Geology and Human Events in North Africa & the Middle East

Fall 2015, Syllabus, Version 2.0

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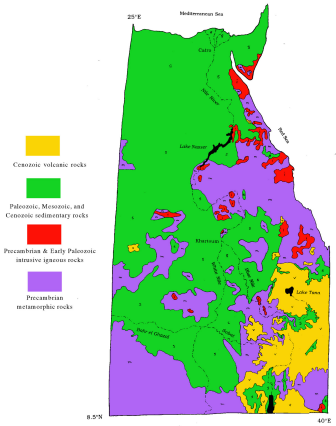
Goals for the course

- *to enable you to analyze the underlying influence of geology and geologic processes on culture, politics, history, pre-history, economics, & international relations*
- *to enable you to analyze the role of geology and geologic processes in recovering our human past, analyzing the present, and predicting the future.*
- *to enable you to analyze spatially-referenced data using computerized GIS*

Introduction

In what ways have geology and geologic processes influenced history? politics? international relations? culture? economics? maybe even human evolution? What about ways that are not as obvious as floods, earthquakes, tsunami, or volcanic eruptions? How does our ability to decipher the rock record help us analyze past events and predict what will happen as the Earth system changes in the future?

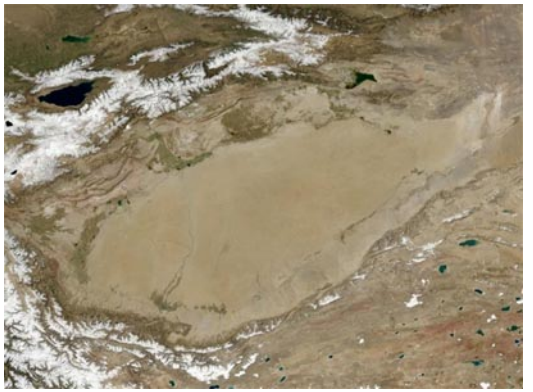
Fri Aug 28	Darfur – intro to the influence of geologic processes on human events
Mon Aug 31	a case example: the Delphic Oracle (well, not exactly Africa, but…)
Wed Sep 2	intro to the power of GIS



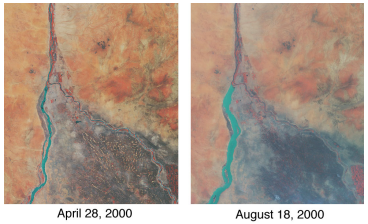
Bedrock

The rocks under our feet – what influence do they have on us besides the exploitable resources they contain? What is responsible for the patterns in the bedrock and in the topography?

Fri Sep 4	rocks, weathering, and the connection between bedrock and landscape



Mon Sep 7	the connection between bedrock geology and landscape in the Adirondacks
Wed Sep 9	how rivers work, plus field trip prep
Fri Sep 11	**field trip during class**
Sat Sep 12	**field trip, return by 9:00 pm on Saturday evening**
Mon Sep 14	*No class: Barb in New Mexico doing NASA* stuff
Wed Sep 16	*No class: Barb in New Mexico doing NASA stuff*
Fri Sep 18	half class on NASA stuff; bedrock and landscape in Africa and the Middle East
Mon Sep 21	more on bedrock and landscape in Africa and Middle East; plate motion animations
Wed Sep 23	plate tectonics, plate boundaries, and plate processes; tectonics of Asia
Fri Sep 25	tectonics behind bedrock patterns of Africa/Middle East; origin of Great Bend of the Nile
Mon Sep 28	tsunami ppt; correlation with bedrock geology, Tennessee example; Nile observa. in Google Earth
Wed Sep 30	work time on ArcMaps



