

ISCI 2001: Life & Earth Science for Early Childhood Education Fall 2011 Course Syllabus, Valdosta State University

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Office Hours: Mondays 4:30 – 5:30; Tuesdays 3:30 – 4:30. Or by appointment.

Class Meetings: Monday & Wednesdays: Lab sessions A through E, Rm 1043 Bailey Science Center
Lecture 3:30 – 4:20 Rm 3009 Bailey Science Center

Textbook: *Integrated Science, Fifth Edition – (2011) Tillery et al. McGraw Hill*

Information contained in the text will supplement class sessions. I strongly suggest reading ahead to gain familiarity with the scientific language of a subject before each class session.

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 the K-5 Georgia Performance 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. VSU General Education Outcomes may be found in detail on VSU's website. The General Outcomes covered in this class are: 3, 4, 5, 7.

Course Description: ISCI 2001 is a 3 hour credited course. Students will attend two class sessions within a day that focus on a single theme. The first session will be an Inquiry-Oriented, 50 minute lab that initiates the topic with an **Exploration** activity. The second session will be a 50 minute lecture devoted to the elaboration of the core concepts through a detailed **Explanation** of the topic. Members of all lab sections will attend the same lecture. Students will complete the lessons with designated **Extension** activities for each class topic. By teaching for constructivist learning, emphasis will be placed on the acquisition of conceptual understanding of scientific information. A variety of alternative assessment strategies, including a course portfolio, will be used in conjunction with traditional testing.

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. 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. The VSU Biology Department Statement on Plagiarism clarifies common types of academic misconduct. Dishonesty will not be tolerated; evidence of cheating will result in no credit for the assignment or depending on the case, a grade of "F" for the course and letter of concern documenting the problem to the College of Education. Please see end of syllabus for clarification.

Special Services: Students requiring classroom accommodations or modifications because of a documented disability should discuss this need at the beginning of the semester. Students not registered with the Special Services Program should contact the Special Services Office, Nevins Hall 1115, 245-2498.

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

Class Conduct

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. 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 behavior that affects the classroom atmosphere negatively. Inappropriate conduct by a student will result in that student being asked to **leave the classroom**. As future teachers, students are expected to exhibit a professional standard of decorum; intemperate language, excessive slang, and poor grammar are not acceptable.

Food and Drink:

Food and/or drink are NEVER allowed in the lab.

Cell Phone Policy:

Cell phone use is not permitted in class (lecture or lab). If you are expecting an important call inform the professor and when you receive the call step outside the classroom. A ringing phone, text alert tone or observation of a student using a cell phone will result in a deduction of **1% off the final grade per offense**. Frequent offenders will be asked to **leave the classroom**.

How to write an email:

When writing an email to a professor it is important to show respect to both yourself and the professor. The form of the email should be as follows:

Dear Dr. Croteau,

Body of text....

Sincerely,
Hyla Opacum

The email should have proper spelling and grammar (NO TEXT SPEAK), address the professor, and have an appropriate sign off (e.g. sincerely, thank you, yours truly...). Failure to write an email correctly may result in the email going unanswered. As prospective teachers it is important to be respectful and polite and be an example of this to your students.

Evidence of Achievement & Knowledge Construction

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. Absences need to be university approved and will require documentation substantiating the absence. Students are allowed one absence from lab and lecture. Three late arrivals to class will be counted as an unexcused absence. It is the responsibility of the student to obtain missed material from one of their classmates. Anyone who misses more than 20% of the class sessions can receive a failing grade for the course.

Short Assignments: Short assignments will be given throughout the course to ensure understanding of the material that is being covered and sufficient preparation for exams and large projects (i.e. the Course Portfolio). These assignments are worth 5% of your final grade which is based on whether directions were followed, the amount of effort put into the assignment and a clear demonstration of understanding of the material. These assignments will be described in class and are due at the beginning of lab. Any assignment turned in after your lab section will be counted as late. The penalty for late assignments is **5% per day, NO exceptions**. Assignments **MUST** have your Name, Date and Lab Section indicated on it to be awarded full points.

