General Science 3310 - Fall 2006
Welcome!

"Something about the night sky causes us all, young and old, to ponder over the very basic questions. We are inspired and motivated."
Kalpana Chawla - United States Astronaut - STS-107

Instructor: Dr. Julie Westerlund
Office: Sci. Bldg. 214    Off. Phone: 245-3361    e-mail: jw33@swt.edu
Office Hrs.: M 1:30–2:30, T 1:30 – 2:30, W 1:15-2:15, Th 1:30-2:30, F by appointment

COURSE DESCRIPTION: General Science 3310 is an overview of geology, meteorology, oceanography and astronomy. The course emphasizes significant science concepts in these subject areas and develops these with hands-on activities, lecture, discussion, laboratory and field work. Two major observation projects provides practice in scientific investigation.

GOALS: The goals of General Science 3310 are:
• to increase students' awareness, knowledge, and appreciation of the physical world;
• to show how knowledge about the physical world is built upon the work of others;
• to provide opportunities for students to learn about the physical world through observation, data gathering, organization and interpretation of data;
  • to promote questioning and critical thinking about the Earth and how we go about understanding it.

ATTENDANCE: Attendance is required at all class meetings and is the responsibility of the student. The attendance policy of the Biology Dept. will be followed (9 absences allows the instructor the option of failing the student). Good/poor attendance will be considered in determining final grades for borderline averages.

GRADING
Quizzes - 15%
Observation Projects - 15%
Tests - 20%
Homework - 5%
Final Exam - 20%
Laboratory - 25%

QUIZZES (15%): OPEN NOTE - QUIZZES OVER HOMEWORK. SHORT ANSWER FORMAT. You may only use your SQR3 textbook reading homework notes that are contained within carbon based notebook. Loose pages may not be used.

OBSERVATION PROJECTS (15%):
1. Sun-Trackers - Students chart daily apparent motion of the sun throughout the fall.
2. Moon Watch - Students chart the appearance of the moon.
3. STAR GAZING: STUDENTS WILL VIEW THE NIGHTSKY THROUGH THE TEXAS STATE TELESCOPE ON WED NIGHTS OR AREA TELESCOPES ACCORDING TO THEIR OWN SCHEDULE (TEXAS STATE SCOPE AVAILABLE IN MID-OCTOBER)

TESTS (20%): Tests will cover material from SQR3 notes, in-class activities and lectures. Examinations may be essay, short-answer or multiple-choice. Students will not be allowed to use notes on the tests.

HOMEWORK (5%) Homework will be collected at each class period. Students will turn in a stapled carbon copy of their textbook reading homework in the SQR3 format.

Homework Collection: Remove the yellow carbon copies of your homework, staple, stamp it with today’s’ date and turn in within the folder. Do not turn in late-work, it will not be accepted. Don’t worry if you did not complete it since your two lowest homework grades will be dropped.

FINAL EXAMINATION (20%): This will be a comprehensive examination consisting of objective (multiple choice, T-F questions, short answer) over all topics and readings covered in the course. Special emphasis will be placed on untested material and major ideas discussed.

LABORATORY (25%) A student must pass the laboratory with a 59.9% or better in order to pass the course.

MAKE-UPS: Students are responsible for taking exams as scheduled. NO MAKE-UP EXAMS OR QUIZZES WILL BE GIVEN. Instead, the following procedure is substituted for the make-up examination or quiz. If one exam is missed, it will be dropped. Groundwater Project exam cannot be dropped. This applies only to legitimate absences and for one missed exam only. Students who take all of the exams can drop their lowest exam grade excluding the observatory and sun-tracker assignments. If one quiz is missed, it will be dropped. Students who take all quizzes as scheduled will have their lowest quiz grade dropped.

DROPPING WITHOUT PENALTY: The University specifies deadlines for dropping a course. Student may drop a course with no record assigned until Friday, Sept. 8th and with an automatic "W" until Sept. 12th. After that date and until Nov. 20th, a W will be given if a student is passing the course at the time the course is dropped and an F will be given if the student is failing at the time the course is dropped.