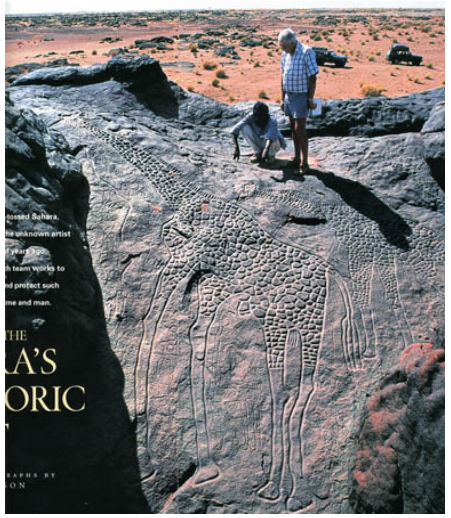
Water Resources

Water, water, water. What are the issues involved in managing our water resources? What happens when humans tamper with a surface water system as large and as complex as the Nile? Do the benefits of damming such a river outweigh the geological and environmental consequences? What about groundwater systems? Are they the answer in arid regions? What are the geological underpinnings of hydropolitics?

Fri Oct 2	Nile floods for half of class; international hydropolitics; teams watched Al Jazeera video in class.
Mon Oct 5	Al Jazeera video reports; Nile irrigation.
Wed Oct 7	Aswan High Dam costs and benefits; evaporation calculations
Fri Oct 9	wrap-up on Egypt's water future; work time on final posters
Mon Oct 12	analyzing earthquakes in 3D using ArcScene; earthquakes in the Eastern Med region and North Africa

Tue Oct 13	***Class Tuesday night:*** reservoir-induced seismicity; seismic risk to the Aswan High Dam
Wed Oct 14	*No class*
Fri Oct. 16	*October break*
Mon Oct. 19	dam failure and mass movement
Wed. Oct. 21	worked on Nile posters most of the class
Fri. Oct. 23	What if the Aswan High Dam failed?
Mon Oct 26	Sodom and Gomorrah; geocatastrophes assignments
Tues Oct 27	***class in the evening****:* basics of groundwater resources
Wed Oct 28	*GSA* Saharan groundwater basins
Fri Oct 30	radiometric dating of groundwater; Saharan groundwater ages

Mon Oct 26	Libya's Great Man-Made River Project
Wed Oct 28	bedrock and surficial geology of Libya
Fri Oct 30	Middle East water issues
Mon Nov 2	*GSA - no class* Team work on geologic catastrophe presentations
Wed Nov 4	*GSA no class*
Fri Nov 6	US water issues
Mon Nov 9	more on US water issues
Wed Nov 11	presentations on geologic catastrophes
Fri Nov 13	finish presentations on geologic catastrophes



Climate Change

How has climate change influenced human history? How do we establish past climate change, and how can we use the geological record to predict the future?

Mon Nov 16	intro to Saharan climate change

Wed Nov 18	Saharan paleolakes, climate change in North Africa, and predictions about the consequences of global warming
Fri Nov 20	sea level change and the rise of agriculture in Ancient Egypt

Mon Nov 30	paleoclimate in the Middle East
Wed Dec 2	North Darfur Megalake
Fri Dec 4	GIS analysis and North Darfur Megalake


http://flickr.com/photos/cmgramse/sets/72157594354498520/

Wrap-up

Mon Dec 7	climate change and Ancient Egypt: Dakhla, Nabta, Djara archaeology
Wed Dec 9	the last gasp
Fri Dec 1	the last gasp

Nuts and Bolts

General expectations:

I expect you to:

- take responsibility for your own learning
- come prepared for class and be an enthusiastic participant during class
- treat others with tolerance and respect
- act responsibly and reliably in group work
- set high standards for your work
- teach me something

You can expect me to:

- help you become a better self-teacher
- create interesting and challenging ways for you to learn geology and its connections with human events, rather than talking at you about my knowledge
- set high standards for the class
- treat you with fairness and respect
- take an interest in you and learn something from you
- be excited and knowledgeable about course material

Getting help:

– Barb: Science Center 1013, x4713, or btewksbu (by e-mail) virtually anytime during the day.

