



## MAE106 Syllabus\*

### Fall 2016

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**Course:** MAE106; required lab

**Course Title:** Earth System Science & Engineering

**Class hours:** 6 (3 Lecture hours and 3 Lab hours)

**Credits:** 4

**Coordinator:** Dr. Yasser Hassebo

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#### **Course Description:**

This course is designed to provide students with an understanding of the Earth on a global scale by studying its component parts or reservoirs (the atmosphere, hydrosphere, geosphere and biosphere), the interactions, linkages and dynamic equilibrium among these reservoirs in various time scales and the effect of external forces on the earth as system.

**Pre/co-requisites:** MAT200 and SCC201

#### **Course Outcomes:**

Students taking this course should be able to:

1. Identify common minerals and rocks
2. Compare volcanic processes in the context of plate tectonics
3. Relate seismic activity to plate motion
4. Explain the geologic carbon cycle and identify at least two sources and two sinks in the global carbon budget.
5. Understand the relationship between recent continental glaciation and thermohaline circulation.
6. Relate the source of energy for hurricane and their trajectories in the Atlantic.
7. Explain at least three major factors that govern climate change.
8. Understand the relationship between wind, atmospheric circulation, and energy transfer.
9. Identify energy sources, the environmental effects of obtaining those resources on the various reservoirs of the earth system.
10. Understand timescales of earth processes.

#### **Required Text:**

**“The Blue Planet: An Introduction to Earth System Science”.** Author: Brian J. Skinner & Barbara W. Murck, Publisher: Wiley 2011, Edition: 3<sup>rd</sup>, ISBN 978-0-471-23643-6.

#### **Required Laboratory Text:**

**“Laboratory Manual in Physical Geology”.** Author: AGI, Publisher: Pearson 2014, Edition: 10<sup>th</sup>, ISBN: 9780321944511. Students must have a personal copy of this text to do the labs.

\* Adopted from CCNY

**Evaluation:**

- 40 % Laboratory exercises
- 20 % Lecture Quizzes / Homework Assignments / Projects
- 20% Midterm exams
- 20% Final exam

**Tentative Course Content Outlines:**

TOPIC	READING
<b>Unit 1: The Solid Earth</b>	
Overview & Introduction; Time	Ch. 1; pp 5-28 Ch. 4; pp. 101-105
Energy Matter and the Structure of the Earth	Ch. 2; pp 31-83; 42-44; Ch. 3 pp. 53-63
Minerals and Rocks Plate Tectonics	Ch. 3 pp. 64-79 Ch. 5; pp. 109-140
Earthquakes Volcanoes	Ch. 6; pp. 144-161 Ch. 6; pp. 161-183
The Rock Cycle	Ch. 7; pp. 186-219
<b>Exam 1</b>	
<b>Unit 2: Sediments and Earth's Fluid Envelope</b>	
Introduction to Oceans Marine sediments and the carbon cycle	Ch. 10; pp. 289-292 Ch. 10; pp. 292-295
The geologic carbon cycle Ocean Circulation	Ch. 13; pp. 408 - 409 (section on carbon cycle) Ch. 10; pp. 295-301
Ocean Circulation, continued Energy balance and temperature	Ch. 2; pp. 39-42; 43-46
The Atmosphere Circulation of the Atmosphere; Weather	Ch. 11; pp. 322-333; 339-340; Ch. 12; pp. 350-377
<b>Exam 2</b>	
<b>Unit 3: Climate Change, Pollution, and Resources</b>	
The Cryosphere The Climate System	Ch. 9; pp. 257-284 Ch. 13; pp. 379 - 411
Paleoclimate The Resource Cycle	Ch. 13; pp. 385- 412; Ch. 19; pp. 592-599 Ch. 17; pp. 520-539
Energy and Mineral Resources The Changing Earth System	Ch. 18; pp. 542-571 Ch. 19; pp. 573 – 604
<b>Exam 3</b>	
<b>Final Exam</b>	

### **Exams:**

All exams and quizzes are closed book and notes. Three midterm exams (100 pts each), and one comprehensive final exam (200 pts) will be given. Exams will consist of definitions, multiple choice, true/false, and fill-in-the-blanks. The lowest midterm grade will be dropped. Final exam is mandatory.

