(photo: Eagle Lake, Kings Canyon NP, 2012)

UNIVERSITY OF WISCONSIN Richland

A Campus of the University of Wisconsin Colleges

Glg 101: Physical Geology (5 credits)
Fall 2012
106 Science Building
Lecture: M-W-F 2:00-2:50
Lab: T & R 2:30-4:20

Dr. Norlene Emerson	**Associate Professor of Geology**
Office:	**106C Science Building**
Email:	norlene.emerson@uwc.edu
Phone:	**647-6186 Ex. 109**
Office hours:	**M, W, F 9:00-10:00, Tues & Thurs 1:00-2:00, or by appointment**

Description of Course

Geology 101 (Physical Geology) is a 5 credit natural and laboratory science that will fulfill requirements for the laboratory science credits necessary for your AA&S degree. This course will cover the physical nature of Earth. We will discuss topics that include the processes in operation above, on, and beneath the surface of Earth that continue to shape its physical evolution (e.g. plate tectonics, volcanism, faulting and earthquakes, glaciation, running water); the origin and nature of common minerals and rocks and their distribution in the world; and landscapes and their origins (e.g. mountain ranges, glacial forms, river valleys, etc.). Lab work will include the study of common rocks, minerals, interpretation of geological and topographic maps, along with data, map, and chart analysis.

Geology / Geography Department Course Proficiencies

In addition to the content covered, this course will enable you to develop or enhance skills or proficiencies such as being able to:

- analyze, synthesize, evaluate, and interpret information and ideas,
- select and apply scientific and other appropriate methodologies,
- interpret graphs, tables, and diagrams, maps, and aerial photographs,
- read and listen with comprehension and critical perception,
- be a more clear and logical thinker,
- construct and support hypotheses and arguments, and
- articulate accurately strengths and weaknesses of one's own work.

The above proficiencies are an important outcome of a college education. Much of how this course is taught (not just *what* is taught) is directed towards helping you progress on this track as you move towards completion of your degree here at UW-Richland.

Department and UW Colleges Assessment Program

A UW Colleges-wide assessment program has been put into place to enhance the quality and effectiveness of the curriculum, programs and services of the institution. The following areas of proficiency will be assessed because they are of primary importance in the education of our students: Analytical Skills, Quantitative Skills, Communication Skills, and Aesthetic Engagement.

The Geography & Geology Department has also determined a number of core proficiencies for students enrolled in geography and geology classes. For more information, go to www.uwc.edu/resources/assess/.

As part of this assessment program, students in *glg 101* will be assessed on analytical skills, in particular, the ability to interpret and synthesize ideas and information. In addition, students in this course will be assessed on the skill of interpreting the graphical presentation of data, which the department has deemed vital to all students taking a course in geography or geology.

Required Text:
Carlson-Plummer-McGeary, **Earth Revealed 8th ed.,** McGraw Hill, 2009.

Additional resources:
Lecture notes are available on the course D2L website: https://uwc.courses.wisconsin.edu/. This site: Online Learning Center at: https://paris.mcgraw-hill.com/sites/0073376671/ allows you to further explore topics presented in the text using the Internet. The site is arranged by chapters which correspond to your textbook chapters. The site includes quizzes, exercises, web links, and more. I recommend that you visit this site often to help you understand the concepts we will cover in this course. It is especially useful to take the online quizzes as a practice before taking the in-class exams and quizzes.

Required Materials: Please bring these items with you to class each day unless otherwise noted.

- 3-ring binder to hold class handouts, labs, and notes
- straight edge (marked in inches & cm)
- drawing compass, (we will not use this often, I will let you know when you need it)
- color pencils, (we will not use these often, I will let you know when you need them)
- pencil with eraser
- A calculator is recommended. We will have some labs that require computations and you will find it much easier to do the math with a calculator. Calculators may be used on exams and quizzes that require computation. You may NOT use your phone as a calculator.