Bring to every class meeting:

– a 3-ring binder to hold all your course materials, a pencil and eraser, a calculator, paper to take notes on.

Books and materials:

- purchase at the bookstore: *Essentials of Geology*, 4th edition, by Marshak.
- **Homework will be posted on Blackboard in the *Course Documents* folder (not in Assignments).**

Class meetings outside the normal times:

Field trip: We will be out in the field during class on Friday, September 11th. We will also go out in the field all day on Saturday the 12th, returning by about 8 pm. **We will go regardless of weather, so come prepared!**

Evening classes: We may occasionally meet in the evening to make up for a class that I will have to miss if I am out of town. I'll let you know well in advance.

Policy on attendance – please read and heed!!!

– This is not a lecture-based course, and what you will be *doing* during class time is a vitally important aspect of how you will learn in this course. You will also be working in groups during many of the classes, and you will have serious responsibilities to other people in the class that go beyond what would normally be expected of you in a standard lecture setting.

– Attendance is mandatory, and I will take attendance at every class meeting. Now for the difficult part. *Your final semester grade will be penalized 2 points for **each** unexcused absence.* Whatever you do, don't be casual and let yourself get into a fix in terms of your grade. This happens to a couple people every semester, and it's nearly as painful for me as it is for them (honest and truly). So, don't let yourself get into a bind.

– I will accept notification from the Health Center verifying that you were too sick to come to class (and they *will* notify faculty if you are really too sick to come to class; if they will not give you an excuse, it's because they think you're well enough to go to class), and I will accept legitimate absences for athletic commitments up to the limit set by the Faculty.

– If you miss a class for *any* reason, I will expect you to make up *all* of the work that you missed *before* the next class meeting, including work presented by someone else. Absence from one class does not exempt you from coming prepared to a subsequent class. I will expect you to take the responsibility to get the assignment from me for the following class ***before class*** and to come fully prepared to the class immediately after the one you missed. Please don't expect me to be cheerful and gracious if you miss a class and breeze in the following class and ask, "Can I get the assignment that's due today?" or (worse) "Did I miss anything important?"…

Due dates for assignments:

You will have two types of assignments. One type will be individual worksheets; a second type will be preparation for group work during class.

- **Individual worksheets and questions.** Due dates will be marked clearly on each sheet. Late assignments will be penalized 10%, and late assignments not submitted before graded assignments are returned will receive a zero.
- **Preparation for in-class group work.** Many of the assignments will prepare you for work during class. If you do not have your class prep ready to turn in at the start of class, you will be a liability to anyone with whom you might work during class. If you haven't done your work, you may sit in the gulag at the back of the room and listen, but you will be marked as absent from class (in other words, the light's on, but nobody's home). See attendance policy above for the resulting grade penalty.

Writing:

- While this course is not designated as a "writing intensive" course, writing will be an integral part of learning the material we cover in the course. Unless a person processes information in one way or another, he/she will not learn very much. Many courses ask students to process information by studying and taking exams. This course has no exams, and you will be processing information in this course by doing a good deal of writing and teaching. I will grade your writing according to the grading guidelines on the attached sheet.

Other assorted things:

- Barb grew up at a time when it was considered unutterably impolite to wear a hat indoors. You may choose to wear a hat in class, but, because of Barb's personal failings, she may not give you as much attention as you deserve if you are wearing a hat.
- If you're not in the habit of checking your email daily, develop the habit now – that's how I will communicate with you outside of class!
- We will be using computers commonly during class, either in the GIS lab or laptops in class. It will embarrass both you and me if I have to call you out in class for browsing the Internet, checking email, or doing Facebook during class. Save these things for outside of class.
- If you bring your cell phone to class, please set it to vibrate, or turn it off. If you're on call as an EMT, it's OK to check an incoming call. Otherwise, leave your cell phone in your pocket or pack. And, hey - it's never OK to check or send text messages during class.