If a student misses one of the midterm exams because of documented illness from a physician, then his/her course grade will be computed based on the remaining taken exams (i.e., No makeup exams will be given). **Undocumented absences from exams will be counted as ZERO.**

If an exam is scheduled on a day that conflicts with your religious practice you must let me know at the beginning of the semester so the schedule can be modified or accommodations made.

### **The following grading symbols are included in the calculation of Grade Point Average (GPA):**

A	94-100
A-	90-93
B+	87-90
B	84-86
B-	80-83
C+	77-79
C	74-76
C-	70-73
D	60-69
F	0-59

### **Attendance (As stated in LaGuardia 2016-2017 catalog):**

“Attendance in class is a requirement and will be considered in the evaluation of student performance. Instructors are required to keep an official record of student attendance. The maximum number of unexcused absences is limited to 15% of the number of class hours.

Note: Absences are counted from the first day of class even if they are a result of late registration or change of program. (PP. 201)

Lab makeup policy is at the discretion of the instructor. More than two lab absences will constitute an unofficial withdrawal and will automatically result in a grade of F in lab.

### **Academic Integrity:**

All students are expected to uphold the ethical standards of LaGuardia’s academic integrity policy. To obtain the details of the academic integrity policy, visit the following URL:

<http://dev.lagcc.cuny.edu/osd/students/integrity.htm>

In addition, the Policy of Academic Dishonesty can be found in LaGuardia 2016-2017 catalog (PP. 201). All students must read policies regarding plagiarism and cheating. **Students who are caught plagiarizing or cheating will be reported to the Office of Academic Integrity and will automatically fail the assignment.**

### **Students with Disabilities:**

The City University of New York complies with the Americans with Disabilities Act in making adjustments for qualified students with disabilities. Students who so qualify must identify themselves to their instructors at the beginning of the semester so that the latter may offer provisional accommodations.

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# MAE106 Laboratory Syllabus\*

## Fall 2016

### Lab Description:

A systematic global view of the features, processes, and underlying scientific concepts of the earth, atmosphere, and oceans, emphasizing environmental applications.

### Lab Evaluation:

The lab represents 40% to the overall course grade. Out of the 100% of the laboratory grade, grading will be based on the following formula:

- Assignments 40%
- Fieldtrip Photo-Essay Report 10%
- Quizzes 10%
- Lab final exam 30%
- Participation 5%
- Attendance 5%

Note: The two lowest lab scores will be dropped from the final course grade. Absences (excused or unexcused) will automatically be counted as one of the dropped scores.

### Tentative Laboratory Schedule (Subject to Change):

Lab #	Description
Lab 1	Observations and Measurements
Lab 2	Topographic Maps
Lab 3	Reflectance: Spectroscopy Lab
Lab 4	Minerals
Lab 5	Igneous Rocks and Volcanic Hazards
Lab 6	Sedimentary and Metamorphic Rocks
Lab 7	Relative and Absolute Dating
Lab 8	Field Trip to Inwood Park (Date Subject to Change)
Lab 9	Discovering Plate Boundaries
Lab 10	Ocean Circulation
Lab 11	Vostok Lab
Lab 12	Urban Heat Island
	<b>Lab Final Exam</b>

### Lab Policies:

Students must answer all questions in each lab as required by the lab instructor.

All labs are due one week after lab session. No late labs will be accepted. **NO EXCEPTIONS.**

Lab answers must be written in complete sentences and will be checked for grammar and spelling.

Students must complete all labs.

If miss two or more labs, the instructor has the right to not allow you back in the lab.

Any student who does not complete all labs will receive an **INCOMPLETE** grade for the course.

\* Adopted from CCNY

## **Essential Policy Information:**

**Attendance/lateness policy:** Attendance is paramount for the laboratory. With the exception of rare emergencies, students are expected to arrive promptly and not leave early. Attendance is included in the lab grade. This includes lateness. Habitual lab lateness or leaving early can result in points deducted from the lab average. Attendance will be taken at every laboratory meeting as well as notations as to lateness or leaving lab early. Labs will start and end at the scheduled time. Do not expect your instructor to privately tutor you if you come late or leave early and then have questions. Plan to be in lab for the entire scheduled time every week. If you must miss a laboratory for reasons beyond your control, arrange to get the notes from one of your classmates. If you miss more than two (2) laboratory sessions/lab reports we reserve the right to assign a grade of WU.