Grading

Generally, the following curve will apply to all course grades (i.e. exams, assignments, final grades):

A	92-100%	C	72-77%
A-	90-91%	C-	70-71%
B+	88-89%	D+	68-69%
B	82-87%	D	62-67%
B-	80-81%	D-	60-61%
C+	78-79%	F	< 60%

Your final grade will be assigned as follows:

Exams: 52% of total course grade. (4 exams at 13% each) Exams will be mostly multiple-choice, matching, and short answer format. Make-up exams are only given under ***extreme*** circumstances**. If you must miss an exam, you must contact me BEFORE the exam begins to make alternative arrangements or NO make-up will be allowed.** In order to notify me, please talk to me personally (office phone: 647-6186 ex. 109), sending me an email DOES NOT ensure that it will reach me before class time.

Quizzes: 10% of total course grade
Lecture quizzes: (5%**)** Almost every week, I will give you a short (~5-8 point) quiz that covers the lecture notes and the reading assignments. The quiz will be given promptly at the beginning of class, and there are no make-ups given. Therefore, you must be in class **on time**. At the end of the semester I will drop your lowest lecture quiz score. These quizzes are meant to help you prepare for upcoming exams and to check your understanding of daily lecture material.
Lab skills quizzes: (5%**)** Three lab quizzes are scheduled during the semester. These quizzes are designed to test your knowledge of topics covered in the lab. Dates for your quizzes are listed in the lab schedule at the end of this handout.

Assignments: 20% of total course grade
In general, all assignments (both lab and lecture) will be required to be **type written** unless otherwise noted in class. It is your responsibility to turn in all assignments on time. Assignments are due at the very beginning of class. No assignments will be accepted late, that includes not being present the day the assignment is due. Labs are to be completed and handed in on the following lab meeting at the **beginning** of the class period. Labs may be turned in any time prior to the due date. There will be no make-up work given for an absence from a lab.

TMYN: 5% of total course grade.
Math is an element of a physical geology course just as it is an element of your everyday life. In order to help everyone in class to master the math skills that you will need in geology, we will be using a supplemental math website called: The Math You Need, When You Need It" (TMYN) in order to prepare for some of the weekly labs. Modules and assessments will be completed PRIOR to the assigned lab. When you have completed a TMYN module, you will complete an assessment located at the: "Washington Mathematics Assessment and Placement" (WAMAP) website. The assessments are graded; however I will allow you unlimited attempts at the assessments until it is due.

Field Trip: 3% of total course grade
Because physical geology is a field-based science, there is a **required** all-day field trip on **Thursday, Sept 23**. Details of the trip will be discussed in class. There will be no makeup assessment available if you miss the field trip. There will be a graded written assignment associated with the field trip.

Bedrock Café: 5% of total course grade
At noon on Friday, **Dec 3rd** we will be hosting an open house event. The general public, as well as UW-Richland students, staff, and faculty are invited to attend this event. For this activity you will be making an eatable rock facsimile. More details of the Café will be discussed in class.

Attendance & Participation- 5% of total course grade
Attendance is required to all lecture & lab sessions. Please be on time- late arrivals are very distracting and disrespectful to your fellow classmates and the instructor. You will receive 1 attendance point for each day of class. Points will be deducted if you are late for class, or leave the room during class lecture, please make every effort to be there on time. In order to get the most out of your education you need to be actively engaged while in class. I expect you to be present, awake, active, and cooperative. This includes being prepared to ask or answer questions during lectures and to participate during class discussions and activities. Lecture notes for each course topic are available to you via our D2L course website. I will expect you to

have these notes printed **before** class begins and be using them during class lecture. **Lecture Preparation Questions**: Most course lectures have a set of "Lecture Preparation Questions" that includes terms to define and questions to answer. You will find these questions on our course D2L site. You must write out definitions for the terms and answers to the questions and bring them to class. You must also submit your answers electronically to the D2L "dropbox" by 1:00 pm on the date that each topic is covered in class. I will check that you have completed the questions on time and points earned for these assignments will be added to the attendance and participation portion of your semester grade.

READ THE FOLLOWING CAREFULLY If you miss more than 6 class periods throughout the semester your grade will be dropped one letter grade except under the *extraordinary* circumstances for which I excuse the absence, missing the equivalent of more than three weeks of class (10 or more lecture periods) will result in a failing grade for the course.