INCOMPLETES: Incomplete (I) grades can only be given if one requirement of the course has not been completed (ex: missing the final examination due to hospitalization). Students receiving an incomplete grade must complete the requirement by the end of the next semester or receive an F grade in the course.

REQUIRED LECTURE TEXT and Materials - PLEASE BRING YOUR TEXT TO CLASS EVERYDAY

1 Foundations of Earth Science, Fourth Edition, Lutgens &Tarbuck (must include GEODE disk)
2. Directional Magnetic Compass
3. Laboratory Carbon Notebooks (2)
   with Perforated Sheets (White and Yellow – carbon copies)

**Academic Dishonesty**
Academic dishonesty will not be tolerated in this course. The University policies regarding academic dishonesty, including definitions and disciplinary actions, can be found at [http://www.swt.edu/effective/upps/upps-07-10-01.html](http://www.swt.edu/effective/upps/upps-07-10-01.html).
# General Science 3310

*Earth and Space Science*

Lecture Schedule Fall 2005
for M/W Class Meetings

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture</th>
<th>Homework Assignments</th>
<th>TExEs Competencies for EC-4 and 4-8 certification seekers on MML website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 23</td>
<td>WELCOME! :) Course Introductions</td>
<td>Assignment:</td>
<td>2</td>
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<tr>
<td>Wed</td>
<td></td>
<td>1. Find Large Piece of Cardboard (At least 10 by 12 inches),</td>
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<td></td>
<td>2. Purchase Magnetic Directional Compass</td>
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<td>Internet Assignment: (Due: Monday)</td>
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<td>1. Select the green <em>Atoms</em> on the site</td>
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<td>2. Go through all of Atom Basics Tutorial</td>
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<td>This provides a self-review to chemistry that you will need to</td>
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<td>understand concepts covered in this course.</td>
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<td>Other route: Google: Chemistry for Kids</td>
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<td>(Select first link Rader's CHEM4KIDS.COM)</td>
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<td>Quiz on Monday over tutorial.</td>
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<td>Overall Semester Assignments</td>
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<td></td>
<td>1. Night sky Viewings at an Observatory</td>
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<td>2. Find Big Dipper, North Star, Orion</td>
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<td>3. Sun-Trackers (3 different days)</td>
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<td>Aug 28</td>
<td>Bring Large Piece of Cardboard (At least 10 by 12 inches), and Magnetic Compass Sun Trackers (Semester Long - Inquiry Project) Quiz over Sun-Tracker Set-up and Atom Basics from <a href="http://www.chem4kids.com">http://www.chem4kids.com</a>.</td>
<td>Study Skills:</td>
<td>2, 5, 16, 17</td>
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<tr>
<td>Mon</td>
<td></td>
<td>Where do you study?</td>
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<td></td>
<td></td>
<td>What is your schedule for studying?</td>
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<td>How do you read your college textbooks?</td>
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<td>Assignment:</td>
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<td>Apply the SQR3 Method as you read in your textbook.</td>
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<td>The SQR3 method will be described in class. You may also</td>
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<td>Google SQR3 to find additional Information or go to</td>
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<td><a href="http://www.ucc.vt.edu/stdsk/sq3r.html">http://www.ucc.vt.edu/stdsk/sq3r.html</a></td>
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<tr>
<td></td>
<td></td>
<td>Read Introduction to Earth Science, p. 1-11</td>
