GEOS 101X: " THE DYNAMIC EARTH"
PHILOSOPHY, GOALS, POLICIES
Spring 2007 (TR 9:45-11:15) NAT SCI 201B

INSTRUCTORS:
Paul Layer, Nat Sci 368, player@gi.alaska.edu, office (474-5514), home (479-2672)
Office hours TR 11:15 – 12:00, MWF 1:00 – 2:00, or see the schedule on my door
Rainer Newberry, Nat Sci 328, ffrn@uaf.edu, office (474-6895), home (479-0140)
Office hours TR 11:15 am to 1 pm -- or take your chances and drop by--I'm often in

For Section F02 (Education section)
Jeff Drake, jdrake@gi.alaska.edu, office (474-7010) Office hours TBA
Cindy Fabbri, ffcf@uaf.edu

TEACHING ASSISTANTS: Grant Shimer and Rebecca Missler

As of when this manual went to press, we did not know which sections each TA would be responsible for or their contact information. Write that information here:

Section F01: Wednesday 6:00 – 9:00 PM: TA:
Section F02: Wednesday 1:00-4:00 PM: TA:
Section F03: Tuesday 6:00 – 9:00 PM: TA:
Section F04: Tuesday 1:00 – 4:00 PM: TA:

In addition, we will have undergraduate students, called Teaching Associates (TAAs), helping out in some labs. They have been through this all before and are very good resources for help with labs and homework. Write the name(s) and contact information for your TAAs here:

GEOS 101X "THE DYNAMIC EARTH"--is the 1st part of the Geology Department's 'depth' core science offering. In this course we (the Teaching assistants, Teaching Associates, and instructors) will try to acquaint you with WHAT SCIENCE IS ALL ABOUT and our current understanding of HOW THE EARTH WORKS. This will require memorizing of a few names (rocks, minerals, structures, major time periods).

TEXTBOOKS AND MANUALS:
The lab manual is one that we have put together and is simply identified as 'GEOS 101 Lab Manual'. **BRING YOUR LAB MANUAL TO CLASS (LECTURE) EACH DAY!!!!!!!!**
The textbook is: *Smith and Pun, "How Does Earth Work?"*.
Readings are from both Smith and Pun and the Lab Manual. The Text also has a CD in the back with animations and other cool stuff. Check it out!

TEACHING (and—hopefully—learning) **STRATEGY**
Our focus is on 'teaching by doing'-- lab and homework exercises. In lecture, we will present information related to doing the pre-lab exercise and being prepared for a given laboratory exercise. The advantage of attending lecture is you will both understand the relevance of, and be better prepared for, the upcoming lab. Reading and homework assignments (see attached syllabus) accompany each lecture. **You will find it helpful to at least look over the reading assignment before the appropriate lecture (No Duh!).**

You (the student) will do the pre-lab exercise both to acquire the background and to show us how well you understand the background to the lab. This allows us to spend the laboratory period **doing** the lab exercise rather than lecturing about it. Depending on the lab, you may finish it all in the lab period, or you might need to write up an overview question later, after lab. Finally, to make sure that you understand the topic we present in lab and lecture, you will do a homework problem that will be due after you've completed the laboratory exercise for the associated topic. There are no quizzes or midterms in this class because you will be continuously showing us that you do understand each topic—or where you need help.

To *pass this course*, you will need to complete --in a timely manner--14 (of 15) homework and 13 (of 14) laboratory exercises (excluding lab 0). YOU MUST ATTEND THE FINAL TWO LABS (FIELD TRIPS) and do Homework #15. The field trips are critical because this is where you really **see** the relevance of what we've presented concerning geology and the earth.

We encourage you to work in groups for the labs (if you enjoy doing so) but to use your own words and to NOT copy anyone else's work!!!! Please refer to the Student Code of Conduct on page 77 of the 2006-2007 UAF Catalog. If you have a documented disability that requires additional time on homework assignments or labs, or if you require other accommodation, please let us know within the first two weeks of the semester. The key is that if you are having problems in the class, see us ASAP and we will try to help you.

