

Course Syllabus for Integrated Natural Science 2 (SCI 2620-002)

Spring 2010 MW 05:30 - 7:45pm Rm: SO211D

Professor: Uwe Richard Kackstaetter, Ph.d. (Dr. "K") Office: AD-500D
 Office Hours: MW 12:00 - 2:00 & 4:00 - 5:00; TR 12:00 - 4:00 (Contact me! I may be in another building during these hours!)
 Contact: E-mail: kackstae@mscd.edu ☎:303-556-3070
 URL: <http://college.earthscienceeducation.net>

Course Description

This second semester of the Integrated Natural Science sequence reinforces skills and develops knowledge through applications in the primary content areas of biology, astronomy, and earth system science integrating the foundational principles of physics and chemistry. The curriculum is based on the revised Colorado Department of Education Science Content Standards (2010) pK - 8.

Prerequisites

SCI 2610 or permission of instructor

Required Materials

[Hewitt, Lyons, Suchoki, Yeh, 2007, Conceptual Integrated Science 1/e. Pearson](#)
 i-clicker

Specific (Measurable) Student Behavioral Learning Objectives

(Revised Colorado Model Content Standards-Earth Science and Life Science grades pK - 8; Book Chapters are for reference only and do not comprise a comprehensive base for mastering ALL learning objectives)

Upon completion of this course the student should be able to:

Earth Science - Concepts and skills students master	Life Science - Concepts and skills students master
<p>Weather & Climate (Ch. 25)</p> <ol style="list-style-type: none"> 1. Weather is a result of complex interactions of Earth's atmosphere, land and water, that are driven by energy from the sun, and can be predicted and described through complex models 2. Weather conditions change because of the uneven heating of Earth's surface by the Sun's energy. Weather changes are measured by differences in temperature, air pressure, wind and water in the atmosphere and type of precipitation 3. Earth has a variety of climates defined by average temperature, precipitation, humidity, air pressure, and wind that have changed over time in a particular location 4. Weather and the changing seasons impact the environment and organisms such as humans, plants, and other animals 5. Events such as night, day, the movement of objects in the sky, weather, and seasons have patterns <p>Solar System (Ch. 27)</p> <ol style="list-style-type: none"> 1. The solar system is comprised of various objects that orbit the Sun and are classified based on their characteristics 2. The relative positions and motions of Earth, Moon, and Sun can be used to explain observable effects such as seasons, eclipses, and Moon phases 3. Earth is part of the solar system, which includes the Sun, Moon, and other bodies that orbit the Sun in predictable patterns that lead to observable paths of objects in the sky as seen from Earth 4. The Sun provides heat and light to Earth <p>Geology / Earth Science (Ch. 17, 22, 23, 24, 25, 26)</p> <ol style="list-style-type: none"> 1. Major geologic events such as earthquakes, volcanic eruptions, mid-ocean ridges, and mountain formation are associated with plate boundaries and attributed to plate motions 2. Geologic time, history, and changing life forms are indicated by fossils and successive sedimentation, folding, faulting, and uplifting of layers of sedimentary rock 3. Complex interrelationships exist between Earth's structure and natural processes that over time are both constructive and destructive 4. Earth's surface changes constantly through a variety of processes and forces 5. Earth's materials can be broken down and/or combined into different materials such as rocks, minerals, rock cycle, formation of soil, and sand – some of which are usable resources for human activity 6. Earth's materials can be compared and classified based on their properties 7. Water on Earth is distributed and circulated through oceans, glaciers, rivers, ground water, and the atmosphere <p>Environmental Science (Ch. 17, 21, 24)</p> <ol style="list-style-type: none"> 1. Earth's natural resources provide the foundation for human society's physical needs. Many natural resources are nonrenewable on human timescales, while others can be renewed or recycled 2. Earth and Sun provide a diversity of renewable and nonrenewable resources 3. Earth's materials have properties and characteristics that affect how we use those materials 	<p>Ecosystems & Biodiversity (Ch. 18, 21)</p> <ol style="list-style-type: none"> 1. Human activities can deliberately or inadvertently alter ecosystems and their resiliency 2. Changes in environmental conditions can affect the survival of individual organisms, populations, and entire species 3. Organisms interact with each other and their environment in various ways that create a flow of energy and cycling of matter in an ecosystem 4. There is interaction and interdependence between and among living and nonliving components of ecosystems 5. Organisms depend on their habitat's nonliving parts to satisfy their needs 6. An organism is a living thing that has physical characteristics to help it survive 7. Each plant or animal has different structures or behaviors that serve different functions 8. The duration and timing of life cycle events such as reproduction and longevity vary across organisms and species 9. All living things share similar characteristics, but they also have differences that can be described and classified 10. Organisms can be described and sorted by their physical characteristics 11. Living things have characteristics and basic needs <p>Genetics (Ch. 16)</p> <ol style="list-style-type: none"> 1. Organisms reproduce and transmit genetic information (genes) to offspring, which influences individuals' traits in the next generation 2. Individual organisms with certain traits are more likely than others to survive and have offspring in a specific environment 3. Offspring have characteristics that are similar to but not exactly like their parents' characteristics <p>Cell Biology & Human Systems (Ch. 15, 19, 20)</p> <ol style="list-style-type: none"> 1. The human body is composed of atoms, molecules, cells, tissues, organs, and organ systems that have specific functions and interactions 2. Cells are the smallest unit of life that can function independently and perform all the necessary functions of life 3. Photosynthesis and cellular respiration are important processes by which energy is acquired and utilized by organisms 4. All organisms have structures and systems with separate functions 5. Human body systems have basic structures, functions, and needs <p>Evolution of Life (Ch. 17, 26)</p> <ol style="list-style-type: none"> 1. Multiple lines of evidence show the evolution of organisms over geologic time 2. Comparing fossils to each other or to living organisms reveals features of prehistoric environments and provides information about organisms today 3. Living things develop in predictable patterns

