

John Felice Rome Center
The Scientific Basis of Environmental Issues
ENVS101 A01
Spring 2025

Mondays, 9:00 a.m. - 12:00 p.m.

Instructor:

S. Sepehr Moeini, PhD

email: [smoeini.@luc.edu](mailto:smoeini@luc.edu)

CLASS MEETINGS

Monday, 9:00 a.m. - 12:00 p.m., January 20 to April 14, 2025; final exam: April 28, 2025.

OFFICE HOURS

Monday 8:30–9:00 a.m. and 12:00 - 12:30 p.m., Faculty Office. Available throughout the week via email and, if necessary, Skype, Meet, and Microsoft Teams.

CORE AREA SATISFIED

This is a foundational scientific course as part of the Core Curriculum at Loyola University of Chicago.

COURSE DESCRIPTION

This course will explore the scientific foundations of environmental science to widen and deepen the students' understanding of the complexity of life on Earth and the challenge of efficacious integration of human needs with conservation of natural resources. Nowadays, interconnected critical matters such as climate change, pollution, loss of biodiversity, and population growth require quick and effective solutions. Environmental science employs a wide range of disciplines and skills to address the abovementioned intricate issues. In this course, a variety of elements of life science, biology, chemistry, geology, data analysis, etc., will be discussed to assist the students with developing scientific critical thinking and debate skills. The goal is to create a basis for proper understanding of how nature works, and to equip the students with the ability to build for themselves the problem-solving attitude that today's environmental fast-growing concerns require. Studying the United Nations Sustainable Development Goals (SDGs) is also a part of this course. Students will be expected to be able to relate the course content to SDGs and describe the role of the environmental science in efforts to achieving the SDGs.

LEARNING OUTCOMES

By the end of semester, students should be able to:

1. Explain environmental science and understand its intertwined relation with numerous scientific fields.
2. Resort to critical and reflective thinking in the field of environmental science.
3. Describe the scientific method and the reasons for the reliability of it; draw inferences from evidence; construct testable and falsifiable hypotheses; and analyze data.
4. Realize the complexity of life on Earth.
5. Portray the kind of future we are building and suggest ways in which we can make a difference.
6. Outline the benefits and significance of biodiversity; characterize the threats posed to biodiversity in the environment by human activities.
7. Demonstrate why sustainability is a critical challenge, define sustainable development, and explain why and how it is necessary for our future.
8. Exhibit knowledge of the nature of the four Earth systems.
9. Understand the role of energy and thermodynamics in ecosystems.
10. Understand and describe important cycles in nature.

TEXTS

Christensen, N, Leege L. 2016. The Environment & You. Pearson. USA. Students should have the textbook prior to the first session.

OTHER RESOURCES

Course materials (e.g., slides, selected scientific papers and assignments) will be provided via the Sakai learning management system, which can be accessed at: <https://sakai.luc.edu/>.

It is expected that students will access and submit assignments and other coursework via the Sakai system using their Loyola ID and password.

LIBRARY RESOURCES:

Anne Wittrick, Librarian, awittrick@luc.edu.

Phone: +39 06 35588341

<http://libraries.luc.edu/rome/>; <http://www.luc.edu/rome/>.

ASSESSMENT COMPONENTS

1. In-class participation (including assignments) → 30%
2. Midterm Exam → 25%
3. Group presentation → 15%
4. Final Exam → 30%

1. In-class participation (including assignments) (30%)

To succeed in this course, students need to actively participate in and contribute to the discussions; thus, maximum attendance to class sessions is a prerequisite. They should be prepared for each session by doing the readings assignments given to them beforehand and should demonstrate eagerness for the topics to be discussed. Additionally, students should provoke discussions and engage in the ones provoked by other classmates, while respecting the opinions of their peers. In addition to reading assignments, there will be other assignments such as answering to “Questions” of textbook, writing essays, preparing short presentations, and there will be a few written quizzes throughout the semester.