LABS
The first labs will meet Tuesday and Wednesday, January 16 and 17. Written laboratory reports from a given week are due at the start of the following week's lab. A weekly "pre-lab exercise" is due IN LECTURE at the start of class each Tuesday, and is worth 10% of the lab grade. **If you do not turn in the exercise IN LECTURE, your grade for the lab will be "docked" 10 points (out of 100).** The purpose of the pre-lab is to get you ready for the lab exercise; the reason for turning it in at Lecture is to give the TAs a chance to go over them and see where you need help before the lab starts. **For each pre-lab question, if you do not know the answer and cannot figure it out from the readings, please write down what you do not understand so that we can go over it in the lab. If you do this, you will receive full credit for that question (and for the prelab).**

Additional notes concerning Labs:

1. Plan to bring your lab manual, **a pencil**, paper, and a calculator to each lab session.

2. You can make up a missed lab **if and only if** you have notified your TA before the lab you will miss and arrange at that time when you will do it. Some labs require extensive set-up and your TA may not be able to prepare a lab especially for you on short notice.
3. It is possible to attend the "wrong" lab section **with approval** from the appropriate TA, however make sure that you are registered for the lab time that you attend most often.
4. We will make every attempt to promptly return graded lab and homework exercises; consequently, we cannot accept materials turned in grossly late...
5. Lab section F02 is a special lab section that will fulfill the physical science requirement for B.A. in Elementary Education. Enrollment in this section is by permission of the School of Education only. See Jeff Drake if you have questions about this section.

HOMEWORK
Exercises are assigned on Thursday and due the following **Thursday at the start of lecture**. We urge you to set aside a regular time each week to work on homework and pre-lab assignments. The assignments are designed so that you can work on them over the weekend. The due date is such that you will have an opportunity to consult with your TA about the homework exercise.

If you are missing more than 2 homeworks or labs prior to drop date (February 2) or withdrawal date (March 23) you will receive (copy to your advisor) a written request to drop the course.

GRADING POLICY :
As stated above, you must complete 14 of the 15 homeworks and 13 of the 14 labs (excluding lab 0). This gives you the opportunity to miss a week or to drop the lowest grade. YOU MUST ATTEND THE FINAL TWO LABS (FIELD TRIPS). All homework and lab reports, and the final homework must be handed in by 5:00 PM May 10.

14 homeworks	--	35% of grade
13 labs	--	65% of grade

Late Policy: Any lab report or homework handed in after the due date will be docked 10%. Homework or lab reports handed in after the graded assignment has been returned to the rest of the class will be docked 50%. Lab reports not submitted will receive a grade of 0%, even if you participated in the lab. Remember that the lowest one lab and one homework grade will be dropped, so if you miss one deadline, don't worry too much.

General grading guidelines/predictors (what you can do to earn a grade in this class)

A = All required homework, prelabs, and lab reports turned in on time and done to a high level.
B = All required homework, prelabs, and lab reports turned in (most on time) with good quality answers.
C = All required lab reports turned in, but some with low grades. Missing or poor quality homework.
D = Attend all labs, but missing a couple of lab reports, poor quality or missing homework.
F = Failure to attend labs, turn in lab reports and homework.

THE MOST IMPORTANT THINGS

- Bring your lab manual to class and lab each day.
- Do the required reading before class.
- Work on the Prelab BEFORE it is due on Tuesday
- Hand in assignments ON TIME
- Ask questions if you do not understand something or have problems with the class.
- Feel free to ask questions and participate in discussions IN CLASS
- HAVE FUN!!!!!!!!!!

