

# ISCI 2001: Life & Earth Science for Early Childhood Education

## Fall 2016 Course Syllabus, Valdosta State University

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**Office Hours:** Tues & Thurs 11:00-12:00 or By Appointment. Please feel free to call the office or use email to schedule a convenient appointment or stop in anytime the office door is open.

**Course Objectives:** This science content course provides an integrated overview of Life & Earth Science content in preparation for teaching science at the elementary school grade levels. Topics covered in both the K-5 Georgia Performance Science Standards and the Next Generation Science Standards will be addressed in lessons that allow Early Childhood Education majors to learn science in the non-traditional ways they will eventually be expected to teach in their own classrooms.

**Course Description:** This course will follow the well-established 3-E Learning Cycle format for science instruction. Every Monday and Wednesday, students will attend two related sessions that focus on a single daily lesson. The first will be an Inquiry-Oriented, 50 minute lab in room 1043 of the Bailey Science Center that initiates the lesson with an *Exploration* activity. The second session will be a 50 minute lecture in room 1024 of the Bailey Science Center devoted to the elaboration of the core concepts through a detailed *Explanation* of the topic with discussion of how this is applicable to the K-5 Georgia performance Standards and the Next Generation Science Standards. Students will complete each daily lessons with a designated *Extension* activity for each class topic.

**Instructional Philosophy:** ISCI 2001 will bridge the gulf between scientific and educational disciplinary training by allowing future teachers to learn new scientific information through a variety of instructional innovations. The course employs methods that enact the rhetoric of science education reform. By teaching for constructivist learning, emphasis will be placed on the acquisition of conceptual understanding of scientific information rather than mere memorization. A variety of alternative assessment strategies will be used in conjunction with traditional testing. This nontraditional approach to college science helps prospective elementary school teachers make connections between methods of teaching and learning science.

### Academic Honesty:

Members of the class are expected to maintain high standards of integrity. This course will use the VSU Handbook Code of Ethics as a basic standard of behavior, and everyone in the class is required to read the Biology Department Plagiarism Policy posted at: <http://www.valdosta.edu/colleges/arts-sciences/biology/documents/resources/PlagiarismPolicy.pdf> Evidence of dishonest conduct or cheating will result in no credit for the assignment and depending on the case, a grade of "F" for the course. Do not expect lenience for claims that on the grounds of not knowing better. You will be reported to the Dean of Students and letter of concern documenting the problem to the College of Education. Be aware that employers such as school systems do call that office at VSU to check on whether you have a record of infractions.

**Access Statement:** Students with disabilities who are experiencing barriers in this course may contact the Access Office for assistance in determining and implementing reasonable accommodations. The Access Office is located in Farbar Hall. The phone numbers are 229-245-2498 (V), 229-375-5871 (VP) and 229-219-1348 (TTY). For more information, please visit VSU's Access Office or email: [access@valdosta.edu](mailto:access@valdosta.edu).

**Title IX Statement:** Valdosta State University (VSU) is committed to creating a diverse and inclusive work and learning environment free from discrimination and harassment. VSU is dedicated to creating an environment where all campus community members feel valued, respected, and included. Valdosta State University prohibits discrimination on the basis of race, color, ethnicity, national origin, sex (including pregnancy status, sexual harassment and sexual violence), sexual orientation, gender identity, religion, age, national origin, disability, genetic information, or veteran status, in the University's programs and activities as required by applicable laws and regulations such as Title IX. The individual designated with responsibility for coordination of compliance efforts and receipt of inquiries concerning nondiscrimination policies is the University's Title IX Coordinator: Maggie Viverette, Director of the Office of Social Equity, [titleix@valdosta.edu](mailto:titleix@valdosta.edu), 1208 N. Patterson St., Valdosta State University, Valdosta, Georgia 31608, 333-5463.

**Family Educational Rights & Privacy Act:** Grades cannot be posted by Name or Social Security Number. Scores and student work will not be given over the telephone, by email or to another student.

# ISCI 2001 – Guidelines for Content & Evaluation

## Learning Outcomes - Students in ISCI 2001 will be expected to:

- I. Assemble & Display a collection of information displaying recognition of the basic aspects of Life & Earth Science
- II. Characterize the biotic and abiotic features of the earth, as well as the place of our planet within the solar system
- III. Document recognition of select sections of the K-5 Georgia Performance Science Standards & NGSS
- IV. Compare and contrast how the abiotic factors influence the biotic features of representative global ecosystems
- V. Indicate the possession of conceptual understanding of GPS K-5 content knowledge for Life & Earth Science

