UNIVERSITY OF TEXAS AT SAN ANTONIO
College of Education
Department of Interdisciplinary Studies and Curriculum and Instruction

EARTH SYSTEMS		LAB	SPRING 2008
IDS 3211	SEC 002	Tuesdays, 8:00-10:45am	UTSA-1604 MB 1.304
IDS 3211	SEC 003	Thursdays, 8:00-10:45am	UTSA-1604 MB 1.304
Instructor:		Sonia Cabrera	
E-mail Address:		Through WebCT or Sonia.CabreraLuna@utsa.edu	
Office Hours:		Tuesdays, 11:00am-02:00pm	MB 2.210 carrel #5

DEPARTMENT OF INTERDISCIPLINARY LEARNING AND TEACHING (ILT)

MISSION

The mission of the department of ILT is to foster the intellectual and professional growth and integrity of students and faculty through critical reflection and dialogue, civic responsibility, and leadership. This mission will be accomplished by nurturing a community of interdisciplinary learners who:

- Promote excellence in academic and pedagogical knowledge and research
- Engage in reflective practice
- Embody a strong professional identity and can articulate their philosophies and values
- Value diversity and multiple perspectives
- Promote equality and social justice
- Care about their students and their profession
- Advocate for educational change and reform

GOALS

The department of ILT will create a context that nurtures interdisciplinary learners who:

- Acquire and demonstrate content and discipline knowledge
- Demonstrate an awareness and acknowledgement of and engagement in research-based, reflective, culturally responsive practices
- Are producers, disseminators, and critical consumers of research
- Demonstrate an awareness and acknowledgment of and engagement in social justice and equitable practices
- Articulate their professional philosophy and demonstrate a strong professional identity

COURSE DESCRIPTION

Introduction: to the tools, techniques, and topics of earth systems science investigations with academic applications. This lab has an outdoor component.*
Prerequisite: Completion of math and science core curriculum.

COURSE OBJECTIVES

Students will be able to:

1. Acquire skills needed to collect and interpret environmental data.
2. Demonstrate an understanding of the key components of earth system science: atmosphere, hydrosphere, biosphere, and geosphere.
3. Contribute to a worldwide research effort in collaboration with scientists to generate knowledge about the earth as an interconnected system.
4. **Exhibit a holistic understanding of Planet Earth, recognizing that it is a system comprised of changing and interacting subsystems.**

5. **Use current technologies as tools to access and process information about the Earth's systems.**
6. **Demonstrate skills for engaging in individual and collaborative scientific and social endeavors.**
7. **Demonstrate effective communication skills within the context of science.**

COURSE RATIONALE

The purpose of this course is to help pre-service elementary teachers to enrich their curriculum through authentic, inquiry-based applications of mathematics and science in an integrated earth systems science context. The course will study the interactions between the atmosphere, hydrosphere, biosphere, and geosphere that together make up the Earth System. The intent of this course is to promote an understanding of natural resources using a systems approach. This course will provide opportunities for students to start making connections between a variety of disciplines and concepts.

CONCEPTUAL FRAMEWORK

Earth is Whole: *"One of our civilization's major discoveries is that we live on a round planet. Today we are in the middle of a more awesome discovery about the nature of our home. Earth is not flat. Earth is not round. Earth is whole."*
"Earth is Whole" means that all the planet's physical features and living organisms are interconnected. They work together in important and meaningful ways. The clouds, oceans, mountains, volcanoes, plants, bacteria and animals are all functioning parts of Earth's Operating System.

Systems within Systems within Systems: *"We use the word "system" when we want to describe something that is made up of different kinds of parts that join together to form an interconnected whole. Learning to think in terms of systems is very useful because we are surrounded by all sorts of systems. In fact, each of us is our own little system."*

The Earth System: *"In examining Earth as a whole, we use systems thinking to focus on **Earth's matter, Earth's energy and Earth's life**. In other words, we are going to examine from a systems point of view the stuff (matter) that exists on planet Earth, the energy that makes things happen on planet Earth, and the organisms that make our planet unique in the solar system."*

(Excerpts from Dr. Art's Guide to Planet Earth by Art Sussman)

GENERAL SCHEDULE

INTRODUCTION
Earth as a System • Climate Change • Seasonal patterns • Universal Time

Global Positioning Systems • Latitude • Longitude • Elevation
BASIC GLOBE PROTOCOLS
1.GEOSPHERE (Soil Science)
• Selecting, Exposing, and Describing a Soil Characterization Site • Soil Characterization • Soil pH • Soil Temperature
2.HYDROSPHERE
• Instrument Construction, Site Selection and Sampling Procedures • Water Transparency • Water Temperature • Water pH • Dissolved Oxygen • Electrical Conductivity • Freshwater Macro-invertebrates
3.ATMOSPHERE
• Instrument Construction, Site Selection and Setup • Clouds • Digital Multi-Day Maximum, Minimum, and Current Temperature • Precipitation • Relative Humidity
4.BIOSPHERE (Land Cover/ Biological Science)
• Site Selection • MUC • Land Cover Sampling • Biometry

METHODOLOGY

This course will be taught with a variety of teaching methods. In-class activities will consist of short lecture, small cooperative group work, hands-on activities, individual and group activities.

