

ENVS 102L-501 Fall 2015 – The Blue Planet: Laboratory Sessions

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Office hours: Tuesdays 9:00-11:00am, and Tuesdays and Thursdays 3:00-4:00pm, or by appointment

STEM Center hours: Mondays and Wednesdays 1:30-3:30pm

Classroom: This class will meet Thursday each week from 9:00am-11:00am in **room H108**

Textbook: None. But you may find it helpful to have your ENVS101 textbook (Elemental Geosystems)

Supplies: Notebook/File-folder containing lined paper; pens and/or pencils; calculator; ruler; eraser

Optional Supplies: Colored pens/pencils

Semester Schedule

Week	Date	Laboratory Topic	Notes
1	Aug. 20	Course Introduction; Lab 1 – Making Observations	
2	Aug. 27	Lab 2 – Observing Minerals & Hypothesis Development	
3	Sep. 3	Lab 3 – Method Writing & Concept of Density	
4	Sep. 10	Lab 4 – Writing and Testing Hypotheses: Glaciers	
5	Sep. 17	Lab 5 – Observing & Measuring the Weather	
6	Sep. 22	<i>Optional Fieldtrip 1 – ABQ Wastewater Treatment Plant</i>	Tour start: 10:00 a.m.
	Sep. 22-23	<i>UNM Valencia 1st Annual BioBlitz</i>	<i>Extra Credit</i>
	Sep. 24	Lab 6 – Handling & Presenting Numerical Data: CO ₂	
7	Oct. 1	Lab 7 – Designing an Experiment: CO ₂	
8	Oct. 8	NO LAB – FALL BREAK	
9	Oct. 15	<i>Optional Fieldtrip 2 – Water Quality at Whitfield</i>	During class time
10	Oct. 20	<i>UNM Valencia Mole Day</i>	<i>Extra Credit</i>
	Oct. 22	Lab 8 – Whitfield Soil Testing	
11	Oct. 29	Lab 8 – continued	
12	Nov. 5	Lab 9 – El Niño and NM Climate	
13	Nov. 12	Workshop: Your Research Project	Optional Class Period
	Nov. 12	<i>11:59pm Deadline for 1st draft of your poster</i>	
14	Nov. 19	Lab 10 – Maps & Spatial Data: Groundwater	
15	Nov. 24	<i>Optional Tuesday 9-11am session to work on posters</i>	
	Nov. 26	NO LAB – THANKSGIVING	
16	Nov. 30	<i>3:00pm Deadline for Poster Submission</i>	
	Dec. 3	LAB FINAL – Poster Presentations	During class time
17	Dec. 10	NO LAB (Finals Week)	Fieldtrip report due

Course Goals:

1) *To introduce the principles and process of science using environmental study as an aide*

It behooves us to learn how to use the scientific method in our everyday thinking, and to learn how scientists use this method to assign levels of confidence to their findings. This course will introduce and offer practice in the various steps of rigorous scientific inquiry.

2) *To present Earth system processes and products and the methods by which they are studied*

The Earth system consists of interactions between, in the broadest sense, the solid earth, water, the atmosphere and living organisms, where each interaction yields a product that forms part of a cycle. In addition we will investigate how we know what we know about the environment; how well we understand our environment; and what we are able to observe and measure. This will be accomplished through a series of laboratory activities, hands-on experiences and two fieldtrips.

3) *To give each student a better appreciation of the world around them, and how it affects their lives and the lives of others*

If nothing else I hope that you come away from this course with a closer connection to your environment: have a better understanding of the pros and cons of various energy resources, be knowledgeable about the weather, be aware of delicate balances within ecosystems and the benefits of biodiversity, and ultimately be able to make educated decisions on topical subjects such as climate change.

Student Learning Objectives (SLOs):

1. Students will develop skill in observing, be able to construct hypotheses, propose a test, and then complete the test using quantitative and spatial data.
(Relates to UNM/HED Area 3, Competencies 1, 2)
2. Students will be able to make measurements and make calculations using those measurements that lead to graphical display and interpretation of data.
(Relates to UNM/HED Area 3, Competency 4)
3. Students will be able to analyze graphical data and use the graphs to make interpretations.
(Relates to UNM/HED Area 3, Competency 2)
4. Students will be able to present orally and graphically (poster) findings from their own scientific investigations.
(Relates to UNM/HED Area 3, Competencies 3, 4)
5. Students will become familiar with basic scientific equipment associated with the determination of soil and water properties, and be able to present and interpret their findings.
(Relates to UNM/HED Area 3, Competencies 3, 4)
6. Students will be able to evaluate the impact of El Niño Southern Oscillation (ENSO) on the climate of New Mexico and prepare a report of their findings.
(Relates to UNM/HED Area 3, Competencies 2, 3, 5)

Attendance & Drop Policy:

Due to the hands-on nature of this class, regular attendance is *necessary* for successful completion. Therefore I strongly encourage you to make the effort to be present. If you miss the first **2** classes of the semester, without good reason and without contacting me about your absence, you will be dropped from the class. Beyond the second week poor attendance and disruptive behavior will initiate a dialogue between you and I that could ultimately conclude in you being dropped.

