

# GEO 101: Earth Systems Science I, Spring 2008

## Course Information and Syllabus

Schedule: T-R, 9:30-10:50 a.m.

Location: 145H Wilkeson

Email: seanb@buffalo.edu

Instructor: Dr. Sean J. Bennett

Office: 126 Wilkeson Quad

Office Hours: M, 10:00am-12:00pm; T, 3:30-5:00pm

Course Description: Earth Systems Science examines modern environmental problems through quantitative methods, analysis, and modeling grounded in basic and applied science and research. The goal of the course is to introduce students to the fundamental processes that dominate the atmosphere, hydrosphere, lithosphere, and biosphere, their characteristics and complex interactions, and their impact on human life and society.

Required Textbook: *Physical Geography: Science and Systems of the Human Environment*, 3<sup>rd</sup> ed., 2005, 816 pp. (ISBN-10: 0471480533, ISBN-13: 9780471480532).

Course Format: Lecture presentations using computer-projected course notes and figures and complemented with computer animations, video recordings, and discussions of relevant Earth Systems Science issues. All lecture presentations will be available on *UBlearns*, in both PowerPoint and PDF format, typically posted the day of the lecture. Note that the animations will not work in PDF format.

### Course Syllabus, Suggested Reading Assignments, and Exam Schedule

Topic No.	Date	Topic	Suggested Readings
1	1/15	Introduction & Essentials of Geography	1, 2
<i>Part 1: Global Atmospheric and Energy Systems</i>			
2	1/17	Essentials of Geography & Solar Energy	2, 3, 4
3	1/22	Earth's Atmosphere	5, 7
4	1/24	Earth's Atmosphere & Global Energy System	4, 5, 7
5	1/29	Global Energy System & Global Air Temperatures	4, 5, 7
6	1/31	Global Air Temperatures & Global Circulation System	5, 7
	<b>2/5</b>	<b>Exam 1: Topics 1 through 6</b>	
<i>Part 2: Water, Weather, and Climate Systems</i>			
7	2/7	Global Circulation System & Atmospheric Moisture	6, 7
8	2/12	Atmospheric Moisture	6
9	2/14	Weather Systems	8
10	2/19	Weather Systems & Water Resources	8, 16
11	2/21	Water Resources & Global Climate Systems	16, 9, 10, 11
12	2/26	Global Climate Systems	9, 10, 11
	<b>2/28</b>	<b>Exam 2: Topics 7 through 12</b>	
<i>Part 3: Systems of the Earth and Earth Surface Processes</i>			
13	3/4	The Dynamic Planet	12
14	3/6	The Dynamic Planet & Plate Tectonics	12, 13, 14
	3/11	NO CLASS	
	3/13	NO CLASS	
15	3/18	Plate Tectonics & Weathering Processes	14, 15
16	3/20	Weathering Processes	15, 16
17	3/25	River Systems	16, 17
18	3/27	River Systems & Eolian Processes	17, 18, 19
	<b>4/1</b>	<b>Exam 3: Topics 13 through 18</b>	
19	4/3	Oceans and Coasts	19
20	4/8	Oceans and Coasts & Glacial Processes	19, 20
21	4/10	Periglacial Processes & Soil Systems	15, 20, 21
<i>Part 4: Systems and Cycles of Soils and the Biosphere</i>			
22	4/15	Soil Systems	21
23	4/17	Ecosystems	22, 23
24	4/22	Terrestrial Biomes	24
	<b>4/24</b>	<b>Exam 4: Topics 19 through 24</b>	

Suggested reading refers to chapter number and contents therein.

**Course Evaluation:** Four exams will be administered, each consisting of 50 multiple-choice questions. Exams from previous years will not be available. To promote class attendance and participation, one (1) or two (2) exam questions will be presented and discussed during each lecture (36 questions in total). By attending every lecture and answering these questions correctly, students can earn about 18% toward their final grade.

Each exam will be worth 25% of your total grade. Exams will be given on: February 5, February 28, April 1, and April 24 (refer to the Syllabus for the material covered by each exam). There will be no comprehensive final exam. The fourth exam on April 24 does not constitute a final exam; students will not be excused from this exam due to other academic commitments. The Instructor reserves the right to change the dates of the exams, the content of the exams, the syllabus, etc., should it become necessary. Exam results will be (1) posted on *UBlearns* and (2) emailed to your UB account. For anonymity, the first 5 or 6 digits of your person number will be used as the identifier. There will be no opportunity to earn extra credit.

**Make-up Exams:** Any student missing an exam will be required to take a make-up exam within seven (7) calendar days from the scheduled date. Failure to do so will result in a “0” grade for the exam. The only exceptions are prolonged medical illness requiring hospitalization or military service, wherein the student will be required to write all missed exams within seven (7) calendar days upon their immediate return. Failure to do so will result in a “0” grade for all missed exams. All responsibility for make-up exams resides with the student—the instructor will not seek out students who miss exams.

If a student can provide written documentation of severe illness or other extenuating circumstance from a medical doctor or similar professional, s/he shall write a make-up exam comprised of multiple-choice questions within the 7-day time limit (“Excused Make-up”). All others shall write an exam comprised of both multiple-choice and short-answer questions within the 7-day time limit (“Unexcused Make-up”). The Instructor reserves the right to refuse any and all documentation of illness or circumstance.

**Grades:** Below is a table that lists the range of percentages (first and second column) and the equivalent University letter grade (last column) I will use for grading. For example, should your cumulative average for all four (4) exams equal 72% (the sum of the four exam results divided by 4), you will receive a final grade of B– (72% is greater than or equal to 70% and less than 73%). All numerical grades will be rounded up or down to the nearest integer. The Instructor reserves the right to adjust the scores of any exam or the cumulative average if it is necessary to boost the performance of the entire class. This will be done numerically and of equal weight to every student. An “Incomplete” grade will not be given to students who have missed exams.

Greater than or equal to (%)	Less than (%)	Equivalent University letter grade
85	100	A
80	85	A–
77	80	B+
73	77	B
70	73	B–
67	70	C+
63	67	C
60	63	C–
55	60	D+
50	55	D
0	50	F