EPS 250 Spring 2017 – The Blue Planet: Laboratory Session

Instructor: Dr. Kevin Hobbs **Email:** khobbs84@unm.edu **Office:** A-132A **Phone:** 925-8876
Office hours: Mondays 10:30 – 12:00; Wednesdays 1:00 – 3:30; Thursdays 2:45 – 3:45
Learning Center hours: Tuesdays 10:00 – 12:00
Class time and location: Mondays 3:00 – 5:30 in VAHS 108
Supplies needed: Notebook or binder with lined paper, pencils; some students prefer different colors of pens/pencils for note-taking and diagrams

SCHEDULE (subject to adjustment; stay tuned for changes)

Week	Date	Topic
1	16-Jan	No class – UNM closed in observance of Martin Luther King, Jr., Day
2	23-Jan	Introduction; review of fundamental concepts of geology; relating concepts to NM
3	30-Jan	Review of fundamentals; geography; geologic time; New Mexico in the Proterozoic Eon
4	6-Feb	NM in the Paleozoic; continental shifts recorded in NM rocks
5	13-Feb	Permianland: What NM tells us about the Permian Period
6	20-Feb	Permianland: What NM tells us about the Permian Period
7	27-Feb	The Jurassic Period in NM and surroundings
8	6-Mar	The Cretaceous Period in NM and surroundings: rising and falling oceans and mountains
9	13-Mar	No Class – UNM closed for Spring Break
10	20-Mar	The Cenozoic in New Mexico
11	27-Mar	The Laramide Orogeny: causes; effects; where it is and where it isn't in NM
12	3-Apr	OIL! or, Hydrocarbon geology in New Mexico (northwest and southeast NM)
13	10-Apr	The Rio Grande Rift: Introduction; geography, major geological features
14	17-Apr	The Rio Grande Rift in central NM, including Valencia County and the Manzano Mountains
15	24-Apr	Volcanoes of NM: introduction and relation to underlying geological processes
16	1-May	Local volcanoes: Tome Hill, Los Lunas Volcano, Isleta Volcano
17	8-May	Review; wrap-up

A note on class schedule: The schedule included above will serve as a general outline for the semester. Dates and topics might change as needs arise. Changes will be posted ASAP.

COURSE OBJECTIVES

Students will understand and be able to explain the following:

1. The tectonic forces responsible for the major landforms of New Mexico (NM) through the interpretations of geologic and topographic maps, structural geological data, published literature, and field investigations. (*i.e.*, structural geology and geomechanics)
2. Geologic time and the sequence of major geologic events in NM. (*i.e.*, historical geology and stratigraphy)
3. The environments of deposition/eruption/emplacement, paleolandscape significance, and the sedimentary/volcanologic/intrusive processes responsible for the rock units of NM. (*i.e.*, sedimentology, volcanology, and petrology)
4. The surficial processes that have shaped the modern NM landscape. (*i.e.*, geomorphology)

COURSE POLICIES

GRADING

Quizzes:	15%
Homework:	15%
Map exercises:	25%
Exams:	45%
Total:	100%

GRADE SCALE:

98+ = A+	92-97 = A	90-91 = A-
88-89 = B+	82-87 = B	80-81 = B-
78-79 = C+	72-77 = C	70-71 = C-
68-69 = D+	62-67 = D	60-61 = D-

EXAMS:

Three exams will be given during the semester on the following dates: 20 February, 27 March, and 1 May. Each exam will be worth ~15% of the final grade.

QUIZZES:

There will be five in-class quizzes throughout the semester. These quizzes will cover a combination of the two preceding lectures and the reading assignment for the day's class. Each quiz will be worth 3% of the final grade.

MAP EXERCISES:

There will be three geologic map exercises throughout the semester. Each exercise will be worth ~8% of the final grade.

HOMEWORK:

There will be 5 homework exercises throughout the semester. Each exercise will be worth ~3% of the final grade.

ATTENDANCE:

Attendance is required at each class meeting. *Attendance is taken before the start of each class. To be late is to be absent.* Students with 2 consecutive absences or 3 absences overall may be dropped from the course. Students with 2 absences in the first three weeks of class will be dropped from the course. There are no excused absences. If you are forced to miss a class due to an emergency, you are encouraged to get notes and materials you missed from a classmate and read the assignment for that day.

READING:

This course covers a broad range of topics from many fields of Earth science. It would be impossible to give fair treatment to all topics with lectures alone. Therefore, successful students must read from the textbook and other sources in preparation for class meetings. To encourage you to read *before* class meetings, most online quizzes will be taken from the reading materials that will be discussed in class on the due date of the online quiz. I encourage you to take notes while reading, including writing down questions that arise during reading that you would like to discuss in class. Re-reading after the class meeting has been shown to improve comprehension and success.

LITERATURE:
Books available in the UNM-Valencia library for in-library use:

- Baldridge, W.S., *Geology of the American Southwest,* ISBN 0-521-01666-5
- Baars, D.L., *The Colorado Plateau: A Geologic History*, ISBN 978-0-8263-2301-9
- Baars, D.L., *Navajo Country: A Geology and Natural History of the Four Corners Region*, ISBN 0-8263-1587-9
- Blakey, R., and Ranney, W., *Ancient Landscapes of the Colorado Plateau*, ISBN 978-1-934656-03-7
- Goff, F. *Valles Caldera: A Geologic History*. ISBN 978-0-8263-4590-5
- Price, L. Greer, 2010, *The Geology of Northern New Mexico's Parks, Monuments, and Public Lands*: New Mexico Bureau of Geology and Mineral Resources. ISBN 978-1883905255
- Albuquerque: A Guide to its Geology and Culture. ISBN 1-883905-14-1

Optional recommended books:

- Sprinkel, D.A., Chidsey, Jr., T.C., & Anderson, P.B., *Geology of Utah's Parks and Monuments*, ISBN 0-9702571-0-4
- Chronic, L.H., *Pages of Stone: Geology of the Grand Canyon and Plateau Country,* ISBN 978-0898866803
- Ranney, W., *Carving Grand Canyon: Evidence, Theories, and Mystery (2nd Edition),* ISBN 978-1934656365
- Duffield, W.A., *Volcanoes of Northern Arizona: Sleeping Giants of the Grand Canyon Region*, ISBN 978-0938216582 (cheap used copies available; worth it for the photos alone)
- Fillmore, R., *Geological Evolution of the Colorado Plateau of Eastern Utah and Western Colorado,* ISBN 978-1-60781-9

OFFICE HOURS:
While my "official" office hours are listed at the top of this syllabus, you are welcome to stop by my office at any time. My door is always open, and I am here to help you in any way that I can. If you are having trouble catching me in my office, email or phone me so that we can arrange a meeting.

PLAGIARISM AND CHEATING:
Discussion of ideas is a crucial skill in science, and I encourage you to talk with one another about the topics and assignments in this class. However, all work that you submit must be your own. If you use information from outside resources, such as the textbook, newspapers, the internet, or journals, you must cite it. Plagiarism will result in a "0" on the assignment. If you are concerned about what does or does not constitute plagiarism, I'm happy to help – just ask me after class, via email, or in office hours.

ELECTRONIC DEVICES:
Do not use cell phones during class, even for checking texts. Mute or turn off anything that can provide any distraction before class begins.

In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered "responsible employees" by the Department of Education (see pg 15 - http://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu). For more information on the campus policy regarding sexual misconduct, see:https://policy.unm.edu/university-policies/2000/2740.html