*__Field trips__ and __outdoor__ field data collection will also be conducted. As weather permits, part of every class time will be spent in outdoor classrooms. Come prepared for any weather. Appropriate shoes (no flip-flops), hats, sunglasses, sunscreen, water, and backpack will make for more enjoyable outings.

USE OF TECHNOLOGY

Technology is recognized as not only an important methodology to utilize in the classroom, but in today's classroom, a necessary tool. Therefore, various forms of technology as instructional tools will be modeled in this course. This will include, but

not be limited to, video tapes, overhead projectors, WebCT, Internet resources, WebQuests, and computer software. The use of the computer will be **required** in the writing of all written work submitted for evaluation.

- https://webct.utsa.edu/ **COMMUNICATION** will occur periodically individually and as a class using electronic sources. WebCT provides a rich source for communication and idea exchange. Weekly agendas, syllabus, course materials and readings, updates, and announcements are available on this site. Please visit the site ASAP to become familiar with its tools. It is **your** responsibility to monitor the site on a regular basis.
- http://www.globe.gov/ **GLOBE REGISTRATION.** You must register online for the GLOBE program by ~~**JANUARY 28**~~. Directions for online registration are as follows:

Enter Globe Site http://www.globe.gov/
Click on Educator's Corner (left hand side of website)
Go to Teachers Workshops
Click on Teacher Workshop registration
Click on San Antonio TX – University of Texas at San Antonio
Click on "I would like to register" and Submit
Complete Teacher Information ONLY. DO NOT complete School Information.
Complete Teacher Home Information ONLY. DO NOT complete School Information.
Submit. You should now be registered.

REQUIRED COURSE MATERIALS

1. **GLOBE -Teacher's Guide**. You may purchase a condensed version of the manual at L&M bookstore. Also, the teacher's guide may be downloaded from the globe website or the GLOBE CD.
2. **GLOBE -Field Guide**. You may purchase at L&M bookstore. Also, the field guide may be downloaded from the globe website or the GLOBE CD.
3. Dr. Art's Guide to Planet Earth by Art Sussman

Accompanying website: http://www.planetguide.net/index.html

4. Binder for group field data log
5. Binder for individual science notebook

RECOMMENDED TEXTS

6. Science SBEC Standards (I, II, III, VI, IX, and X) for EC-4 and 4-8 teacher certification: http://www.sbec.state.tx.us/
7. Environmental Education Standards, North American Association for Environmental Education http://www.naaee.org/
8. "Science Is...", visit at www.bigsciencebook.com.

COURSE REQUIREMENTS

1. ATTENDANCE

(Individual: 100pt)

Class attendance and promptness is mandatory. The pre-service teacher is preparing for a profession where attendance, promptness, and being well prepared and organized are vital. In addition, because this is a hands-on class, many instructional strategies will be

demonstrated and lecture will be kept to a minimum. Learning by borrowing someone else's lab notes will be nearly impossible. It is therefore imperative that you be present, timely, and involved in all aspects of the course. Attendance will be monitored at all class meetings.
Tardiness and absences of which the instructor is not aware in advance will both affect the final grade. If an emergency does arise, it is the students' responsibility to contact the instructor. Due to the nature of the course, make-up labs will not be offered. If students cannot make it to class, they are still responsible for the materials that they miss and the class notebook entry for that day.
Attendance will be documented for each class period. It is the student's responsibility to check in on the attendance sheet each class period. You will be allowed **TWO** "free" absences for the semester, after that you will loose **ALL** your perfect attendance (100pt). For excused absences, which are defined as those that the instructor has approved, students will receive half the class points (50pt).

Note: It is expected that for every hour spent in class, twice that amount of time should be spent outside of class on assignments, readings, and class preparation. If you find yourself unable to complete course requirements in a timely manner, refer to the university withdrawal policy and dates. Incomplete grades are infrequently given and are only given for dire emergencies. Becoming "overloaded" does not count as an emergency.

