

# Syllabus for Earth Science: ES101-060

## Spring 2013

Course title: Earth Science (ES 101-060)  
Southwestern Illinois College  
Mondays, Wednesdays and Fridays,  
11 am-12:35 pm  
Room 313, Sam Wolf Granite City Campus  
4 credits (3 lecture hours, 2 lab hours)  
Instructor: Joy Branlund  
Prerequisites: Completion of ENG 092 and MATH 094

### Who am I (the teacher)?

Joy Branlund (Please call me "Joy," or "Dr. Branlund")  
Office: Room 314 Sam Wolf Granite City Campus  
Telephone: (618) 797-7451  
(or toll-free in Illinois: 1-866-942-SWIC x7451)  
Email: [Joy.Branlund@swic.edu](mailto:Joy.Branlund@swic.edu)  
Office hours: Monday 10-10:50 am, Wednesday 10-10:50 am and 3:30-4:20 pm, Friday from 10-10:50 am, and 6-6:25 pm on both Tuesday and Thursday.

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### When can you (the students) meet with me (the teacher) outside of class?

The best time to meet with me is during office hours. If you can't make it to my office hours, make an appointment to meet with me at a different time. You can try to catch me in my office at times outside my office hours, but I may not be able to talk. Email is another good way to contact me.

### How will I contact you (if needed) outside of class?

Official communication will be sent to your SWIC student e-mail account. Be sure to check this account (possibly by forwarding email sent there to another account), and please use your SWIC email account to communicate with the instructor.

### Course description: What is this course all about?

In this course, students will learn how and why Earth is the way it is, and why humans should care. A systems-based approach to Earth Science will be utilized which incorporates components of geology (such as the rock cycle and plate tectonics), meteorology (including winds and weather), the hydrosphere (water in the geosphere, atmosphere and oceans), astronomy (the Sun and Earth's place in space), and climatology. Students in ES101 will use the tools of science to find patterns in nature, which is useful when considering how humans interact with and are affected by our natural world. Students will analyze climate change, our need and use of natural resources (possibly including water, mineral and energy resources), and causes and impacts of natural hazards (possibly including flooding, earthquakes, volcanoes and severe storms).

**Course objectives: What should you expect to accomplish this semester (course objectives)?**

1. Apply knowledge of science and scientific methods.
2. Measure properties of matter; manipulate measurements and convert measurement units.
3. Adeptly use and interpret maps, including contour maps.
4. Use Earth science knowledge to explain natural hazards.
5. Apply knowledge of Earth's interior and the plate tectonic theory to explain observations of Earth's surface and geologic phenomenon.
6. Infer past processes from mineral composition and texture of rocks, and explain how one rock can change to another using the rock cycle.
7. Use relative and absolute dating as well as other observations to deduce the billions of-years-old age of Earth.
8. Describe reservoirs and exchanges of water throughout the hydrosphere.
9. Apply knowledge of Earth's place and motion in space to explain the distribution and fluctuation of solar energy, and implications of these energy variations.
10. Using knowledge of atmospheric chemistry and electromagnetic radiation, explain vertical stratification of the atmosphere, infer air stability and describe patterns of air and ocean circulation.
11. Describe and explain the weather accompanying different air masses, pressure systems and fronts.
12. Link processes and components from the atmosphere, geosphere, hydrosphere and biosphere in a variety of positive and negative feedbacks in order to explain global climate change.

**How will you learn the material, and demonstrate your learning?****Reading assignments and Prep Checks**

There will be many short, 5-point Prep Checks throughout the semester (plan on having one almost every class period). These Prep Checks are used to test your comprehension of reading assignments. You will be able to use YOUR notes (but no book, photocopied, borrowed or shared notes) for the Prep Checks.

**Homework (some completed in-class)**

There will be several assignments given throughout the semester on a variety of topics.

**Lab**

Labs will be completed during class time in your cooperative learning groups. Most labs must be completed on the day scheduled, although two labs will have individual, at home components. Because this is a lab course, it is essential that you complete the labs.

*Therefore, if you miss more than three labs, I will automatically withdraw you from the course.*

**Final and midterm exams**

There will be three exams throughout the semester. The comprehensive two-hour final exam will also cover material from the entire course. **The final exam will be Wednesday, 5/15/13 from 11:30-1:20.**

## **Cooperative learning groups**

You will complete labs and several in-class activities in cooperative learning groups. I will assign the groups. Your group will assign each member a role to guarantee his/her full cooperation. You will also evaluate the participation of your fellow group members – so *your grade on labs will depend, in part, on your contribution to your group.*

There are several advantages to cooperative learning groups. Most importantly, studies show that students learn better when they are able to teach and be taught by their peers. In addition, groups will give you the opportunity to meet your classmates, and will also simplify bookkeeping tasks, like taking attendance and returning homework.

