Department of Earth & Environmental Sciences

LEHIGH UNIVERSITY

CRN 45060 EES 21 Introduction to Planet Earth 3 credits Fall 2012

Professor Dave Anastasio, Office 226 STEPS Building
Office Hours: Tuesday 11:00 AM-12:00 PM and Wednesday 10:00-11:00 AM, or you can Email your questions or for an appointment dja2@lehigh.edu (preferred), or phone x85117.

EES 21 meets twice days weekly, Tuesday and Thursday, 9:20-10:35AM in STEPS 101.

EES 21 is a 3-credit course that meets the Lehigh University's natural science requirement. Students in CAS who need to satisfy the lab science requirement, can sign up for EES 22 Exploring Earth, simultaneously or following successful completion of EES 21. If you need a 4th natural sciences credit but not a lab consider EES 4 Science if Environmental Issues, 1 credit.

Class Rules: TURN OFF YOUR CELL PHONE BEFORE CLASS, PLEASE NO TEXT MESSAGING, IPODS, OR OTHER EAR PHONES IN DURING CLASS. PLEASE GET TO CLASS ON TIME TO MINIMIZE DISRUPTION.

Textbook:

Recommended but not required. Earth Science. 13st edition, 2011. Edward J. Tarbuck, Frederick K. Lutgens, Dennis Tasa, Pearson-Prentice Hall. Upper Saddle River, N.J., 740 p; ISBN-10: 0321688503 , ISBN-13: 978-0321688507. In addition to a textbook you may wish to consult online resources available at usgs.gov or nasa.gov.

Coursesite: Lecture voice over Powerpoint presentations and course announcements will be posted on the Lehigh's coursesite system (coursesite.lehigh.edu). Check the site often.

Expectations:

You will maximize your learning if you come to class, so I expect you to attend all class meetings. To encourage class attendance, there will be six unannounced assignments during class time that cannot be made up. Furthermore, material presented in class will depart from the material covered in the book. You will be responsible for all material covered in class. Course assignments, unless announced otherwise, are expected to be your own work and on time.

In-Class Assignments:

There will be six unannounced, short in-class assignments. The in-class assignments cannot be made up for absences. Your four highest graded in-class assignments will count towards your final course grade at 5% each. If you miss three in-class assignments, you can earn no higher than a C for the in-class assignments. If you miss four in-class assignments you can earn no higher than a D for the in-class assignments. If you miss five or all six of the in class assignments you have earned an F for the in-class portion of your final grade.

Examinations:

Exams will examine your mastery of lecture material. The exams will be multiple choice and administered online during normal class periods, the last exam will be administered during the final exam period. No make-up examinations will be given for the lecture exams. Your average grade on the other exams will be used for one missed lecture exam when calculating final grades. A second missed exam will result in course failure.

Course Evaluation:

Lecture exams 4@ 20%	80%
In-class assignments (best 4 of 6)	20%

Mid-Term Grades will be calculated in mid-October, they are due the 16th. Midterm grades will be based on 2 exams plus any completed in-class assignments and will represent ~50% of the final grade.

Peer Tutoring/Teaching Assistants: Regular class attendance is the easiest way to do well in the course. You are encouraged to be proactive in getting academic assistance from me and peer tutors (contact the Academic Support Services where Associate Dean Susan Lantz will pair your with an EES tutor).

Accommodations for Students with Disabilities: If you have a disability for which you are or may be requesting accommodations, please contact both your instructor and the Office of Academic Support Services, University Center 212 (610-758-4152) as early as possible in the semester. You must have documentation from the Academic Support Services office before accommodations can be granted.

Course Objectives:

The Earth is a dynamic planet with four interacting components: the hydrosphere (ground and surface water, clouds and ice), atmosphere (air), geosphere (earth), and biosphere (flora and fauna). These components influence each other in a variety of ways creating the environment in which we live. The Earth is ~4.54 Ga (billion years old; 4,540,000,000 yrs) and continues to evolve through time. Earth's systems are constantly changing at rates from microseconds to hundreds of millions of years. Processes shaping the Earth and impacting your lives occur at a variety of scales from subatomic to astronomical. In recent time, the human population has increased rapidly from ~ 1 billion in 1800, to 7,035,477,634 at 9:00 AM EST August 27, 2012 when I prepared this syllabus. Global population is projected to reach more than 9.3 billion by 2050. Since earth has finite limits and resources, humans have become an important force in shaping the environment. In this course, we will examine the structure of our planet, earth materials, and the processes acting through time, which have shaped the earth and continue to reshape it today. This background will serve as a departure point for those who choose to pursue further studies in earth and environmental science. For those choosing other educational and career paths, this introduction will enable you to make informed decisions concerning development of our planet, resource exploitation, energy consumption, land use, and waste disposal.

Course outline:

UNIT 1 EARTH MINERALS		CHAPTERS IN T,L,&T
Week 1		
8/28	Course introduction--Earth systems	Chap. 1
8/30	Earth materials: Chemistry-Minerals	Chap. 2
Week 2		
9/4	Earth materials: Magmatism and igneous rocks	Chaps. 3&9
9/6	Earth materials: Sediments and sedimentary rocks	
9/7	Last Day to Add/Drop w/o W	
Week 3		
9/11	No class, I'm in Washington DC, lecture pre-recorded on itunes	
	Earth materials: Metamorphism and metamorphic rocks/Earth resources	
UNIT 2 SCULPTING EARTH'S SURFACE		
9/13	Weathering and Soil Development	Chap. 4
9/14	Last day to select or cancel Pass/Fail option	
Week 4		
9/18	**Web Exam 1** (6 lecture topics, 4.5 chapters), No class	
9/20	Mass Wasting	
Week 5		
9/25	Streams and Landscape evolution	Chap. 5
9/27	Groundwater	
Week 6		
10/1	Glaciers and their deposits	Chap. 6
UNIT 3 FORCES WITHIN		
10/3	Plate tectonics	Chap. 7
Week 7		
10/9	No class Pacing Break	
10/11	Earthquakes and the Earth's interior	Chap. 8
Week 8		
10/16	**Web Exam 2** (6 lectures, 4 chapters), No class	
10/18	Volcanoes and Igneous activity	Chap. 9
Week 9		
10/23	Mountain building and Rock deformation	Chap. 10
UNIT 4 DECIPHERING EARTH'S HISTORY		
10/25	Geologic time	Chap. 11

Week 10

10/30	Depositional Environments/Stratigraphy and Relative dating	Chap. 12
11/1	Geology of North America	

Week 11 Spring 2012 registration

UNIT 5 THE GLOBAL OCEAN

11/6	Oceans	Chaps. 13&14
11/8	**Web Exam 3** (6 lectures, 6 chapters), No class	

Week 12 Spring 2012 registration

UNIT 6 EARTH'S DYNAMIC ATMOSPHERE

11/13	Oceanic circulation	Chap. 15
	Last day to drop with a W	
11/15	Coastal processes	

Week 13

11/20	Structure and composition of the atmosphere	Chap. 16
11/22	No Class Thanksgiving Break	

Week 14

11/27	Weather	Chap. 17
11/29	Air Pressure and Wind	Chap. 18

Week 15

I am away at the AGU meeting December 3-12, 2012

12/4	Severe Weather-No class, itunes lecture	Chap. 19
12/6	Climate and Climate change-No class, itunes lecture	Chap. 20
12/7	Last day to drop with WP/WF	
12/8	Final review	

12/11-19 **Web Exam 4** (7 lectures, 5.5 chapters), During scheduled final period.