Examinations: There will be two exams and one comprehensive final examination. The most important reason for these tests is preparation for the GACE (Georgia Assessments for the Certification of Educators) exam, but also serve as a vital way to assess student performance. These multiple choice tests will consist of conceptual questions that probe understanding of the course material. Do not expect to depend on rote learning or memorization. This course will be taught in a way that requires students to demonstrate individual construction of knowledge and application of the course information. Many students say that they do not need to study for the tests because they are confident that they have learned the material by doing the Portfolio. This is not the case. Review of class material and hard work on the Daily 3E Write-Ups is the best preparation and is essential to excelling on exams by building connections between concepts. Success starts in the classroom: engage in the activity, think about lessons outside of class, ask questions, and keep good records.

Required Reading in *Integrated Science by Tillery et al*: This book does not cover all of the material that we will cover in ISCI 2001, but was selected because it is a valuable resource for this class and for later teaching of elementary school science. Selective reading is the best way to stay on top of the material presented in class. It is not necessary to spend time on information that goes into detail over subjects that are not covered in class. Notes to document reading efforts can be in the form of an outline with key terms or a narrative summary and should be placed in the Portfolio right after your lecture notes. For material that is not covered in the book you will have to look for other **reputable** sources. Other science texts or credible internet sites are permitted. When completing the reading notes for the Portfolio include the chapter and page number on your notes to provide a reference that you can go back to. If using another source include the book name, chapter and page numbers. If using the internet include the name of the website and the url.

Extra Credit: There will be no extra credit assignments given in this class.

Georgia Performance Standards (GPS): Obtain a complete set of K-5 science standards and address them in detailed reflections in the Portfolio. *Do not put a copy of the GPS in the portfolio, correlate specific standards with each lesson.* Pay attention to the Major Concepts/Skills to Maintain. Note the progressive changes in complexity for higher grade levels. Anytime a class lesson correlates to a specific standard, explain this connection in detail. *Do not just name the standard (e.g. S1E3), write it out (e.g. S1E3: Students will be able to...)*! The Georgia Performance Standards can be found at GeorgiaStandards.org.

WWWWeb: The web is a great resource for supplementing the information presented in class sessions. Use the Web to obtain images to compose visual displays that demonstrate understanding of the topics. **Do not copy and paste from a site and print it out in the portfolio!**

Guidelines for Content & Evaluation

Selected Georgia Performance Standards for K-5

I. Life Science

- SKL1. Students will sort living organisms and non-living materials into groups by observable physical attributes.
- S1L1. Students will investigate the characteristics and basic needs of plants and animals.
- S2L1. Students will investigate the life cycles of different living organisms.
- S3L1. Students will investigate the habitats of different organisms and the dependence of organisms on their habitat.
- S3L2. Students will recognize the effects of pollution and humans on the environment.
- S4L1. Students will describe the roles of organisms and the flow of energy within an ecosystem.
- S4L2. Students will identify factors that affect the survival or extinction of organisms.
- S5L1. Students will classify organisms into groups
- S5L4. Students will relate how microorganisms benefit or harm larger organisms.

II. Earth Science

- SKE1. Students will describe time patterns and objects in the day and night sky.
- S1E1. Students will observe, measure, and communicate weather data to see patterns in weather and climate.
- S2E2. Students will investigate the position of sun and moon to show patterns throughout the year.
- S2E3. Students will observe and record changes in their surroundings and infer the causes of the changes.
- S3E1. Students will investigate the physical attributes of rocks and soils.
- S3E2. Students will investigate fossils as evidence of organisms that lived long ago.
- S4E1. Students will compare and contrast the physical attributes of stars, star patterns, and planets.
- S4E3. Students will differentiate between the states of water and how they relate to the water cycle and weather.
- S5E1. Students will identify surface features of the Earth caused by constructive and destructive processes.