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<td></td>
<td>Homework #1</td>
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<td>SQR3 Notes and Focus on Learning Questions, p. 1</td>
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<td></td>
<td></td>
<td><strong>Topic:</strong> Magnetic North Sun-Trackers Basic Chemistry</td>
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<tr>
<td>Date</td>
<td>Topic</td>
<td>Assignment</td>
<td>Page(s)</td>
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<td>Aug 30</td>
<td><strong>Topic:</strong> Scientific Theory vs. Scientific Law Earth as a System Earth's Four Spheres</td>
<td>Assignment: Scientific Theory vs. Law Complete First Sun Tracker Homework #2 – Reading p. 15-21 GEODe Disk: Section - Major Mineral Groups</td>
<td>3, 20</td>
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<tr>
<td>Sept 4 Mon</td>
<td>Labor Day - Complete First Sun-Tracker at home! Classes do not meet</td>
<td>Assignment: Bring Completed Sun-Tracker to Class next time on Wed Sept 6th Reminder: Homework #2 – Reading p. 15-21</td>
<td>2, 3</td>
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<tr>
<td>Sept 6 Wed</td>
<td><strong>Topic:</strong> GEODe Disk: Section - Major Mineral Groups Rocks and Minerals Bring Completed Sun-Trackers Graphing Home Sun Tracker Results Shadow Length vs. Time of Day Which is Dependent and Independent Variable? Compare Results with other students</td>
<td>Assignment: Homework #3 – p.21-30</td>
<td>16, 2, 3, 5</td>
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<td>Sept 8 Fri</td>
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<td>Last class day to drop course with NO RECORD being assigned and a refund</td>
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<td>Sept 12,</td>
<td>Last day to drop with &quot;W&quot; assigned ends by midnight</td>
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<td>Tues</td>
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<td>Sept 13 - 20 Nov</td>
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<td>Drops with &quot;W&quot; or &quot;F&quot; assigned ends at 5:00 PM on 11/20</td>
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<td>Sept 12 Wed</td>
<td><strong>Topic</strong> - Rocks, Igneous, Weathering</td>
<td>Homework #5 – p.46-58 (p. 296-300)</td>
<td>17</td>
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<tr>
<td>Sept 18 Mon</td>
<td><strong>Topic</strong> – Rocks, Sedimentary, Metamorphic</td>
<td>Read about the upcoming Autumnal Equinox this Thursday on Sept 22! Google: Autumnal Equinox Find Gullet Elementary School Project on Equinox</td>
<td>17</td>
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<tr>
<td>Date</td>
<td>Topic</td>
<td>Assignment</td>
<td>Class Assignment</td>
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| Sept 20 Wed | **Autumnal Equinox** (Friday Sept 22) **Celebration!!** What is the position of the Earth in relation to the Sun at this time in its orbit around the Sun? Demonstrate using model s (Styrofoam balls), representing the Sun and Earth. Why is there equal length of day and night on the equinox? Physical Modeling of Autumnal Equinox Quiz over Autumnal Equinox Equinox Grass Stakes (Gullet Elementary School) Trek to Greenhouse Pond and North Street – Rock Identification, Weathering | **Assignment:** Complete 2nd Sun Tracker Assignment: Homework #6 – p. 61-89 (Due in one week)  
**Class Assignment:** *Earthly Things:* Making a Rock Map, p. 86  
Students bring in several examples of rocks from their neighborhood, fist size samples  
**Groundwater Project at Aquarena Center** (to be completed as one individual or in pairs) –will count as a test grade. Those with the best project will present for extra credit at the 6th Annual Groundwater Festival on Friday November 3rd. | 5, 17,18, 19, 2, 3, 4 |

Dear Professor Westerlund,

I think this festival would be a great opportunity to have some of your General Science students create and present material to 4th, 5th, and 6th grade students. I would be happy to have the students come out and learn more about our facilities and programs and walk them through preparations for the festival if you are interested.