## Proof of mastery for each will be demonstrated by the knowledge & skill shown in:

- I. 3E Reports & Lesson Extensions – Follow up assignments applying the content covered in class
- II. Midterm Examinations – Formative evaluations covering course content
- III. Final 3E Composite – A document compiling 3Es & rewrites of 3E assignments along with summaries
- IV. Ecosystem Oral Presentation – PowerPoint show focused on a chosen global biome/ecosystem
- V. Final Examination – A summative, comprehensive evaluation of course content

## The following facets of understanding will be built into the course assessments:

**Explanation** – Description of subject matter and pedagogical practices

**Interpretation** – Demonstration of astute reasoning and ability to make meaningful connections between concepts

**Application** – Explanation of the links between subject matter and science instruction

**Perspective** – Identification of the scientific concepts involved in understanding the Life & Earth Sciences

**Empathy** – Participation in a community service activity for underserved children

**Self-Knowledge** – Illustration of personal reflection on the process of learning and teaching science

## Course Assessment:

### Written Work & Presentations

Average for 3E Reports & Assignments submitted in Blazeview	25%
Ecosystem Research Reports	5%
Class Participation & Attendance*	20%
Final Ecosphere 3E Composite with all 3Es (especially revisions)	10%

### Exams

Midterms – (10% each)	20%
Final Exam – Comprehensive	20%

**Learning Management System:** You will be using your account in VSU Blazeview to submit all of the assignments for the course. Late work will not be accepted for any reason, so be in the habit of getting the 3E papers in early in case something happens. All class communication will take place here and you should check for clarification of assignments and important messages often. (<http://www.valdosta.edu/academics/elearning/blazeview-d2l.php>)

**Email:** We are going to use the **Blazeview email** for class. There is a certain standard of etiquette in higher education that is very different from the way you interact with your friends while texting. My VSU email is for emergencies.

My title is **Dr. Jones** and start any email with that included in a greeting.

The first thing you should do is tell me **which of my classes you are in**.

The next sentence should contain the **reason for your message**.

After you explain yourself, you should close the message properly.

# Class Protocol

## Class Sessions:

Most students come to class to learn and I will not tolerate behavior that disrupts the learning environment. Come to class prepared to concentrate & pay attention. Since some people may not know what is expected in a college classroom, the following rules should make this clear. If I have to stop class and speak to you about a disruption more than once, I will ask to see you after class, and if it happens again you will be dismissed from the classroom and sent to the Dean of Students Office.

## Class Rules:

1. Attend to your personal needs before class and do not get up and walk out of class unless it is urgent.
2. Class will start promptly at the designated time, please have your notebooks open and be ready to pay attention.
3. Once class begins, refrain from side conversations. If you are asking about a word in lecture, make it short & quiet.
4. If a classmate is being rude or distracting you, let them know or say "Shhhhhhhh" loud enough for me to hear.
5. The VSU rules are no eating or drinking in the lecture hall. Water bottles are fine.
6. You are welcome to have your laptops, pads, & phones in class to record lectures, look up terms, and photograph slides.  
However, this is not an invitation to skype, take calls, or read & send texts. If anyone is bothering you with such behavior, report them to me after class or by email. There will be grade penalties for this type of disruption.
7. Class will end at the designated time, unless you see "THE END" on a slide before, so do not rustle your packs before this.

**Attendance\*:** Since more than half of this course involves active experiences, it's extremely difficult to "make-up" missed material. Therefore, attendance is mandatory and will be taken each class period (Lab & Lecture are separate class). Three late arrivals to class will be counted as an unexcused absence. If you walk into Lab or Lecture class late, it is your obligation to see me and be sure I change the A to T in my book or on the roster. There is no recourse days later or at the end of the semester because I caught cheaters saying here are my notes for that day and other students later reported that they were lying and had written notes from someone's recording of the lecture. If you are absent, you are still responsible for writing the 3E papers, but write them by saying "I was not in class, but from what I got from \_\_\_\_\_ & \_\_\_\_\_ (name at least 2 other students to be sure you get it all), the point was to... ALL class absences still require submission by the deadline. Lab & Lecture are counted as separate class sessions. Anyone who misses more than 20% of the class sessions will receive a failing grade for the course. Here is how attendance will be calculated:

\*

No Absences	125%
1 Absence & All Made-Up	100%
2 Absences	75%
3 Absences	50%
4 Absences	25%
More than 4	0%

**Class Participation:** The learning environment has a very significant impact on the satisfaction and success of all students. Therefore, certain standards of decorum will be expected and maintained so that everyone can all enjoy being in the lab and learning as much as possible from lecture. All students start out with 100% as their participation grade. This can be elevated to as high as 125% for consistent positive contributions that enhance the experiences of other students. This grade will be reduced at the discretion of the instructor on the basis of inappropriate conduct such as rudeness, lack of collegiality, or other negative behavior. You will be moved to another seat in either lab or lecture if I consider your behavior a problem. As future teachers, students are expected to exhibit a professional standard of decorum to be maintained in this classroom. Intemperate language, excessive slang, and poor grammar are not acceptable. We all must use grammatically correct English in the context of this class because schools will ask me if you speak well and I want to be able to verify that. If you know you need to work on this, make the effort. I expect you to correct yourself if mistakes are noticed by me or your classmates.