## **The course Blackboard site**

This course is supported on Blackboard. The course web site can be accessed using any internet-enabled computer through the swic.edu website (click the **Bb** icon at the top). Instructions for accessing the web page will be given in class. Computers in the Library and Success Center are available for student use.

## **What's on Blackboard?**

Most handouts, including this syllabus and course schedules, are loaded on the web site. Supplemental materials, such as notes on the reading and exams from previous semesters, may also be on Blackboard. In addition, announcements made in class will be posted. Finally, you can check your course grade through the web site.

## **What is the reading material?**

*Earth Science, 13<sup>th</sup> edition*  
by Tarbuck, Lutgens, and Tasa  
Published by Pearson, 2012  
(A copy of the textbook will be on reserve in the library.)

## **Are any other materials required?**

- If you have a scientific calculator, bring it. We won't use calculators often, but will use them. (Some calculators are available in the classroom.)

## **What should you (the students) expect from the class and me (the instructor)?**

### **Expect to expand your view of science**

In this class, we will study both the process and products of science. If you equate science with fact, you may be frustrated to learn that scientists do not know the right answers; rather they use theories to explain the natural world. Throughout the semester, keep in mind that science, like most knowledge, is evolving.

### **Expect to be active learners**

I believe that active learning will give you a better mastery of the material than will straight lectures. In class, you will be asked to discuss, analyze and solve problems in small groups. I expect you to be prepared and participate in these activities.

### **Expect your knowledge of the reading material to be tested**

Your readings provide the basic information for the course and contain the background information you need to complete the in-class activities. Please note: you will be quizzed on reading material before that material is discussed in class.

### **Expect your peers to be different from you**

Since this is an introductory course, we all come from a variety of backgrounds and have a variety of interests. Because we all have the ability to solve problems, our diversity will lead to many possible solutions to a given problem. To succeed in your group, you will need to quickly learn to accommodate differences, and use the diverse talents in your group to your advantage.

### **Expect me to be fair, to accommodate your needs (within reason) and to enforce the rules.**

If you think that I am being unfair, please talk with me about it. I will do my best to remedy the situation immediately.

#### **Disability and Access Center**

Students with disabilities who believe that they may need accommodations are encouraged to contact the Disability & Access Center at 618-222-5368 or 618-234-3347 (TDD) to ensure that such accommodations are implemented in a timely fashion.

### **Expect to give feedback**

I welcome any comments you have about the class, my teaching, if things are taking too long or not long enough, etc. You can talk to me personally, if you feel comfortable. Otherwise, slide a note under my door or put it in my mailbox (your note can be anonymous).

### **How will you be graded for the course?**

Your final grade will be based on the following activities:

Lab	130	27%
Exams (3)	150	32%
Final exam	50	11%
Prep checks	50	11%
<u>Homework</u>	<u>90</u>	<u>19%</u>
Total	470	100%

**You can use the sheet on the back of this syllabus to record your grades. Double check them with what's posted on Blackboard.**

## Determining your letter grade

<u>Percent</u>	<u>Grade</u>
90%-100%	A
80%-90%	B
70%-80%	C
60%-70%	D
less than 60%	F
didn't finish the course *	WF

\* Awarded only if the student failed to withdraw him/herself from the course before the official drop deadline.

### What does an A mean?

According to the SWIC catalogue, an A means "Superior."

Attending every class will not guarantee you an A, nor will completing all the work. To get an A, you need to demonstrate learning and understanding of the material, your work must be of high quality, and you must hand in all assignments and complete all quizzes.

### Academic rigor

You are enrolled in an academically-rigorous college course. Your success in this course will require a significant investment of time outside of the class. According to the Administrative Rules of the Illinois Community College Board (section 1501.309), it is assumed that the student will invest two hours of outside study time for each hour of classroom lecture time and one hour of outside study time for each two hour laboratory session. This course is approved under the Illinois Articulation Initiative (IAI). The IAI is based upon the assumption that community colleges and universities are equal partners in delivering lower-division baccalaureate courses. This course is considered equal in scope, quality, and rigor to comparable courses offered at 4-year colleges and universities in Illinois.

### If you think an assignment was improperly graded:

Within a week after I hand back an assignment, turn into me a written explanation of why you deserve a different grade along with the graded assignment.

## Rules

Rules in the Student Conduct Code must be followed. Here are some additional rules for this class:

### Late and make-up work

In-class exams: If you will miss an in-class exam for a legitimate reason (school excused absence, illness), see me **ahead of time** (or call me) to arrange an alternate testing time. *If you don't talk to me before or on the day of the test, you will not be able to take it! No exam grades are dropped.*

Prep checks: Must be taken the day AND TIME they are scheduled. Most prep checks will be done at the beginning of class. If you are late, you will not be able to take the prep check. If you have a school-approved absence (field trip, sporting event, approved religious observance, etc.), see me ahead of time to make alternate plans.

