PGEOG 250 – Fall 2019
EARTH SYSTEMS SCIENCE I
LAB SECTION INFORMATION AND OBJECTIVES
Lab Instructor: Dr. Rahul Sahajpal

CLASS SCHEDULE:
LABS: Section 1: Tuesday, 12:45 PM – 1:35 PM, Room 1090B
          Section 2: Tuesday, 1:45 PM – 2:35 PM, Room 1090B

Mr. SAHAJPAL CONTACT INFORMATION:
Office   Geography Department, Room 1032 Hunter North
E-mail   Rahul.sahajpal51@hunter.cuny.edu (*)
Office Hours: Tuesday 3:00-5:00 pm ***please kindly make an appointment***

* **Note**: the best way to contact me is via email – (1) You must include the course name or number in your subject line (2) You must include your entire name in your email (3) I try to answer all emails within 24 hours. Allow for a 48-hour delay on the weekends.

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 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 emailed to the professor 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 are based on lab exercises and classroom participation.

Lab portion	30%
Lecture portion	60%

Lab:	
Lab exercises	90%
Classroom participation	10%

Lab assignments are to be submitted on BlackBoard under "Assignments". Email submission is generally NOT accepted. Certain labs you may hand in hand-written (lab 2, and 5). You will need to name your assignments as follows:
Last name – first name – lab # e.g. Sahajpal_Rahul_Lab1

EXAMS

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.

About grades:

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

Tardiness in handing in assignments and labs:
Every student can submit one lab late (within a reasonable time scale, i.e. not more than 1 week). After that, lab grades will be penalized for lateness.

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 2019: Lab SCHEDULE

Date	Tuesday Lab Schedule (Section-001) 12:45-1:35 pm	Date	Tuesday Lab Schedule (Section-002) 1:45-2:35 pm
08/27	**Lab 1. Introduction to EXCEL, Basic algebra review (LI)**	08/27	**Lab 1. Introduction to EXCEL, Basic algebra review (LI)**
09/03	**Lab 2. Geometric progressions and growth. Exponential and logarithmic functions**	09/03	**Lab 2. Geometric progressions and growth. Exponential and logarithmic functions**
09/10	**Lab 2. Continued**	09/10	**Lab 2. Continued**
09/17	**Lab 3. Earth Radiation Balance**	09/17	**Lab 3. Earth Radiation Balance**
09/24	**Lab 3. Continued**	09/24	**Lab 3. Continued**
10/01	**No Classes scheduled**	10/01	**No Classes scheduled**
10/08	**No Classes scheduled**	10/08	**No Classes scheduled**
10/15	**Lab 4. Daisy world**	10/15	**Lab 4. Daisy world**
10/22	**Lab 4. Continued**	10/22	**Lab 4. Continued**
10/29	**Lab 5. Introduction to ArcGIS (LI)**	10/29	**Lab 5. Introduction to ArcGIS (LI)**
11/05	**Lab 6. Thematic Mapping**	11/05	**Lab 6. Thematic Mapping**
11/12	**Lab 7. Thermal Damping, response times, seasons**	11/12	**Lab7. Thermal Damping, response times, seasons**
11/19	**Lab 7. Continued**	11/19	**Lab 7. Continued**
11/26	**Lab 8. Carbon Cycle**	11/26	**Lab 8. Carbon Cycle**
12/03	**Lab 8. Continued**	12/03	**Lab 8. Continued**
12/10	**Lab 8. Continued**	12/10	**Lab 8. Continued**