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 the organization and content of the K-5 Georgia Performance Science Standards
- IV. Compare and contrast** how the abiotic factors influence the biotic features of representative Georgia 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. Course Portfolio** – An extensive individualized document built throughout the semester
- II. Midterm Examinations** – Formative evaluations covering each of the three units of instruction
- III. Lesson Extensions** – Summations of each lesson in a format showing the connection to K-5 GPS
- IV. Ecosystem Oral Presentation** – PowerPoint shows focused on the Natural History of Georgia
- 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

ISCI 2001 Course Assessment:

Written Work & Presentations

Initial Portfolio Submissions - Formative Evaluation	10%
Final Portfolio Grade (Revisions, Unit Summaries, & Final Product)	20%
GA Ecosystem Report	15%
Short Assignments	10%
Class Participation & Attendance	5%

Exams

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

ISCI 2001 Course Portfolio

Course Portfolio:

The course portfolio is the most significant aspect of the grading in this course. The portfolio should clearly display the “construction of knowledge” and process of building an understanding of the course material. This portfolio is an Alternative Assessment evaluation representing a different indication of learning than traditional tests. This portfolio is also an important way to organize the course material and to draw upon it for future use. The organization by themes is a way all of the material related to a topic will be collected together so that it will be easier to study for conceptual understanding. There should be a distinct section with divider tabs labeled for each theme (Earth Science, Life Science). **Any Portfolio that does not reflect a substantial effort to display a comprehensive understanding of the lessons will not be accepted for grading and given a grade of 0/100 points.**

For a minimum grade of 70% - Portfolio must be in correct order:

The first item in the portfolio will be a signed copy of the VSU Biology Department Policy on Plagiarism – this form is attached to your syllabus. The front cover must include the class name, section and your name. The portfolio will consist of: Correct front cover, Plagiarism form, tabbed dividers (**only 2**), GPSs, Lab notes and Lecture notes. Any portfolio missing any of the material listed will receive a grade lower than 70%.

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

Reading Notes – Summarize text information relating to each topic covered in class. Notes must include page number from book or source if not from Integrated Science book.

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

Conceptual Summary – Summarize the scientific significance of the course them in a full page, single spaced, word-processed essay. You will have one conceptual summary for Earth Science and one for Life Science. Think of the SCIENCE CONTENT. In this summary you will show how it is all connected. Do not critique the labs. Focus on the material learned. It is imperative that the summary shows constructive thought; any summary that does not will not receive credit.

Use a 1 inch notebook with a creative cover including name and course information.

There should be no blank pages or sub-dividers other than the 2 chapter designations (Earth Science & Life Science) DO NOT use sheet protectors in portfolios. Your syllabus should not be included in your portfolio nor a printed off copy of the GPS. Standards must be included with reference to each lesson. **Standards MUST be word-processed, NOT hand written.**

Grade Sequence for the Chapters

C= Lab/Lecture Notes, GPS for each lesson

B= Reading Notes (for all relevant chapters)

A= Conceptual Summary

****Any portfolio that does not reflect a substantial effort to display a comprehensive understanding of the lessons will not be accepted for grading and will receive a grade of 0/100 points. A portfolio may contain all required parts but if it does not show clear understanding of the material it will receive a grade less than 70%.**

The portfolio is worth a total of 25% of the final grade. It will be graded at the time of your Earth Science Exam for 10% of your grade and again at the end of the semester for 15% of your grade.

Ecosystem Report

Research Project: Each person will select a different **Georgia Ecosystem** to serve as the focus of an investigation. The research on these topics will be conducted throughout the second half of the semester and presented as part of a group PowerPoint presentation during the last week of class. The assignment is to learn about and share information on the specifics of these areas including the abiotic conditions (weather, climate, area of Georgia etc...), special characteristics and adaptations of the living organisms, a food web, other biotic factors, etc...