CLASSROOM CONDUCT In order to maintain a good learning environment, rude and/or disruptive behavior will **NOT** be tolerated. You will be asked to leave the class if your behavior is deemed inappropriate. The following are considered rude and disruptive:

(1) Consistently arriving late to class
(2) Private conversations during lectures and discussions
(3) Lack of attention during lectures and discussions.
(4) Habitually leaving and returning to class in one class period
(5) Allowing your cell phone to ring on numerous occasions

As the instructor of this course I reserve the right to determine what constitutes disruptive behavior and you as a student do not have that right. If the disruptive behavior continues or is serious enough, a student may be subject to discipline and may receive a sanction that may range from subtraction of points towards the course grade to permanent removal from class. **Academic and Non-Academic Misconduct** can affect your grade, your permanent student record, even your ability to continue as a student. These are serious consequences, clearly explained in a publication called Student Rights and Responsibilities available from Student Services. Plagiarism and other forms of cheating are considered academic misconduct, and interfering with other students' ability to learn is considered non-academic misconduct. Lab reports and assignments are to be submitted by each student.

Cell phones and Electronic Devices: Cell phones and other electronic devices should be turned off during class (lecture and lab). Talking on cell phones, text-messaging, checking for messages, emailing, and listening to music during class is not allowed. It is rude and distracting to other students in the class and to the instructor. All cell phones and other electronic devices except for calculators must be turned off and put away at all times while in the geology room (this includes before and after class has officially begun – I do not want to ever see a phone while you are in the room)

Accommodations

Students with approved Individualized Accommodation Plans should make an appointment with me to discuss accommodation needs. Students who are seeking accommodation services who don't already have an approved Individualized Accommodation Plan should first contact John Poole in the Student Services Office.

2012- Tentative Schedule for Glg 101					
Week	**Lecture & Lab #**	**Date**	**Day**	**Topic**	**Lec Reading TMYN Module**

Week 1	**LAB 1**	9/4	T	Pre-test Introduce 'The Math You Need'	Unit Conversions
	Lec 1	9/5	W	Minerals	p. 225-247
	LAB 2	9/6	R	Mineral identification	
	Lec 2	9/7	F	Earth's Interior & Plate tectonics	p. 29-45, 85-109
Week 2	Lec 3	9/10	M	Magma - Origin of Igneous Rocks	p. 296-305
	LAB 3	9/11	T	Mineral identification	
	Lec 4	9/12	W	Igneous Rocks	p. 282-295
	LAB 4	9/13	R	**Mineral Quiz** / Igneous Rock Identification	
	Lec 5	9/14	F	Volcanism and Extrusive Rocks **Quiz 1**	p. 251-263
Week 3	Lec 6	9/17	M	Volcanism and Extrusive Rocks continued Concept Sketches-volcanic landforms	p. 263-277
	LAB 5	9/18	T	**Google Earth & Volcanic Landforms**	
	Lec 7	9/19	W	Volcano Video TMYN unit conversion module	
		9/20	R	**Field Trip 8 am - 6:30 pm Baraboo Area**	
	Lec 8	9/21	F	Sediments and weathering **Quiz 2**	p. 309-320
Week 4	Lec 9	9/24	M	Sedimentary Rocks	p. 359-374
		9/25	T	**NO LAB (Norlene on field trip)**	Rearranging Equations
		9/26	W	**Exam 1**	
	LAB 6	9/27	R	Sedimentary Rock Identification	
	Lec 10	9/28	F	Sedimentary Rock Structures	p. 374-382
Week 5	Lec 11	10/1	M	Metamorphic Rocks	p. 391-412
	LAB 7	10/2	T	Metamorphic Rock Identification	
	Lec 12	10/3	W	Earthquakes	p. 161-170
		10/4	R	**No Lab – Burlap Olympics**	
	Lec 13	10/5	F	Earthquakes continued **Quiz 3**	p. 171-192
Week 6	Lec 14	10/8	M	Earthquakes continued	
	LAB 8	10/9	T	**Rock Quiz** / Earthquake location	
	Lec 15	10/10	W	Geologic Structures - Folds	p. 137-146
	LAB 9	10/11	R	Block Diagrams of Folds	
	Lec 16	10/12	F	Geologic Structures – Faults **Quiz 4**	p. 147-157
Week 7	Lec 16	10/15	M	Faults continued	p. 147-157
	LAB 10	10/16	T	Block Diagrams of Faults	
	Lec 17	10/17	W	Mountain Building	p.113-135
	LAB 11	10/18	R	**Geologic Maps**	
	Lec 18	10/19	F	Geologic Time: Relative Time **Quiz 5**	p. 197-209
Week 8	Lec 18	10/22	M	Concept Sketches – Geo principles	p. 197-209
	LAB 12	10/23	T	Stratigraphic Correlation & Cross Sections	
	Lec 19	10/24	W	Geologic Time: Isotopic Age Dating	p. 209-220
	LAB 13	10/25	R	Radiometric (Isotopic) Dating	Radiometric Decay
		10/26	F	**Exam 2**	