**Short Assignments:** It is too easy to attend class on a regular basis, but put little thought into the course material until there is pressure to study for an exam. Therefore, regular short assignments called 3Es will motivate you to keep up with the course and give regular attention to the material that is being covered. These assignments will be described in class and are due at the end of the following weekend. If you miss the deadline (There will be NO exceptions) keep your file to submit in the final Composite. These will be graded on a 10 point scale as follows: (10=Excellent, 8-9=Good, 7=Adequate, 6=Minimal, <6 Poor).

**Examinations:** There will be two midterms and a comprehensive final examination. These multiple choice tests will consist of conceptual questions that probe understanding of the course material. This course will be taught in a way that requires students to demonstrate individual construction of knowledge and the questions on these assessments are written to judge the ability to apply the course information. Hard work on the Daily 3E Write-Ups is the best preparation for these exams. Many students say that they do not need to cram for the tests because they are confident that they have learned the material by doing the 3E papers after each lesson.

## Textbook

A custom eBook (also available in Paperback) has been compiled to supplement the specialized content we will cover. This is an important source of information that supplements class sessions. Reading ahead to gain familiarity with the scientific language of a subject before the class sessions is wise if you are struggling. Another good preparation is to compile a vocabulary list and define the terms in your own words before or after lecture.

**Required Reading on Integrated Science** - This book actually covers much more material than will be addressed in this course, but was put together because will be a valuable resource for this class. Concentrate on doing selective reading and do not spend time on information that goes into detail over subjects that were not covered in class. Notes to document reading efforts should be made in the Explanation section of the daily 3E assignments. There is no for need formal citation of the text or Websites when general information is included in your writing, but do not copy – rewrite information in your own words.

**Textbook: eBook from McGraw Hill Custom Create Project: Exploring Our Ecosphere –**  
**eBook Price = \$45.70      Print = \$54.70**

1. Introduction:

Chapter from Environmental Science: A Global Concern, 13th Edition by Cunningham, Cunningham, 2015  
[An excellent guide on how to succeed in a science course]

2. Principles of Science and Systems:

Chapter from Environmental Science: A Global Concern, 13th Edition by Cunningham, Cunningham, 2015  
[Applicable to 8/22 & 8/24 specifically in lessons on Science]

3. Energy:

Chapter from Integrated Science, Sixth Edition by Tillery, Enger, Ross, 2013  
[Class on 8/29 & Important throughout the semester]

4. Rocks and Minerals- A First Look:

Chapter from Environmental Geology, Tenth Edition by Montgomery, 2014  
[Matter on 8/31 & Important throughout the semester]

5. Earth's Structure and Plate Tectonics:

Chapter from Environmental Geology, Second Edition by Reichard, 2014

6. The Atmosphere of Earth:

Chapter from Physical Science, 11th Edition by Tillery, Slater, Slater, 2017

7. The Water Planet:

Chapter from Investigating Oceanography, Second Edition by Sverdrup, Kudela, 2017

8. Weather and Climate:

Chapter from Physical Science, 11th Edition by Tillery, Slater, Slater, 2017

9. The Science of Biology:

Chapter from Understanding Biology by Mason, Johnson, Losos, Singer, 2015

10. Understanding Our Environment:

Chapter from Principles of Environmental Science: Inq. & App., 8th Edition by Cunningham, Cunningham, 2017

# Evidence of Achievement & Knowledge Construction

For a minimum grade of 70% - Complete a report of the *3 Stage (3E) Learning Cycle of Activity* for every lesson. Place your lab and lecture notes immediately behind of this 3E Summary for every particular lesson.

*Explorations:* Elaborate a synthesis of the purposes of the lab activity. Consider why these were chosen to generate interest in the topic. Do NOT restate what was done. Emphasize why it was done.

*Explanation:* Use the Lecture Notes, Web Information, & the Text to Complete a Summary depicting the Central Concepts Covered in Class

(Any class absence must be made up with copied class notes & the Make-Up paper)

*Extension:* Work beyond the class meeting to consolidate understanding and answer the lab question.

## 3E - Daily Write-ups

	Poor/Insufficient - 1	Good/Adequate - 3	Excellent/Outstanding - 5
Exploration	Essentially Restates What Happened	Synthesis of Results	Analysis & Inference
Explanation	< 5 Terms, Restates Notes	References to Reading	Recognition of Concepts
Extension	Websites Explained	Visual Displays	Mention of GPS

## ISCI 2001 Final 3E Composite & Summaries:

The “Final Composite” is a type of *Performance-Based Assessment* which should clearly display the “construction of knowledge” and process of building an understanding of the course material. This is an *Alternative Assessment* evaluating different indications of learning than traditional tests or portfolios. This Composite is also an important way to organize the course material and keep it for reference in the future. The organization lesson by lesson is a way all of the material can be collected together so that it will be easier to study for conceptual understanding.