There will be several grades that will be averaged as the final evaluation of this project. During the oral group presentations to the class, each person will receive an individual grade for preparation and effort. The group grade will be based on the creative integration of the individual reports. Presentations should be interesting and **20 minutes in duration**. There must be 3 introductory and 3 concluding slides that compare and contrast the ecosystems covered by the group. However, there is not a limit to the number of slides of the presentation in total. Each group must fill the 20 minutes. A full color printout of the group report in the 6 slides per page format is due to the professor at the time of presentation.

Ecosystem Topic Choices

Mesic

Coastal Plains Coniferous
 Longleaf Pine Savannahs
 Piedmont Province
 Ridge and Valley
 Maritime Forests
 Appalachian Highlands

Hydric

Swamps
 Marshes (Fresh water)
 Bogs and Fens
 Salt Marshes
 Carolina Bays
 Floodplains

Aquatic

Lakes
 Blackwater Streams and Rivers
 Mountain Springs and Streams
 Large Alluvial Rivers
 Sag and Gum Ponds
 Estuaries

Coastal

Barrier Islands
 Tidal Creeks and Rivers
 Intertidal Beach Zones
 Dune Areas
 Sponge and Coral Reefs
 Open Ocean and Deep Sea (Atlantic)

PowerPoint Grading Rubric for Ecosystem Project

	75%	90%	100%	125%
Slide	Slide Errors Too Much Text Blurry Images	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

Tentative Plan for Instruction & Course Schedule
Changes to schedule will be announced in class

Date	Class Topic
Aug 15	ISCI 2001 Intro
17	The Ecosphere
22	Earth
24	Surface Features
29	Minerals
31	Rocks
Sep 5	Labor Day – No Class
7	Soils
12	Weather & Climate
14	Clouds
19	Solar System
21	Planets
26	Exam 1 - Initial Portfolio Assessment
28	Cells
Oct 3	Life
5	Fossils
6	<i>Last day to withdraw from classes</i>
10	Biodiversity
12	Prokaryotes
17	Protists
19	Fungi
24	Fall Break - No Class
26	Plants
31	Animals
Nov 2	Heredity
7	Habitat/Ecosystems
9	Ecosystems- Field Trip???
14	Carbon
16	Conservation
21	Exam 2 - Final Portfolio Assessment
23	Thanksgiving Break – No Class
28	Wildlife Habitats
30	Presentations - Mesic & Hydric
Dec 5	Presentations - Coastal and Aquatic
Dec 9	5:00-7:00 pm
	Comprehensive Final Exam

VSU Biology Department Policy on Plagiarism

Plagiarism is a broad term used to describe many forms of cheating that involve taking credit for someone else's work. The most blatant type of plagiarism is copying from another source without giving credit to the author. Anytime the original ideas of someone else are used, appropriate citations must reference the source. The failure to acknowledge the use of someone else's ideas, even when they are paraphrased, (whether intentional or not), constitutes plagiarism. Using a paper written by someone else is obviously plagiarism. In addition, the improper citation of references can fall under this spectrum of offences. Plagiarism is equivalent to looking at someone's test and copying down their answers. It is the theft of intellectual property. The simplest way to avoid plagiarism is to give credit where credit is due! This document has been developed by the biology department faculty to explain plagiarism by clarifying appropriate academic behavior, identifying common mistakes or violations, and warning students of the serious consequences for academic misconduct relating to the misrepresentation of original work.

Recognition of and respect for the ownership of property is one of the distinguishing features of civilization. Ideas come from individuals and are effectively owned by their originators; thus they are intellectual property. In the academic sphere, the ideas of others are often encountered, most often in published form. As with tangible property, intellectual property is subject to ownership and protection. Moreover, publication establishes ownership of intellectual property. It is essential to respect the ideas and writing of others by **scrupulously** citing the sources of any and all ideas that are taken from other people's work.

