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GEO 104N.03: Introduction to Environmental Geology Lab

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Geosciences 104N   **Autumn Semester, 2018**
Introduction to Environmental Geology Lab   **Professor Payton Gardner**
                                                         TAs: Nick Thiros & Kim Bolhuis
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Class Meeting Times: Section 02 Tuesday, 3:00-4:50 p.m.
                        Section 03 Tuesday, 12:00-1:50 p.m.
                        Section 05 Thursday, 1:00-2:50 p.m.
This course is designed to be a one-credit, companion lab course to the separate lecture course
GEO103N, Environmental Geology. Students can take GEO104N without GEO103N but it is
recommended that they take both courses concurrently.

Course Outcomes:
1) You will understand general principles associated with environmental geology
   including: the spatial and temporal scales of the Earth; the Earth's principal materials
   (minerals, rocks, water, air); causes and controls of natural hazards; source and fate of
   water and air pollution; energy and water resources; flooding and coastal erosion; and
   how humans affect the Earth.
2) You will know the methods and activities geologists use to gather, validate, and
   interpret data related to environmental geology.
3) You will be able to detect patterns, develop and test hypotheses, and draw conclusions
   based on environmental data.
4) You will gain insight into how scientific theories are supported by quantitative
   measurements, scientific observation, and critical reasoning in environmental geology.
5) You will understand the means by which uncertainty is quantified and expressed in
   environmental geology.

TA Office Hours: Wednesday 10:00 a.m. to noon or by appointment.

Moodle and Communication: Formal communication regarding class content and announcements will
occur during the lab. Therefore attendance is critical! The class Moodle website will be used
occasionally for communication and for providing relevant web resources.

Course Grading System: Final grades for this course will be based on the following:

90% Weekly Labs: This course consists of 14 labs. ***Attendance at each lab is required.*** No make-up
labs will be available, but the lowest lab grade of the semester will be dropped. Each individual, graded
lab will be worth roughly 7% of your overall grade.

10% Field Trip Exercise: This course will have one all-day Saturday field trip on a date that will be
determined, which will involve a field exercise that will be collected and scored.

There will be no formal exams in this class.

Late Work Policy: Labs are due to the TA in-box by 12:00 p.m. on the day following your lab. The
labs are designed to be completed within the two hours allotted. ***No late work will be accepted.***

Course Book: This course will use the laboratory manual Investigations in Environmental Geology
(Third Edition) by Duncan Foley, Garry D. McKenzie, and Russell O. Utgard. This spiral-bound lab

book is available through the UM Bookstore and through Amazon.com. You are responsible for reading over the exercise for each week prior to coming to lab.

Weekly Course Schedule:

Weekday/Date:	*Lecture/discussion topic*	*Assigned Reading*
Week 1		
Monday, August 27	Earth Materials, Geologic Time, and Geologic Processes	Foley, Exercise 1
Week 2		
Monday, Sept. 3	Maps, Aerial Photos, and Satellite Images	Foley, Exercise 2
Week 3		
Monday, Sept. 10	Measurements, Basic Calculations and Conversions, Graphs	Foley, Exercise 3
Week 4		
Monday, Sept. 17	Volcanoes and Volcanic Hazards	Foley, Exercise 4
Week 5		
Monday, Sept. 24	Hazards of Mount St. Helens	Foley, Exercise 5
Week 6		
Monday, October 1	Earthquake Epicenters, Intensities, Risks, Faults, Non-structural Hazards, and Preparation	Foley, Exercise 6
Week 7		
Monday, October 8	The Loma Prieta Earthquake of 1989	Foley, Exercise 7
Week 8		
Monday, October 15	Landslides and Avalanches	Foley, Exercise 8
Week 9		
Monday, October 22	River Floods	Foley, Exercise 10
Week 10		
Monday, October 29	Coastal Hazards	Foley, Exercise 11
Week 11		
Monday, November 5	Groundwater Hydrology	Print out

Week 12
Monday, Nov. 12   Water Quality Data and Pollution Sources   Foley, Exercise 13

Week 13
Monday, Nov. 19   **THANKSGIVING|** No Labs

Week 14   Lake and River Contamination from   Print Out
Monday, Nov. 26   Industrial Waste

Week 15
Monday, December 3   Field Trip   Print Out

Students with disabilities: The University of Montana assures equal access to instruction for all students, regardless of disability status. The Disability Services for Students (DSS) office will work with instructors and students to accommodate disabilities when they get in the way of your leaning. If you have a disability that adversely affects your academic performance, and you have not already registered with DSS, please contact DSS in Lommason 154 or 406-243-2243. The TA will work with you to provide appropriate adjustments and facilitate your DSS needs.

An important note about academic misconduct: All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at http://www.umt.edu/vpsa/policies/student_conduct.php.