GEOL 250: ENVIRONMENTAL GEOLOGY (3-credit)
Spring 2021

PROFESSOR INFORMATION

Dr. Nahid Gani, Associate Professor
Department of Earth, Environmental, and Atmospheric Sciences
Office location: EST 321 **Phone:** 270-745-2813 (office)
Email: nahid.gani@wku.edu **Homepage:** http://people.wku.edu/nahid.gani/
Virtual Office hours: Via email and zoom appointment

Course Format:

This semester Environmental Geology course is a Web-synchronous course (MW 9:10-10:05 am) that includes virtual class via Zoom through WKU Blackboard; Friday (9:10-10:05am) is reserved for Q&A session and feedback/reviews. Given the constantly changing current pandemic situation and for the sake of the safety of all students enrolled in this course, I may have the right to make any changes to the web course delivery, grading categories/percentage, contents, assignments, or any other part of this syllabus. Any such changes will be notified to students immediately through email and/or Blackboard.

Course Description:

This course is designed to investigate the important interplay between geologic principles, environments, humans, and the Earth. This course addresses the most pressing environmental concerns encountered by humanity on the Earth's systems, which are not only controlled by internal and external surficial Earth's processes but also by the huge footprint of the world's growing population and their increasingly affluent lifestyle. In this course, the use of fundamental geologic knowledge is investigated in the remediation of these challenges and better management of the Earth as a sustainable planet. Students will gain an in-depth understanding of the Earth's various systems and its natural and anthropogenic processes that control environmental changes and increase societal risk and vulnerability. Examples include current global warming, anthropogenic and natural pollution, loss of habitat and wetland, increased geologic hazards, extreme climate, and erratic hydrologic cycle, the environmental effect on human health, and environmental disasters due to the exploitation of geologic resource (i.e., water, soil, energy).

Colonnade and Geological Sciences Program Credits: GEOL 250 satisfies the Colonnade Natural and Physical Sciences with applied/lab component (NS & SL). This is a core course for the Environmental Earth Science concentration and an elective course for Geology concentration of the Geological Sciences program.

Colonnade Explorations Learning Outcomes:

The course objectives are designed to meet the Colonnade's four specific learning objectives in the Natural and Physical Sciences Explorations subcategory as stated below. Hands-on exercises constitute an essential applied learning component in this course. Students will:

1. Demonstrate an understanding of the methods of scientific inquiry.
2. Explain basic concepts and principles in one or more of the sciences.
3. Apply scientific principles to interpret and make predictions in one or more of the sciences.
4. Explain how scientific principles relate to issues of personal and/or public importance.

GEOL 250 learning outcomes:

Upon completion of this course, students will be able to:

- Demonstrate an understanding of data collection, interpretation, and concluding specific to natural and anthropogenic processes that are relevant to humans and the environment.
- Explain physical, chemical, and biological processes occurring at or near the earth's surface, including natural hazards, nitrogen and carbon cycles, trophic levels and food chains, and water cycles and budgets.
- Apply plate tectonic principles to analyze the relationship between continental and oceanic plate motion and predict increased risk of earthquake and volcanic hazards relevant to environmental and ecosystem health problems.
- Scrutinize how the earth system process is instrumental in formulating public policy or law to deal with a variety of environmental problems.

Recommended Textbook:

Keller, E.A., 2011, Environmental Geology, 9th edition, by Edward Keller, Prentice Hall, Pearson Education, Inc. Upper Saddle River, New Jersey. ISBN 978-0321643759

Evaluation and Grading:

Your final grade will be evaluated in the following categories (in percentage):

Categories	(%)
Exams (3x20%)	60
Lab Assignments (#6)	40
Total	100

Final Letter Grade will be determined based on your score in 100% in the above categories where,
A = (90-100)%; B = (80-89) %; C = (70-79) %; D = (60-69) %; F = 59% and below.

Grades are based on percentages as tabulated above (there will be absolutely NO curving of the grades). Scores in all the above categories will be posted on Blackboard regularly. I encourage you to keep track of your overall percentage grade to be aware of how you are progressing in the class. Late assignment submission or make-up exams are not accepted for a grade unless a VALID university excuse is presented to me at least one week before. There are no options for any extra credit activities.

Exams: There will be three exams. The exams will cover materials mostly from class lectures, reading assignments, and class discussion. You will need to understand each concept covered in each class. Exams include a combination of general and critical thinking question types including but are not limited to multiple choice question, feature identification in diagrams/pictures, matching, hot spot questions, multiple answers, fill-in-the-blank, calculated formula/numeric questions, either/or questions, short answers.

Lab Assignments: Six lab assignments will be given as part of this course's scientific inquiry about various geologic phenomena, where students will place these phenomena in a human context and analyze, synthesize and interpret real-time and real-world environmental data to assess their quantitative reasoning and geological importance. Each lab assignment is due at the beginning of the next lab.

Class Attendance: Registration in a course obligates you to be regular and punctual in class attendance. Like any other class, attendance to this class is critical to learn the fundamental interplay between geologic principles, environments, humans including lab contents. You are solely responsible to keep up with each week's lab contents using Blackboard and Zoom. Attendance will be recorded by me regularly from your login into Zoom and Blackboard each week. Please email me with a VALID university excuse if you are going to miss a Zoom meet or lab assignment due date. Each week contains important material which we build upon throughout the class. Learning these fundamentals is essential to complete a lab, thus it is imperative that you understand the concepts. Please ask questions if there are things

you do not understand. You will enjoy the course more (and likely get a much better grade) if you keep up with the materials regularly and participate discussions with positive attitude.