Outline of Course Content

Major Topics & Subtopics

- I. Biology - (a) The Cell (b) Genetics (c) Ecosystems & Biological Diversity
- II. Meteorology - (a) Weather (b) Climate
- III. Astronomy - (a) Solar System; (b) Universe
- IV. Geology - (a) Plate Tectonics; (b) Rocks & Minerals; (c) Earth's History

score of 110% (Except take-home or open note exams). NO OTHER ADDITIONAL EXTRA CREDIT WILL BE GIVEN. So please DON'T ask.

SCIENCE PROJECT: With 150 points (15%) of your total grade this is a major part of class. You will receive instructions and a detailed grading rubric as a separate handout. You will select your project topic on a first come first served basis. The project is to be presented during a poster session at the end of the semester. Keeping this date is a crucial commitment! Under NO circumstances shall any student receive credit for project materials turned in AFTER the Project Date. There is NO possibility of make-up.

E-MAIL: You may e-mail me any time at kackstae@mscd.edu. In general, I will NOT accept any assignments via e-mail. These must be turned in as hard copies AT THE ALLOTTED DUE DATES!!!!.

ELECTRONIC DEVICES (see also "CIVILITY"): Put ALL your consumer electronics away (which means they are NOT to be visible, even if you don't use them) including but not limited to cell phones, ipods, MP3 players, headphones, etc. They are NOT to be used at any time during my class. Cell phone calculators are NOT ALLOWED, you must bring a "real" calculator. Personal computers are allowed in class only with approval from the instructor and a written and signed contract. Permission for use of PCs will be immediately revoked for the remainder of the course if a student is found to be engaged in unrelated activities, such as checking e-mail, surfing the web, playing games, etc. Texting, emailing, gaming, listening to music or similar unrelated activities during classtime is not only rude and unprofessional, it is highly annoying to me and the majority of your fellow students. If you are caught you will be unceremoniously asked to leave my class and you will lose any or all participation points for that day. Repeat offenders will face disciplinary action on the college level. You have been warned!

