining w/another ESCI 4420 section) 		
April 9	<ul style="list-style-type: none"> • Project WILD Training, Room 215 (joining w/another ESCI 4420 section) 		
April 14	<ul style="list-style-type: none"> • Going beyond activities... building science knowledge • Field Experience Presentations (5 students) • Earth Science, <i>Weather and Seasons</i> 	Seasons Change and Conceptions Shift-But Not Always as Expected, Tippins et al., (2002). <i>Learning from cases: Unraveling the complexities of elementary science teaching</i>	
April 16	<ul style="list-style-type: none"> • Astronomy (joining w/another ESCI 4420 section) 		Nightgazer Journal
April 21	<ul style="list-style-type: none"> • Field trip to the Natural History Museum, UGA 		
April 23	<ul style="list-style-type: none"> • Field Experience Presentations (5 students) • Earth Science, <i>Oceanography</i> 		
April 28	<ul style="list-style-type: none"> • Field Experience Presentations (4 students) • Earth Science, <i>Oceanography</i> 		Class Notebook & Resource File Due