Grading:

Your final grade will be based on grades you earn from laboratory write-ups and a field-trip report. Note that you need a C grade (73%) or better to get science credit for this class. Grading is as follows:

Lab Exercises: 11 (Lab 8 counts as two labs) each worth 7%	77 %
<i>Minus your lowest laboratory write-up score</i>	<i>-7 %</i>
Fieldtrip Attendance & Report: Only need to attend 1 of the 2	5 %
Research Project and Poster Presentation	
▪ Participation in Research Activity	15 %
▪ First draft of poster	5 %
▪ Final Poster Presentation	5 %
Total available points	<u>100 %</u>

EXTRA CREDIT available for participating in the UNM Valencia BioBlitz and Mole Day events

Grades & Scores: A+ (>97%), A (93-96.9%), A- (90-92.9%), B+ (87-89.9%), B (83-86.9%), B- (80-82.9%), C+ (77-79.9%), C (73-76.9%), C- (70-72.9%), D+ (66-69.9%), D (63-65.9%), D- (60-62.9%) and F (<60%)

Laboratory Exercise Write-Ups:

Write-ups for each laboratory session must be completed and handed in before the end of each lab (you will be notified in the event that this policy changes for a given lab assignment). The graded write-up will be returned to you during the next laboratory session. The single lowest laboratory write-up score will not be considered (i.e. dropped) for your final grade.

Fieldtrips:

During the course of the semester I will run two short fieldtrips. You need only attend one of the two fieldtrips to earn credit, although you are welcome to attend both. You will need to sign up in advance for a particular fieldtrip. You will get half credit (2.5% toward your final grade) for attending and the other half (2.5%) for preparing and submitting a report.

The two fieldtrips are:

- 1) Whitfield Wildlife Conservation Area - <http://www.whitfieldwildlife.org/>
 - a. On this trip you will get to use some equipment for measuring the chemistry of natural waters. It will take place during regular class time on Thursday afternoon. If you are not signed up for this trip then you do not need to come to class that day.
- 2) Southside Water Reclamation Plant - <http://www.abcwua.org/content/view/91/80/>
 - a. On this trip you will be given a 2-hour tour of the ABCWUA wastewater treatment plant in Albuquerque's South Valley.

NOTE: I will allow you to use a second fieldtrip attendance **AND** report to count as a make-up lab.

A report rubric will handed out to those attending the fieldtrips.

Research Project and Poster Presentation:

This activity can be done alone or with a partner (no groups of more than 2 people will be allowed). Overall this activity is worth 25% of your grade in this class, with the following breakdown: 15% for doing some research **and** presenting it to your peers, 5% for preparing a draft of a poster that displays your research, and 5% for editing the first draft and making a final draft of your poster.

If this sounds scary do not worry. You will not be asked to discover the cure for cancer or determine the answer to life, the universe, and everything. The research you will do will build upon activities that we are going to do in lab anyway. You will simply be using your own ideas to take things one step further.

The real purpose of this part of the course is to get you to work through the scientific method following your own ideas. Most of your grade for this activity will come from how you perform each step of the method rather than how original your science is. Rubrics will be provided on BlackBoard Learn.

Office Hours:

My office is room 132a in the Academics building. Please **do not be afraid** to come and talk to me about issues relating to this class. That is what my office hours are for. I will also be available via e-mail to answer your questions, but I cannot guarantee to be as fast as if we talked during office hours.

Access:

If you have a documented learning disability, please provide me with a copy of your letter from **Equal Access Services** as soon as possible to ensure that your accommodations are provided for in a timely manner.

Plagiarism/Cheating:

I encourage you to talk with one another about assignments before, and while, you do them, but all written (and submitted) work must be in your own words. Blatant copying (plagiarism) will result in a score of zero for all students involved. A second offense will earn all involved an F for this course. In addition I would draw your attention to the University of New Mexico's policy on Dishonesty in Academic Matters:

"Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, including dismissal, against any student who is found responsible for academic dishonesty. Academic responsibility includes, but is not limited to, dishonesty in quizzes, tests or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; and misrepresenting academic or professional qualifications within or outside the University".