For a minimum grade of 80% - Acquire the *Language of Science*:

Assemble a Vocabulary List - >25 New or Significant Terms/Chapter - paraphrased definition in your own words

Include Reading Notes – Refer to text information with focus on learning outcomes for the course

Collect Web Sites - Find & Print relevant sites that highlight aspects relating to class topics and make margin notes

For a minimum grade of 90% - Demonstrate a *Conceptual Understanding* of the Course Material:

Show a solid effort to document understanding with portfolio entries of exceptional quality and clarity.

Typed a sequential log with observations from each field trip and extend your connections to course content.

Use photographs and/or web images to augment written descriptions and visually display concepts.

Summarize the scientific significance of the course theme in a full page, single-spaced, typewritten essay.

Relate the Georgia Performance Standards and what you learned about science pedagogy to your experiences.

**Organize three chapters** (The Solar System, The Living World, The Ecosystems) in this sequence:

Lab/Lecture Notes & 3E Summary for each Lesson or Field Trip & Web Site

Vocabulary List

Conceptual Summary, Reference to Standards, and Demonstration of Pedagogical Content Knowledge

**Creativity & Illustrations:** This is not a traditional lab notebook and should be much more than a sterile display of coursework. As preparation for teaching science to young students, think about colorful ways to show understanding and appreciation of the information. Use Google or other engines to download images for visual displays.

**WWWweb** – The web is a great resource for supplementing the information presented in class sessions. Use the Web mostly to obtain images that can be used to compose visual displays that demonstrate understanding of the topics. Single page printouts can be included with specific lessons to document reading done in that subject area. Do not print out long web sites (anymore than 3 pages) and be sure to include margin notes that indicate what you learned or found significant in these sources.

**Unit Documents** - For a grade higher than 90%, each chapter should demonstrate *Conceptual Understanding* of the relationships of the lessons that are included. There should be a summary addressing the scientific significance of the section. Describe how lessons demonstrate the Georgia Performance Standards. Do not just list standards; explain the connection to what we did in class.

**GPS** - Print out the complete set of K-5 science standards and address them in detailed reflections in the Portfolio. Pay attention to the Major Concepts/Skills to Maintain. Note the progressive changes in complexity. Anytime a class lesson correlates to a specific standard, explain this connection and ideas you have for lessons for children.

**Pedagogy** - Since this science content course is part of the major in Early Childhood Education, students are expected to focus on the “art and science of teaching” as well as the subject matter. Each chapter summary should also contain evidence of conscious thinking about learning and working to develop Pedagogical Content Knowledge or the ability to translate scientific subject matter into interesting and effective lessons that are appropriate for young children.

**Grading** - If any lessons are not completed and summarized in a 3E, the Composite grade will not be any greater than a “C” regardless of other efforts. Top grades will be awarded for clear evidence of **Clear, Consistent, and Convincing** comprehension of the material. It is extremely important that there is a focus on building a document that clearly demonstrates understanding of the course content. **The grade will be a reflection of the quality of the work presented. It will not be a measure of the amount of time you spent on the assignments. Remember: the grade is based on a demonstration of what you have learned; it is not given for the size of your Portfolio.**

## ISCI 2001: Research Reports

**Short Reports:** In an effort to increase environmental awareness, each person will do short reports on endangered plant and animal species in their lab sections. These will consist of the advance submission of one PowerPoint slide that shows the organism. During lab each student will describe the plight of their organism.

**Research Project:** Each person will also select a different topic to serve as the focus of an investigation that will be conducted throughout the semester and presented as part of a group PowerPoint Presentation on the last week of class in the lab section. Lectures on those days will summarize content on those topics. This will be done in stages that involve gathering preliminary information for the presentation that will be compiled at the end of the semester.

### PowerPoint Grading Rubric for Ecosystem Project

	75%	90%	100%	125%
Slides	Slide Errors Too Much Text Blurry Images	>Six Slides Decent Images Intro & Concl	Striking Visual Displays	Enhancement of Topic
Indiv	Obviously Minimal Effort Mistakes on Info	Coverage of Connection Abiotic & Biotic Factors	Accurate & Detailed Description No Mistakes	Exceptionally Creative & Enthusiastic
Group	Lack of Coordination Late Submission Uncooperative	Cohesive & Coherent Activity/Demo	Strong Intro & Concl Evidence of Cooperation	Lively, Entertaining & Educational