Week 9	Lec 20	10/29	M	Topographic Maps	Handout topographic map tutorial
	LAB 14	10/30	T	Topographic Maps	Slope
	Lec 21	10/31	W	Mass Wasting	p. 333-344
	LAB 15	11/1	R	Topographic Maps	
	Lec 22	11/2	F	Mass Wasting continued **Quiz 6**	p. 344-356
Week 10	Lec 23	11/5	M	**No Class – GSA (review lecture notes)**	
		11/6	T	**No Class – GSA (complete TMYN module)**	Graphing
	Lec 24	11/7	W	Streams	p. 415-435
	LAB 16	11/8	R	Brush Creek Watershed	
	Lec 25	11/9	F	Floods **Quiz 7**	p. 435-443
Week 11	Lec 26	11/12	M	Groundwater Systems **Bedrock Café ideas due today**	p. 451-460
	LAB 17	11/13	T	Porosity and Permeability	
	Lec 27	11/14	W	Groundwater Contamination	p. 460-465
	LAB 18	11/15	R	Groundwater flow	
	Lec 28	11/16	F	Groundwater & Karst Topography **Quiz 8**	p. 465-468
Week 12		11/19	M	**Exam 3**	
	LAB 19	11/20	T	Sediment Analysis Part A	
	Lec 29	11/21	W	Dessert Environments **Bedrock Café Fact Sheet due for Peer Review**	p. 475-490
		11/22	R	**Thanksgiving break**	
		11/23	F	**Thanksgiving break**	
Week 13	Lec 30	11/26	M	Dessert Environments continued	p. 490-494
	LAB 20	11/27	T	Sediment Analysis Part B	
	Lec 31	11/28	W	Tides & Waves **Peer Reviews complete for Bedrock Café** **Quiz 9**	p. 529-535
	LAB 21	11/29	R	Topographic maps & shorelines	
	Lec 32	11/30	F	Beaches and Coasts	p. 536-540
Week 14	Lec 33	12/3	M	Dealing with coastal erosion **Bedrock Café Fact Sheet Due**	p. 540-548
	LAB 22	12/4	T	Google Earth and Coastal Landforms	
	Lec 34	12/5	W	Coastal landforms continued	p. 540-548
	LAB 23	12/6	R	Glaciers and Flubber	
	Lec 35	12/7	F	**BEDROCK CAFÉ AT 12:00** Glaciation & Erosional Features **Quiz 10**	p. 497-511
Week 15	Lec 36	12/10	M	Glaciation & Depositional Features	p. 512-517
	LAB 24	12/11	T	Google Earth and Glacial Features	
	Lec 37	12/12	W	Glaciation & Depositional Features continued	p. 517-525
	LAB 25	12/13	R	**Lab Skills Quiz**	
	Lec 38	12/14	F	Evidence of Past Glaciation **Quiz 11**	p 517-525
		12/19	M	**Final Exam 10:15 – 12:15**	