Labs, group homework, activities: Must be taken/ completed the day they are scheduled. If you have a school-approved absence (field trip, sporting event, approved religious observance, etc.), see me ahead of time to make alternate plans. There will be two labs with at-home components. If you miss the in-class portion, you will still be able to use data collected by students in class to complete the at-home portion.

Homework: You will be penalized 10% for each late homework assignment.

### **Cheating and plagiarism**

All work must be written IN YOUR OWN WORDS. Borrowing words from web pages and printed material (including the textbook), even just sentence fragments, is plagiarism and a criminal offense! If what you hand in contains words taken from other sources, you may be warned, penalized, or given a zero depending on the magnitude of the offense. Homework assignments are individual assignments. The words you use should be yours. If you and a classmate have identical answers, you may be warned, lose points, or earn zero credit. Serious offenses (cheating on exams, repeated offenses) will be reported to the administration and may result in an automatic F and expulsion from the class.

### **Attendance, arriving late and leaving early**

**COME TO CLASS!** Students who do well in their college classes are the students who attend their college classes!

Attendance is required at Southwestern Illinois College. If you know you will miss class, hand in any assignments early or ask a classmate to submit them. If you miss class, please see the course Blackboard site for announcements, changes in the schedule, etc. If you miss the four class sessions before midterm, I will withdraw you from the class. If you stop coming to class after midterm, it is your responsibility to withdraw yourself from the course. Failing to do so will result in a grade of WF in the class. (Note: the only excused absences are those that are school related, approved, and which you told me about ahead of time.)

Please try to be on time and leave only when class is over. If your need to arrive late or leave early, please do so with as little interruption as possible. If you miss the start of a quiz because of a late arrival, you will NOT be allowed to take the quiz. Please do not leave the classroom during class except at scheduled break times, unless you have an emergency.

### **Cell phones and general classroom disruption**

You will do better in the class if you focus on what is happening. Using your cell phone will distract you, and prevent you from doing your best. In addition, using your cell phone while others are talking or during group work is rude and disrespectful to the others involved.

Therefore, **keep your cell phones turned off and out of sight**. If I see you using your phone (except for the calculator feature), then you will be asked to leave. If you have your phone in sight during an exam, I'll assume you're cheating on the exam and will act accordingly (see "Cheating and plagiarism" above).

Please be respectful of your classmates and me at all times. This means that you should not talk when I am talking, or when another student is asking a question or making a comment, or during a movie. If you are being disruptive, you will be asked to leave.

## Course schedule: Topics covered in this course

1. Science and scientific methods (week 1)
2. Solar energy in Earth's systems: (weeks 1-4)

Earth in space  
The Sun's production of energy  
Energy and heat transfer  
Earth's shape and motion: How this affects solar heating  
Earth's atmosphere: How this affects solar heating  
Density and layering in Earth's atmosphere  
Local variations in temperature and pressure

← Exam 1

3. Earth's internal energy and the geosphere: (weeks 5-10)

Density and layering in Earth's interior  
Plate tectonic theory  
Minerals, rocks and the rock cycle  
Rocks and minerals as natural resources  
Dating rocks and Earth's age  
Geologic hazards: Earthquakes and volcanoes

← Exam 2

4. Water in Earth's systems (weeks 10-15)

Reservoirs and exchanges in the hydrologic cycle  
States/phases of water, changes in state and latent heat  
Density and layering in Earth's oceans  
Water's effect on the geosphere  
The cryosphere  
Water in the atmosphere: humidity and clouds  
Global air circulation  
Ocean circulation

← Exam 3

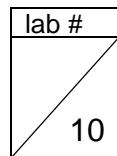
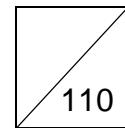
5. More about Earth's atmosphere (weeks 15-16)

Air masses and fronts  
Mid-latitude cyclones  
Storm hazards: severe weather  
Climate change

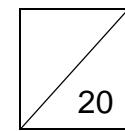
← FINAL

**Lab scores**

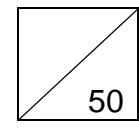
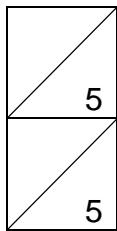
| lab # |
|-------|-------|-------|-------|-------|-------|
| lab # |       |
| 10    | 10    | 10    | 10    | 10    | 10    |
| 10    | 10    | 10    | 10    | 10    |       |
| 10    | 10    | 10    | 10    | 10    |       |

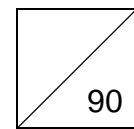
**Dropped****Total****Lab reports completed as homework**

lab #	lab #
10	
10	

**Prep Checks**

5	5	5	5	5
5	5	5	5	5

**Home work**


**Exams**

50	50	50
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**Final Exam**