GEOS 101 Syllabus, Readings and Assignments, Spring 2007

W	L	Date	Reading*	Lecture topic	Homework Due date	Lab exercise	CD information*
1	1	1-16		Introduction, course outline, intro to maps and the earth		0. Lab introduction and methods	
	2	1-18	Ch 1	Earth coordinate systems			
2	3	1-23		Topographic maps, topographic profiles	Prelab 1-Topo	1. Understanding Topographic Maps	
	4	1-25	Ch 8	Properties of materials, seismic waves	HW-1		
3	5	1-30	Ch 11: 291-304	Earth structure, locating earthquakes, earthquakes in Alaska	Prelab 2 -EQ	2. Earthquakes and Seismic Waves	Extension Mod. 8.2, 8.3 Ch 8 Active Art
	6	2-1	Ch 2	Mineralogy I: systematic identification; compositions	HW-2		Extension Mod. 2.3, 11.1, 11.2
4	7	2-6		Mineralogy II: principles & structures	Prelab 3 –Min	3. Mineralogy and Mineral Identification	Extension Mod. 2.2
	8	2-8	Ch 7	Radioactivity and heat, geochronology, chemical compositions	HW-3		Extension Mod. 2.1, 7.1, 7.2, 7.3 Ch 7 Active Art
5	9	2-13	Ch 3	Chemical compositions, Introduction to melting	Prelab 4 – Geochron	4. Analytical Methods	Ch 10 Active Art
	10	2-15	Ch 4	Igneous melts: character, origins, some I.D.	HW-4		Ch 4 Active Art
6	11	2-20		Igneous rock identification; plutons & volcanoes	Prelab 5-Ig	5. Igneous rocks & Processes	Extension Mod. 4.1
	12	2-22	Ch 10	Magnetism and the earth	HW-5		Ch 10 – Active Art
7	13	2-27	Ch 12: 274-276	Paleomagnetism & continental drift, faults and faulting	Prelab 6 -Mag	6. Geomagnetism & Paleomagnetism	Extension Mod. 12.2 Ch 12 Active Art
	14	3-1	Ch	Weathering, Seds & sed rocks	HW-6		Extension Mod. 5.1, 5.3 Ch 5 Active Art
8	15	3-6	Ch 19, 20	Seds, fossils, environments, and age of the Earth	Prelab 7-Seds	7. Sed rocks & processes	Ch 16 Active Art Ch 20 Active Art
	16	3-8	Ch 16, 17	Streams & ground water I: principles	HW-7		Ch 17 Active Art Extension Mod. 17.2
				SPRING BREAK			

W: Week; L: Lecture; Homework: Homework exercises (HW) or Prelabs are due IN CLASS on the specified day
*Smith and Pun

GEOS 101 Syllabus, Readings and Assignments, Spring 2007

W	L	Date	Reading*	Lecture topic	Homework Due date	Lab exercise	CD information*
				SPRING BREAK			
9	17	3-20		Ground water II: Alaskan examples	Prelab 8-Hydro	8. Subsurface hydro.	
	18	3-22	Ch 6	Metamorphic processes and facies	HW-8		Extension Mod. 6.1
10	19	3-27		Metamorphic rock identification; general rock identification; folds and fold nomenclature	Prelab 9-Met	9. Metamorphism & Metamorphic rocks	Ch 6 Active Art
	20	3-29	Ch 11: 268-279	Stratigraphic concepts; geologic units & their orientations; geologic maps	HW-9		Ch 7 Active Art
11	21	4-3	Ch 11	Structural geology— faults & folds & environments they form in, map symbols	Prelab 10-Geol maps	10. Geologic Maps & geologic mapping	Ch 11 Active Art
	22	4-5		Air photos & Remote sensing	HW-10		
12	23	4-10	Ch 13	Overview of tectonics with Alaskan (and Fairbanks) examples	Prelab 11-AP	11. Air Photos & remotely sensed images	
	24	4-12	Ch 18	Glaciers I: intro, glacial erosion & deposits	HW-11		Ch 18 Active Art
13	25	4-17		Glaciers II: ice ages—causes & effects	Prelab 12 -Gl	12. Glaciers & glaciation	Ch 13 Active Art Extension Mod. 18.1, 18.2, 18.3
	26	4-19	Ch 11: 279	Origins of coal and oil	HW-12		
14	27	4-24		Oil in Alaska: the ANWR debate	Prelab 13-FT1	13. Field Trip I: rocks & their characteristics	
	28	4-26		Mineral Resources, esp. in Ak	HW-13		
15	29	5-1	Ch 9	Geology as science; Summary of Earth History, other planets	Prelab 14-FT2	14. Field trip II: structures & geol maps	Extension Mod. 9.1, 9.2
	30	5-3		Oral and written student feedback	HW-14		
5:00 PM May 11 (Friday) --- HW-15 is due.							

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