## **Lab preparation:**

Students are expected to prepare for the lab by reading the laboratory manual and reviewing the lecture notes and textbook chapter relating to the lab exercise before arriving in the lab. Only original labs qualify for submission. You may make a blank copy of a lab and then fill in the answers showing all of your work and calculations.

## **Problems:**

If a problem develops during the semester relating to this course do not let the problem become serious before discussing it with your instructor. It is better to talk early-on so we can attempt to find a solution. All conversations are in strict confidence.

## **Quizzes:**

There will be several 15-minute quizzes at the beginning of lab to test your general knowledge of the lab subject that was covered the week before. Lab quizzes will be given during the first 15 minutes of lab. If you arrive after the quiz has begun you will have less time to complete the quiz. If you arrive after the quiz is over, no makeup quizzes will be given.

## **Policies for late work:**

Lab exercises are due, on Blackboard, a week after the lab has been completed in class. Late labs will not be accepted, unless you have a valid excuse that can be documented. With a documented excuse, you will have one additional day to submit your lab report without losing points. If you do not have a valid excuse, you will be allowed to hand in your lab report one day late, but with a starting 30% deduction from the overall grade. This means that you will start off with a grade of 70% on your lab. You will only be allowed to hand lab reports late, if you notify your lab instructor at least 2 days prior to the submission deadline of the lab report. Labs are due on the assigned date and time. This policy will be strictly enforced. Lab exercises must have your name and other necessary components of the lab within the same document. Your lab grade will be reduced if you do not follow this policy.

## **Email Policy:**

Any email message to your lab instructor must include the course number in the subject line. You must sign your full name as it appears on Cunyfirst. Your instructor will not respond to email messages without a subject or a full signature. Email is not instant messaging. Refrain from using text message abbreviations in your message. Please be as specific as possible when writing so that your instructor can answer your questions/concerns appropriately. Your instructor will try to answer your message ASAP.

**Policy on the use of instructional technologies:**

Laboratory materials, assignments and course updates will be delivered through Blackboard. Students must ensure their complete access to Blackboard and make sure that their email address is current. **ALL CELL PHONES MUST BE OFF DURING CLASSES, LABS, AND EXAMS.**

**Syllabus Change Policy:**

Syllabus Change Policy: Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice. Students will be informed promptly of any change through in-class announcements, Blackboard, and email communications.

**Incomplete Grade Policy (As stated in LaGuardia 2016-2017 catalog)**

**Eligibility.** The Incomplete grade ‘IN’ is intended for situations which arise that are beyond the student’s control. It is reserved for a student in good academic standing (maintaining a passing GPA) and for whom there is reasonable expectation of satisfactory course completion — defined as both satisfactory attendance in the class and having not completed at most two major assignments or examinations by the end of the course.

**Restrictions.** An ‘IN’ is not to be initiated by an instructor without the student’s consent and is not permitted to replace a failing grade in a course. The ‘IN’ is agreed to by the student and instructor. A student’s strict adherence to attendance and academic policies as outlined above is required, without exception.

**Documentation.** The student must provide a documented reason beyond her/his control, satisfactory to the instructor, substantiating the request for an ‘IN’. Additionally, the student must fill out an Incomplete Grade Request Form with the course’s instructor.

**Completion.** The request form includes a deadline by which any missed assignment(s) must be completed in order for the instructor to consider changing the grade. A student receiving an ‘IN’ is required to submit all completed work before the end of the semester following the one in which the ‘IN’ is given. The student is required to assume responsibility for submitting work by the agreed-upon deadline in order to be eligible for a change of grade. The student may not re-register for the same course while the ‘IN’ is in effect. In addition, any course in which the student has received an ‘IN’ cannot be used as a pre-requisite.

**Grade Change.** Provided all conditions for completion of coursework are met by the student within the deadlines outlined above and upon formal evaluation of remaining assignment(s), the course instructor must submit an official Change of Grade Form by the end of the semester following the one in which the ‘IN’ was given. Failure to submit a Change of Grade Form for any reason will result in automatic conversion of the ‘IN’ to a FIN, or failing grade, for the course.