Grades:

- Your final grade will be calculated using the following approximate percentages:

class prep and in-class work (~20 of these)	50%
summary assignments (~5 of these)	50%
Total	100%

Remember! I don't "give" you a grade – you earn it.

Standards:

– In this course, you will be graded on both your written work and your oral work. Some papers will receive standard number grades out of 20 or 30 (*e.g.*, homework problems involving calculations, short-answer problems, etc.). Other papers do not lend themselves as well to number grades, and those papers will be graded on a scale of 0 to 5, with each number reflecting a clearly-defined standard for the assessing your efforts. Those criteria are outlined on the last page of the syllabus. I will do this, rather than give you a letter or standard number grade, because I want you to focus on what kind of work you have done and what kind of work I expect from you, not on what grade you have gotten. *A satisfactory job on an assignment will earn a 3.* To earn a 4, you must do more than an average workmanlike job, and a 5 requires that you really knock my socks off. Yes, the standards are high in this course.

– At the end of the syllabus, you'll find both the general criteria for the 0-5 scale and a general view of where "satisfactory work" stands in terms of the College's grading system. Please notice that a B is *good* work, not merely satisfactory. So. This handout will let you know at the outset what it takes to get a B or an A in this course, both of which involve work above a satisfactory job on assignments, and that's the last time you'll see standard letter grades in this course. For many of your assignments in this course, you'll simply receive a grade on the scale from 0-5 in the hopes that you can then focus on the quality of the product you produce in the course, not on the letter grade.

Emergencies:

– In the event of evacuation of the Science Center, College policy requires you to meet as a group in the quad immediately in front of the Science Center. I will check to make sure that each of you is accounted for, so, be sure to check with me and ***do not leave.*** In the event of true emergency, we will proceed from there to Commons Dining Hall.

Disabilities:

– Hamilton College will make reasonable accommodations for students with properly documented disabilities. If you are eligible to receive an accommodation and would like to request it for this course, please discuss it with me and allow two weeks notice. You will need to provide Allen Harrison, Associate Dean of Students Elihu Root House; ext. 4021) with appropriate documentation of your disability.

Content

grade	criteria	approximate grade
5	outstanding explanation with superior supporting information; unusual insights and flashes of brilliance; creative and original analyses and thoughts; goes well beyond minimum required for assignment.	98 (A+)
4	good solid job on explanation, with excellent support from examples, data, figures, etc.; excellent reasoning, or excellent explanations; goes beyond the minimum required for the assignment.	88 (B+)
3	satisfactory job; does what the assignment asks; decent reasoning or explanations; satisfactory support by data, examples, figures, etc.	78 (C+)
2	decent explanation but too general ***or*** some inaccuracies or flaws in reasoning ***or*** coverage is accurate but cursory and does not meet the minimum required for a complete answer ***or*** inadequate support of assertions with data and/or examples.	68 (D+)
1	doesn't effectively address assignment; fails to support assertions with data or examples; unclear explanations; inadequate understanding; major flaws in reasoning or explanations.	58 (F)
no credit	answer missing or does not answer the question.	0

Writing

grade	criteria	approximate grade
5	meets criteria for 4, but also has a sense of style, going beyond grammatical correctness to real readability.	98
4	excellent paper/paragraph organization, interesting sentences, good grammar, very few spelling errors, does not read like a first draft.	88
3	decent organization; serviceable prose; reads like a first draft; a paper with excellent writing will still earn a 3 if it contains many spelling errors and is clearly not proofread.	78
2	disorganized; awkward sentence structure; poor grammar; poor spelling.	68
1	similar problems to 2s, but worse.	58

After reading the entire syllabus, please tear this sheet off, sign it, and turn it in at the beginning of class on Monday, Aug. 31.

I have read the syllabus for Geosc 103, and I understand my obligations for the course.

Signature: _____ Date: _____