2. CONTENT QUESTIONS (GLOBE)
(Individual: 200pt)
All students are expected to complete and submit complete answers to GLOBE website and protocol questions pertaining to atmosphere, hydrosphere, biosphere, and geosphere. The questions are posted on WebCT. (Must be typed, font: times new roman, 12pt)

3. SCIENCE NOTEBOOK
(Individual: 200pt)
Each student is to maintain a reflective and observation field journal of each class session, following the guidelines discussed in class. The primary purpose of the notebook is to assist you in organizing your ideas and providing you with an opportunity to think about what you have learned. For each week, you will write a summary that includes, but is not limited to, the following:

- This week we did the following in class…
- The key concepts from this week's class were…
- I could use additional information about…
- Ideas about how to integrate this week's key concepts into my future teaching are…

One page for each week entry is expected.
Be specific in your writing about your ideas and thoughts
You will also submit (or comment on) a suggested website link, by posting it on WebCT (Again, one entry/posting per class is expected --see student's guidelines for the rules).

4. FIELD DATA LOG
(Group: 200pt)
Students will be organized into field data groups. Each group will maintain a field data log of protocol measurements that will be handed in at completion of lab.

5. HANDS-ON TEACHING PROJECT
(Group: 200pt)
Students, in small groups, will organize and teach one learning activity from one protocol in the GLOBE curriculum to their peers. Guidelines for project will be distributed and discussed during the class period.

6. CLASS PARTICIPATION
(Group: 100pt)
An important requirement of this course is active participation. It is expected that you will be prepared for each class period. Throughout the semester, you will be working in groups to complete assignments. While most of this group work will occur in the classroom, you may be required to work with your group outside of the lab time. It is your responsibility to work as a group when required. If you do not actively work with your group members, you will have points deducted from your participation grade. **Students will complete a final evaluation of self and each group member** and these evaluations will be used to determine class participation points.
This class requires your active participation. Absences and inadequate preparation cannot be made up. **All assignments are due at time of scheduled class.** Papers or projects that are late due to illness or personal emergency are accepted without deduction of points, but only when adequate documentation and approval of instructor are provided. No papers or projects submitted more than 7 days after the due date will be accepted. **Late work will be accepted at a cost of a letter grade per calendar day late**.

ASSESSMENT AND EVALUATION

	Assignment		*Pt Value*	*% of Grade*	
1	Attendance	I	100	10%	
2	Content Questions (GLOBE)	I	200	20%	
3	Science Notebook	I	200	20%	
					50%
4	Field Data Log	G	200	20%	
5	Hands-on Teaching Project	G	200	20%	
6	Participation	G	100	10%	
					50%
			1000	100%	

I: Individual; G: Group

Grading Scale		
A	900	1000
B	800	899

C	700	799
D	600	699
F	0	599

ACCOMODATIONS FOR SPECIAL STUDENTS

If any member of this class feels that he/she has a disability and needs special accommodations of any nature whatsoever, the instructor will work with you and the Office of Disability Services to perform in this class. Students with disabilities must be registered with the Office of Disability Services located in MS 2.03.18 (Main Campus, 458-4157) or BV 1.302 (Downtown, 458-2838). Please advise the instructor of such disability and the desired accommodations at some point before or immediately after the first scheduled class period.

FLEXIBILITY CLAUSE

Flexibility is one key to learning. The instructor reserves the right to modify or change the assignments, sequence of assignments, or weight of assignments as necessary and as reflected by the needs of individuals or the group during the semester. This course outline represents a tentative listing of information and modifications may be assigned as necessary and appropriate. **If you are not in class, you may miss important information that directly affects your grade!**

PROFESSIONALISM

An important part of this course is the growth students make toward becoming professional educators. Students are expected to submit work that represents their best effort. All assignments must conform to university policies governing academic dishonesty. All work submitted must be edited for grammar, spelling and correct sentence structure. Materials submitted in this class must be typed, double spaced, single sided (12 pt. font, 1 inch margins). The instructor reserves the right to deduct points from any assignment that does not conform to professional writing standards.

UNIVERSITY POLICIES

The University expects every student to maintain a high standard of individual integrity for work done. Scholastic dishonesty is a serious offense, which includes, but is not limited to, cheating on a test or other class work, plagiarism (the appropriation of another's work and the unauthorized incorporation of that work in one's own work), and collusion (the unauthorized collaboration with another person in preparing college work offered for credit). In cases of scholastic dishonesty, the faculty member responsible for the class may initiate disciplinary proceedings against the student. In this class all UTSA procedures will be followed and the necessary paperwork will be filed with the Office of Student life and the College of Education and Human Development. A penalty will be recommended by the course instructor to the Office of Student Life which may impose an additional university penalty.