CHEATING & PLAGIARISM: Any students found plagiarizing or otherwise cheating will receive an "F" for the course grade, and disciplinary action at the college level will be recommended. If you copy another students work, both of you, the "copier" and the "copied" will receive 50%. YOU SHARE THE WORK, YOU SHARE THE GRADE!!! If more than one student is involved in the copying, the grade will be prorated accordingly, e.g., 3 students = 33% each, 4 students = 25% each, and so forth! Be especially careful when you work on assignments in a group with other students. (Note: You may share DATA that was collected together, you MAY NOT SHARE WRITE-UPS). I-CLICKER WARNING: Responding to i-clicker questions for someone else (e.g., by using their i-clicker together with your own) CONSTITUTES ACADEMIC CHEATING (same as cheating on a test or exam).

CIVILITY: The student code of conduct will be enforced in this class. The short version of the code: Students are expected to assist in maintaining a classroom environment conducive to learning and respectful of the instructor and fellow students. Students have an opportunity to gain from time spent in class. Therefore, students are prohibited from using cell-phones or beepers, text messaging, eating or drinking in class, making offensive remarks, reading newspapers, using their laptop or PDA for class unrelated activities (such as browsing the internet, checking email, watching videos, etc.) or doing other assignments unrelated to the class, sleeping or engaging in any other form of distraction. While you may feel that you are doing it quietly and unobtrusive enough, it does indeed distract other students (as scores of them have reported to me). Inappropriate behavior shall result minimally in a request to cease the behavior and upon continuation despite warnings to leave the class.

STUDENTS WITH DISABILITIES: The Metropolitan State College of Denver is committed to making reasonable accommodations to assist individuals with disabilities in reaching their academic potential. If you have disability which may impact your performance, attendance, or grades in this class and requesting accommodations, then you must first register with the Access Center, located in the Auraria Library, Suite 116, (303) 556-8387.

The Access Center is the designated department responsible for coordinating accommodations and services for students with disabilities. Accommodations will NOT be granted prior to my receipt of your faculty notification letter from the Access Center. Please note that accommodations are never provided retroactively (i.e., prior to the receipt of your letter). Once I have received your official Access Center Faculty Notification Letter, I would be happy to meet with you to discuss your accommodation. All discussion will remain confidential. Further information is available by visiting the Access Center website at <http://www.mscd.edu/~access/>.

Please be aware that I am unable to grant certain accommodation: My presentations contain copyrighted material and can NOT be printed, copied, transcribed, forwarded or made available electronically or otherwise OUTSIDE OF MY PERSONAL COMPUTER AND CLASSROOM. Solution: Get an excellent notetaker! I also do NOT extend any deadlines on assignments, because (a) all my assignments are given out during the first week of class and (b) my assignment deadlines ARE ALREADY THE EXTENDED ONES, already tailored to the weakest of the weak students and those with disabilities. Solution: Start assignments right away. In this manner I can help you with plenty of time for completion.

OTHER: Students at Metropolitan State College of Denver who because of their sincerely held religious beliefs, are unable to attend classes, take examinations, participate in graded activities or submit graded assignments on particular days shall, without penalty, be excused from such classes and be given a meaningful opportunity to make up such examinations and graded activities or assignments. Advance written notice that the student will be absent for the religious reasons must be given to the instructor during the first two weeks of the semester.

Nothing in the above policy shall require the instructor to reschedule classes, repeat lectures or other ungraded activities or provide ungraded individualized instruction solely for the benefit of students who, for religious reasons, are unable to attend regularly scheduled classes or activities. However, presentations, critiques, conferences, and similar activities involving individual students shall be scheduled to avoid conflicts with such student's religious observances or holidays provided that reasonable advance notice of scheduling conflicts is given to the instructor.

"NC" Policy - all students may request an NC (No credit) notation without faculty approval through the second week of classes. NC notations with faculty approval will only be granted through the sixth week of class. A request for an NC will not be granted after that week.

"I" Policy - The Incomplete notation will be assigned when a student has completed a major portion of the course requirements (75% minimum) but is unable to complete all of the course requirements due to unusual circumstances, such as hospitalization. (No, being stressed out, starting assignments too late and being unable to finish them, or going on a cruise during finals week which you booked

last year are all NOT considered unusual circumstances). Authorized third party documentation of such unusual circumstances will be absolutely required before an “I” is even taken under consideration. All students found eligible to receive an “I” in the course must complete a contract with the instructor stating specifically by when and how the “I” must be remedied.

This syllabus may be modified at any time without prior notice.