

Lincoln University
Biology Department
Climate Studies Lab Syllabus

COURSE TITLE:	Climate Studies Lab	COURSE NUMBER:	GSC 200L
CREDIT HOURS	1	PREREQUISITE (S):	GSC 111
TERM:		CO-REQUISITE (S)	GSC 200
COURSE METHOD	Web enhanced	MEETING DAY AND TIME:	
INSTRUCTOR:		CLASSROOM LOCATION:	
OFFICE LOCATION:		E-MAIL:	
OFFICE HOURS:		PHONE EXTENSION:	

COURSE DESCRIPTION: The Climate Studies Laboratory partners with the Climate Studies class to allow hands-on experiences and in-depth analysis of climate data in group settings.

REQUIRED TEXT: None – you will be given articles to read or lab exercises to complete

REQUIRED MATERIALS: ruler, calculator, active Moodle account

ASSESSMENT CRITERIA & ALIGNMENT

Course SLO	PSLOs (indicate #only)	ILOs (indicate #only)	Direct and Indirect Assessment Methods
CSLO 1	3, 4	5, 7	Written lab report
CSLO 2	5b	5	Written lab report
CSLO 3	5b	5	Written lab report
CSLO 4	3	5	Written lab report
CSLO 5	5a	5	Written lab report
CSLO 6	2, 3	1, 5	Written lab report

COURSE STUDENT LEARNING OUTCOMES (CSLO):

Upon successful completion of this course the student will be able to:

1. Analyze data produced by climate monitoring.
2. Identify mechanisms of energy transfer within the climate system.
3. Explain the roles of water, wind and air flow in the climate system.
4. Evaluate the function and limitations of global climate models.
5. Analyze the threat of a changing climate to human existence.
6. Discuss current methods to mediate climate change and describe how public discourse informs climate action.

PROGRAM STUDENT LEARNING OUTCOMES (PSLO):

1. Students are able to apply the scientific method and complete an independent research project
2. **Students are able to effectively communicate scientific concepts through written, spoken and visual means.**
3. **Students are able to synthesize information and apply their knowledge to develop solutions for environmental problems.**
4. **Students are able to use mathematical and statistical models to analyze and solve environmental problems.**
- 5a: Students are able to make connections between organism needs and environmental resources.
- 5b: **Students are able to explain global physical processes and how these processes lead to changes that cause evolutionary adaptation in populations.**
- 5c: Students are able to connect nutrient cycling and energy flow from the individual organism level to the ecosystem level.
- 5d: Students are able to describe ecosystem structure and correlate structure with function for all levels of the ecosystem.

INSTITUTIONAL LEARNING OUTCOMES (ILO):

1. Communication
5. Critical Thinking
7. Quantitative Reasoning

CALCULATION OF FINAL GRADES:

Lab part grading (25% of total grade):

Attendance/Participation: (12 x 1%)	12%
<u>Lab Reports and Assignments:</u>	<u>13%</u>
Total:	25%

GRADING SCALE:

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	F
GPA	4.0	3.7	3.3	3.0	2.7	2.3	2.0	1.7	1.3	1.0	0.0
Points											
%	100-93	92.9-90	89.9-87	86.9-83	82.9-80	79.9-77	76.9-72	71.9-68	67.9-65	64.9-60	<60

SCHEDULE OF LEARNING TOPICS COVERED

CLASS MEETS:	
•ASSIGNMENT SELECTION & SCHEDULE MAY BE SUBJECT TO CHANGE•	
Week 01:	No lab
Week 02:	Modern Climate Science, Köppen Classification, Carbon Footprint
Week 03:	Data Analysis, annual snowfall data from Philadelphia, Descriptive Statistics using Excel
Week 04:	Energy in the Climate System, Radiative Heating and Cooling
Week 05:	Global Water Cycle, Oceans, Heat Storage and Transfer
Week 06:	Temperature and Sea Level Rise
Week 07:	Spring Break
Week 08:	Global Atmospheric Circulation
Week 09:	PETM – An Analogue to Modern Climate Change
Week 10:	Climate Change and Radiative Forcing
Week 11:	Discovering Antarctica, Ice Core Drilling and International Research Efforts, Map Exercise
Week 12:	Radioisotopes and Climate studies, Why are water isotopes a proxy for temperature?
Week 13:	Polar Detective: Using Ice Core data to decode Past Climate Mysteries
Week 14:	Glacier Dynamics
Week 15:	Make up lab, Visualizing climate

UNIVERSITY ATTENDANCE POLICY:

Lincoln University uses the class method of teaching, which assumes that each student has something to contribute and something to gain by attending class. It further assumes that there is much more instruction absorbed in the classroom than can be tested on examinations. Therefore, students are expected to attend all regularly scheduled class meetings and should exhibit good faith in this regard.

<http://www.lincoln.edu/registrar/2014Catalog.pdf>

STUDENTS WITH DISABILITIES STATEMENT:

Lincoln University is committed to non-discrimination of students with disabilities and therefore ensures that they have equal access to higher education, programs, activities, and services in order to achieve full participation and integration into the University. In keeping with the philosophies of the mission and vision of the University, the Office of Student Support Services, through the Services for Students with Disabilities (SSD) Program, provides an array of support services and reasonable accommodations for students with special needs and/or disabilities as defined by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. The Services for Students with Disabilities Program seeks to promote awareness and a campus environment in which accommodating students with special needs and/or disabilities is natural extension of the University's goal.

Any student with a documented disability should contact the Office of Student Support Services.

<http://www.lincoln.edu/studentsservices/index.html>

UNIVERSITY ACADEMIC INTEGRITY STATEMENT:

Students are responsible for proper conduct and integrity in all of their scholastic work. They must follow a professor's instructions when completing tests, homework, and laboratory reports, and must ask for clarification if the instructions are not clear. In general, students should not give or receive aid when taking exams, or exceed the time limitations specified by the professor. In seeking the truth, in learning to think critically, and in preparing for a life of constructive service, honesty is imperative. Honesty in the classroom and in the preparation of papers is therefore expected of all students. Each student has the responsibility to submit work that is uniquely his or her own. All of this work must be done in accordance with established principles of academic integrity.

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POLICY ON ELECTRONIC DEVICES IN CLASSROOM:

- All ear buds and headphones must be removed when entering the classroom.
- Cell phones, tablets, laptops and similar electronic devices may be used in the classroom for course related purposes only and should be put away at all other times.
- Cell phones and other electronic devices must be turned off during quizzes, exams and at any other times that the instructor requests it.
- Anybody found using electronic devices for personal purposes during class time will receive a warning. A second offense will lead to confiscation of the device for the rest of the class.