

PGEOG 250 –EARTH SYSTEMS SCIENCE I
Fall 2023

LAB SECTION INFORMATION AND OBJECTIVES

LAB CLASS SCHEDULE

Section 1: Monday 1:30 to 2.20 PM, Room 1090B2 Hunter North

Section 2: Monday 10.30 to 11.20 PM, Room 1090B2 Hunter North

Instructor: Dr. Shruti Philips

Office: Hunter North, 1032, Dept. of Geography and Environmental Science

Office Hours : *Wednesdays - 3.30 to 4pm and Thursdays - 2 to 2.30 pm or by appointment*

E-mail:shruti.philips@hunter.cuny.edu (communications to me must have ESS-1 lab in the subject line and you must sign your full name as it appears in CUNYFirst.)

COURSE OBJECTIVES

The three main objectives of this course are:

1. To introduce students to “systems thinking” in the context of the earth system. Systems- thinking is critical in all areas of study, and particularly in the fields of environmental studies and earth sciences.
2. To introduce students to quantitative analysis. In the lab portion of this course, we will be introduced to some of the concepts necessary to study environmental systems in a quantitative fashion. Labs are meant to provide students with a number of identifiable skills that can be applied in other courses as well as in work environments.
3. To provide students with a sufficiently broad, yet integrated, understanding of the Earth system to identify particular areas or sub-disciplines that they would like to pursue in more detail.

EXPECTED LEARNING OUTCOMES

1. Theory

At the end of the semester, students would be expected to have a basic understanding of

- the convincing observational data that are used by scientists to study global change

- the events in Earth's history that illuminate how the Earth as a system responds to stress
- how to explore the way the Earth 'works' by studying processes active on Earth's surface
- how these processes function together to determine and regulate Earth's climate, the circulation of the atmosphere and ocean and the recycling of elements

2. Skills

At the end of the semester, students would be expected to have acquired basic quantitative skills that will allow them to

- use basic mathematical calculations to quantify physical processes under study.
- understand the importance of data visualization and explain graphs and charts in detail.
- use basic computer software such as EXCEL to perform calculations and generate charts.
- gain a basic appreciation of modeling environmental systems through the use of the STELLA software.

COMPUTER LABS

Computer labs will be held once per week in room **1090B-2 Hunter North**. Labs will consist of exercises designed to introduce students to some of the concepts and skills necessary to study environmental systems in a quantitative fashion. These include basic mathematical concepts, as well as using computer simulations, or models, to understand the earth from a "systems dynamics" perspective.

STELLA® modeling software will be used in modeling exercises. No previous experience in computer modeling or STELLA software is expected, although basic familiarity with the Windows operating system, MS WORD and MS EXCEL, is expected.

Computer labs will be provided to you.

Most labs take 2 weeks. Labs are expected to be submitted via Blackboard before the beginning of the next lab.

Group work – is allowed for all labs **except labs 1, 2, and 5**. For these labs, discussions and consultations are allowed but the work **MUST** be individual. If students choose to work in groups, students must:

(1) inform the professor which students are working together; and

(2) hand in INDIVIDUAL lab reports, written in the student's own words and style, unless otherwise stated in the lab instructions.

GRADES

Grades follow Hunter's grading system: 90-100 = A; 80-89 = B; 70-79 = C; 60-69 = D; <59 = F.

| | |
|-----------------|-----|
| Lecture portion | 70% |
| Lab portion | 30% |

EXAMS (lecture portion)

The exams will be based on the material covered in class, in the textbook and concepts that are learned through the lab portion of the course.

Lab grades:

| | |
|-------------------------|-----|
| Lab exercises | 90% |
| Classroom participation | 10% |

There are extra credit assignments for lab 6 (2.5%), and 8 (2.5%).

LAB ASSIGNMENTS

Lab assignments are to be submitted on BlackBoard under "Assignments" in each lab module. Email submission is generally NOT accepted. You will need to name your assignments as follows:

Last name – first name – lab # e.g., Philips_Shruti_Lab1

Tardiness in handing in assignments and labs:

Each lab is graded out of 100 points and any lab that is submitted after the due date will lose 5 points.

Classroom policies: No cell phones; classroom participation is crucial in the lab section.

Absolutely no eating and drinking in the computer lab!!! The lab manager regularly checks on us, and violators risk getting their computer lab access removed! They will at least be suspended for 1 day.

ATTENDANCE

Attendance is required at all labs. Only **one unexcused absence** is allowed from lab sessions. Each unexcused absence after the maximum allowable will result in a decrease of **5%** from the student's final grade.

As with all courses at Hunter College:

Academic Dishonesty: Please be advised that plagiarism, dishonesty, or cheating in any portion of the work required for this course will be punished to the full extent allowed according to Hunter College regulations.

Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.

See the following report by the Hunter College Senate for more details:

<http://www.hunter.cuny.edu/senate/assets/Documents/Hunter%20College%20Policy%20on%20Academic%20Integrity.pdf>

ADA Policy

In compliance with the American Disability Act of 1990 (ADA) and with Section 504 of the Rehabilitation Act of 1973, Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (Emotional, Medical, Physical, and/or Learning) consult the Office of AccessABILITY, in Room E1214B, to secure necessary academic accommodations. For information and assistance: (212)772-4857 or (212)650-3230.

PGEOG 250 – ESSI Fall 2023: Lab SCHEDULE

| Date | Mondays (Lab section 01): 1.30 to 2.20 pm (Lab section 02): 10.30 to 11.20 am. |
|-------------|---|
| 8/28 | Lab-1 Introduction to EXCEL, basic Algebra review |
| 9/11 | Lab-2 Introduction to Arc GIS |
| 9/18 | Lab-3 Earth radiation balance |
| 10/2 | Lab-3 continued |
| 10/10 | Lab-4 Daisyworld |
| 10/16 | Lab-4 continued |
| 10/23 | Lab-5 Geometric progressions and growth. Exponential and logarithmic functions |
| 10/30 | Lab-5 continued. |
| 11/6 | Lab-6 Thermal damping, response times and seasons |
| 11/13 | Lab-6 continued |
| 11/20 | Lab-7 Creating layouts with Arc Map |
| 11/27 | Lab-8 Carbon Cycle |
| 12/4 | Lab-8 continued |
| 12/11 | Lab-8 due |