Writing assignments are a very important way for students to demonstrate the ability to assimilate information and express personal knowledge in a coherent manner. The writing process is an active learning experience involving the demonstration of academic skills such as analysis, inference, and appropriate presentation. Assessment of student writing allows faculty members to evaluate not only an individual's understanding of course material, but also the mastery of processes that are considered an important part of biological education. Therefore, it is extremely important that any written work submitted represents a student's personal synthesis displayed in sentences completely constructed by the student.

The Writing Tutorial Services website at Indiana University (<http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml>) gives the following guidelines for avoiding plagiarism. You must give credit whenever you use:

- another person's idea, opinion, or theory;
- any facts, statistics, graphs, drawings—any pieces of information—that are not common knowledge;*
- quotations of another person's actual spoken or written words; or
- paraphrase of another person's spoken or written words.

*In the sciences there is one important clarification to these rules. Any information, even if it is a theory or original idea, that has become widely circulated enough to be found in textbooks is defined as common knowledge. For example, Charles Darwin and Alfred Wallace do not need to be cited every time "natural selection" is mentioned.

There are a variety of ways to obtain assistance on writing assignments. Your professor can clarify expectations in class, help individually in an office conversation, or elaborate instructions by email. The new VSU Student Success Center will provide personal tutoring. There are a plethora of websites devoted to providing writing tutorials. By default, the biology department expects students to use the style recommended by the Council of Science Editors (CSE, formerly and still known as CBE), and succinct directions on how to use this format for citations and references is available on various websites such as: <http://library.osu.edu/sites/guides/cbegd.php>. Specific examples of citation styles may be given to you by your professor that will supersede the CSE/CBE Style.

Quotations

Sometimes students get a little carried away with the use of quotations. Copying large volumes of material, placing it in quotes and citing the author is not plagiarism, but neither is it evidence of your ability to write a paper. So, you may receive a failing grade for excessive quotations because you failed to actually **write** the paper (see paragraph 3 above). There is a huge difference between transcribing a paper (quoting) and writing a paper (using your own words). You should use quotations judiciously when writing science papers. This style may differ from what instructors in other disciplines are telling you to do, so remember that science papers rarely use quotes of any kind. Generally, no more than five-ten words should be used in a single quote, and not more than one or two quotes per ten-page paper. If you do more than this then you must discuss it with your professor before you turn in your paper for grading.

Punishment for Plagiarism

Plagiarism will not be tolerated in the biology department. Any student caught plagiarizing will receive a failing grade on the assignment and depending on the situation may automatically fail the course. Ask before making mistakes and do not assume that we are too lazy to check or too stupid to catch cheaters. Ignorance is no excuse and do not expect sympathy for academic misconduct.

Lab Reports

Students will frequently work in groups during the laboratories. However, lab reports are **never** group projects unless specific instructions to the contrary have been given by the instructor **in writing**. When lab groups work together on projects, each person is expected to do their own analysis of the results. Never use another person's graphs, tables, or words in a report that is supposed to have been written independently. In other words, each student must prepare their own tables and graphs in addition to written descriptions within the report. If lab reports are plagiarized in whole or in part then **all reports in question will be penalized**, not just the reports that were plagiarized. Therefore, **never** give your reports to a classmate to copy.

Long-Term Consequences for Cheating

If a professor takes punitive action on a student's plagiarism incident then, depending on the situation, the incident may be reported to the Dean of Students where it will be entered into the student's disciplinary record. If you send an application to a professional program such as Medical School or Law School, those schools will contact Academic Affairs at VSU and ask them for your Disciplinary Record. **The cheating incident will then be reported to the schools to which you have applied.** So, you can see that there can be terrible long-term consequences for plagiarism.

I have read and understood this policy.

Student Signature

Printed Name

Date