Class Rules & Policies:

ADA accommodation: In compliance with University policy, students with disabilities who require academic and/or auxiliary accommodations for this course must contact the Student Accessibility Resource Center located in Downing Student Union, Room 1074. The SARC can be reached by phone number at 270-745-5004 [270-745-3030 TTY] or via email at sarc.connect@wku.edu . Please do not request accommodations directly from the professor or instructor without a faculty notification letter (FNL) from The Student Accessibility Resource Center.

Title IX/discrimination & harassment: Western Kentucky University (WKU) is committed to supporting faculty, staff, and students by upholding WKU's Title IX Sexual Misconduct/Assault Policy (#0.2070) and Discrimination and Harassment Policy (#0.2040). Under these policies, discrimination, harassment and/or sexual misconduct based on sex/gender are prohibited. If you experience an incident of sex/gender-based discrimination, harassment and/or sexual misconduct, you are encouraged to report it to the Title IX Coordinator, Andrea Anderson, 270-745-5398 or Title IX Investigators, Michael Crowe, 270-745-5429 or Joshua Hayes, 270-745-5121. Please note that while you may report an incident of sex/gender-based discrimination, harassment and/or sexual misconduct to a faculty member, WKU faculty are "Responsible Employees" of the University and MUST report what you share to WKU's Title IX Coordinator or Title IX Investigator. If you would like to speak with someone who may be able to afford your confidentiality, you may contact WKU's Counseling and Testing Center at 270-745-3159.

Schedule Change Policy: The Department of Earth, Environmental, and Atmospheric Sciences strictly adheres to University policies regarding schedule changes. It is your responsibility to meet all deadlines for drop/add. Only in exceptional cases will a deadline be waived (you would be required to fill out an appeal form). The form requires a written description of the extenuating circumstances involved and the attachment of appropriate documentation. Poor academic performance, general malaise, or undocumented general stress factors are not considered as legitimate circumstances.

Academic assistance through The Learning Center (TLC): Should you require academic assistance with your WKU courses, The Learning Center (located in the Downing Student Union, 2141) provides free supplemental education programs for all currently enrolled WKU students. The Learning Center at Downing Student Union offers certified, one-on-one tutoring in over 200 subjects and eight academic skill areas by appointment or walk-in. Online tutoring is offered to distance learners. TLC is also a quiet study area (with side rooms designated for peer-to-peer tutoring) and a computer lab to complete academic coursework. Please call TLC in the Downing Student Union at (270) 745-5065 for more information or to schedule a tutoring appointment. www.wku.edu/tlc

Academic integrity: Students are expected to conduct themselves according to the principles defined in the WKU Student Code of Conduct at https://www.wku.edu/studentconduct/student-code-of-conduct.php. Students who commit any act of academic dishonesty may receive from the instructor a failing grade in that portion of the course work in which the act is detected or a failing grade in a course without the possibility of withdrawal. No student shall receive or give assistance not authorized by the instructor in taking an examination or in the preparation of an essay, laboratory report, problem assignment or other project, which is submitted for purposes of grade determination. Any student or group found to have committed an act of academic dishonesty shall have their case turned over to the Office of Student Conduct for disciplinary action. Academic dishonesty includes, but is not limited to cheating, plagiarism, fabrication, or misrepresentation, and being an accessory to an act of academic dishonesty. For more, see https://www.wku.edu/handbook/academic-dishonesty.php/. Student Handbook is available at https://www.wku.edu/handbook/.

Tentative Course Content

(Subject to change by me; any changes in syllabus content will be announced in class and posted on Blackboard and TopNet)

Week	Date	Lecture Topics	Chapters
		Phase I: Foundations of Environmental Geology	
Week 1	1/20	Human, Geology and the Environment/The Dynamic Earth systems/Foundational concepts	1
Week 2	1/25-1/27	Solid Earth, Materials, and Processes Current environmental case study	2
Week 3	2/1-2/3	Soils and Environment **Lab 1 (Soil Respiration)**	3
Week 4	2/8-2/10	Biosphere, Ecology, and Geology	4
		Phase II: Hazardous Earth Processes	
Week 5	2/15-2/17	**Exam 1** Rivers and Flooding	6
Week 6	2/22-2/24	Rivers and Flooding; Slopes and Subsidence **Lab 2 (Lake Metabolism)**	6, 7
Week 7	3/1-3/3	Earthquakes, Volcanoes Current environmental case study	8, 9
Week 8	3/8-3/10	Coastal Environment **Lab 3 (Subsidence and Sea Level Change)**	10
		Phase III: Resources and Pollution	
Week 9	3/15-3/17	Freshwater resources/water resources/water pollution/Hydrologic hazards at earth's surface **Lab 4 (Water Quality)**	12, 13
Week 10	3/22-3/24	**Exam 2** Energy resources and the Environment	15
Week 11	3/29-3/31	Mineral resources, Environment and Society **Lab 5 (Nutrient Loading)**	14
		Phase IV: Environmental Management, Global Perspectives & Society	
Week 12	4/5-4/7	Human and the earth systems/Understanding climatic and environmental change **Lab 6 (Climate Change)**	16
Week 13	4/12-4/14	Geology, Society, and the Future/Waste management and geology	17
Week 14	4/19-4/21	**Exam 3**	

Enjoy your semester