Thank you,
Sonja Mlenar

**The 6th Annual Groundwater Festival on Friday November 3rd** is soon approaching.

During this Festival hundreds of students from throughout the Austin–San Antonio Corridor will visit Aquarena Center to learn the importance of groundwater and how it relates to them. In the past many local, state, and volunteer agencies have joined us to present fun and educational activities during this event. Registration materials will be emailed out at the end of September. For more information about the festival please email sm56@txstate.edu or call 512-245-7540.

| Sept 25 Mon | **TEST ONE**  
Will have lab practical component over Mineral Identification Rock Identification On-going class project *Earthly Things:* Making a Rock Map, p. 86, Use rock key p. 83-85 | Assignment: Homework #6 p. 61-78 | 17 |
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Assignment: Homework #7 p. 78-89</th>
<th>17</th>
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</table>
| Sept 27 Wed | **Surface Water** | Assignment Reading Guide 7 - Online  
(You need to be at a computer to complete this assignment)  
**Moon Journal Assignment.**  
It is a full moon tonight. What does that mean? Can you see it? If not, why not? Today, you begin a moon journal.  
Create a blank calendar. On each day of your calendar, for the next 6 weeks, observe the moon, draw a precise drawing of the shape of the moon, and write down the time that you made your observation.  
Identify the Sea of Tranquility where the first astronauts landed in 1969 tonight. | |
| Oct 7 Mon | **Groundwater**  
Sea of Tranquility on the Moon (not really a sea...just an old basaltic flow bed)  
**Make a diagram of it below!** | | 19.2, 20.2, 20.4 |
NO CLASS AT SUPPLE BLDG

On your own:
Go to Aquarena Center:

921 Aquarena Springs Drive

Self-Guided Tour:

The Texas Rivers Center-Aquarena unveils new exhibit

*Texas, A State of Water.*

The exhibit, located at the newly renovated Texas Rivers Center at Aquarena, is open daily from:

10:00 AM to 5:00 PM

Step inside the Edwards Aquifer and learn about 13,000 years of continuous human discovery of the aquatic systems of Texas and the unique and diverse ecosystems created by its' Aquifers, Springs, Rivers and Streams, Wetlands, Bays and Estuaries.

Assignment Reading Guide & Online
First Day Semester Assignments:

Assignment One
Observatory Viewing:
1. Two Observations of night sky at an observatory
   Observatories contain telescopes.
   Early Fall (Aug-Oct)
   Late Fall (Nov-Dec)

   A. Location, Date, Sky Conditions, Size of Telescope,
      Name of Instructor(s), Names of those in your group
   B. Celestial Objects Seen (Naked Eye & Aided)
   C. Description of Celestial Objects as seen through scope
   D. Choose one object to research additional information on Internet, list web site(s), and
      information (in own words!) for each of the observations
   E. Each of the two reports (Early Fall, Late Fall) should be approximately 3 pages in length,
      single spaced, college-ruled notebook paper,

Locations of Central Texas Observatories (Free public viewing)
San Marcos
Texas State Observatory
   When: Wednesday evenings at dusk, weather permitting (begin in mid-October)
   Where: Roof of Science Bldg, access door - near 4th floor elevator on south east corner
   Contact: Russell Doescher, Call Texas State Physics Dept. for availability

Austin
University of Texas at Austin Observatories
   http://outreach.as.utexas.edu/public/viewing.html
   When: Wednesday evenings at dusk, weather permitting
   Where: Robert Lee Moore Hall observatory
   When: Fridays - 9 to 10 PM, Saturdays, 9 to 11 PM
   Where: Painter Hall Telescope
   For more info: (512) 232-4265

San Antonio
San Antonio College Observatory
   (Re-opens in Mid-September)
   Where: Scobee Planetarium
   When: Attend last planetarium show, observatory opens after last show
   Call ahead for availability
   http://www.accd.edu/sac/ce/scobee

Houston
Houston Museum of Natural Science
   http://www.hmns.org
George Observatory - 3 telescopes!
   Where: Brazos Bend State Park
   When: Saturday Nights, dusk to 10 PM

Lake Buchanan
Eagle Eye Observatory
   Sponsored by Austin Astronomical Society
   http://www.austinastro.org
   Where: Canyon of the Eagles

Dallas
Various Sites Sponsored by Texas Astronomical Society of Dallas  Richland College, Jubilee Park,
Copper Breaks
http://www.tascobserving.org