2. Midterm Exam (25%)

The Midterm exam will cover the topics discussed during the first five sessions of the course. It will be based on/similar to the “Questions” in the textbook of the course, and the content of other references utilized during the semester.

3. Group presentation (15%)

Students will be divided into groups of two or three peers. Each group will prepare a 20-minute presentation covering a topic or a combination of topics discussed in the course. Recent scientific articles should be used to portray the status quo of the issue and include any controversies. The presentation will be followed by the instructor’s and other students’ questions, to which the presenting group should answer to the best of their knowledge and reasoning abilities.

4. Final Exam (30%)

The final exam constitutes the largest portion of the grade points and will be based on the topics covered during the sessions of the course. The exam will takeplace at 9:00 a.m., on Monday April 28, 2025. The structure of the Final Exam will be similar to the Midterm Exam.

GRADING

Final letter grades will be calculated as follow, based on the cumulative percentage from the tasks described above:

A → 94-100	A ⁻ → 90-93	
B ⁺ → 87-89	B → 84-86	B ⁻ → 80-83
C ⁺ → 77-79	C → 74-76	C ⁻ → 70-73
D ⁺ → 67-69	D → 60-66	
F → ≤ 59		

PRIVACY STATEMENT:

Assuring privacy among faculty and students engaged in online and face-to-face instructional activities helps promote open and robust conversations and mitigates concerns that comments made within the context of the class will be shared beyond the classroom. As such, recordings of instructional activities occurring in online or face-to-face classes may be used solely for internal class purposes by the faculty member and students registered for the course, and only during the period in which the course is offered. Instructors who wish to make subsequent use of recordings that include student activity may do so only with informed written consent of the students involved or if all student activity is removed from the recording. Recordings including student activity that have been initiated by the instructor may be retained by the instructor only for individual use.

ATTENDANCE POLICY

In accordance with the ROME CENTER mission to promote a higher level of academic rigor, all courses adhere to the following absence policy. Prompt attendance, preparation and active participation in course discussions are expected from every student.

For all classes meeting once a week, students cannot incur more than one absence. This course meets **once** a week, thus a total of **one** absence will be permitted. Absences beyond this will result in 1% lowering of the final course grade, for every absence after the ‘approved limit’. The collective health of the ROME CENTER is everyone’s responsibility.

Please, refer to <https://www.luc.edu/rome/campuslife/healthwellness/covid/> for the ROME CENTER’s behavioral rules for COVID19 prevention. Please, **do not attend class if you are ill**, and provide a note from the nurse or doctor to make your absence excused.

ACCESSIBILITY

Students who have disabilities which they believe entitle them to accommodations under the Americans with Disabilities Act should register with the Services for Students with Disabilities (SSWD) office. To request accommodation, students must schedule an appointment with an SSWD coordinator. Students should contact SSWD at least four weeks before their first semester or term at Loyola. Returning students should schedule an appointment within the first two weeks of the semester or term. The University policy on accommodations and participation in courses is available at: <http://www.luc.edu/sswd/>.

HARASSMENT (BIAS REPORTING)

It is unacceptable and a violation of university policy to harass, discriminate against or abuse any person because of his or her race, color, national origin, gender, sexual orientation, disability, religion, age, or any other characteristic protected by applicable law. Such behavior threatens to destroy the environment of tolerance and mutual respect that must prevail for this university to fulfil its educational and health

care mission. For this reason, every incident of harassment, discrimination or abuse undermines the aspirations and attacks the ideals of our community. The university qualifies these incidents as incidents of bias. Any incident(s) of bias must be reported and appropriately addressed.

The Bias Response (BR) Team was created to assist members of the Loyola University Chicago community in bringing incidents of bias to the attention of the university.

If you believe you are subject to such bias, you should notify the Bias Response Team at this link: <http://webapps.luc.edu/biasreporting/>.

Academic Integrity

Academic integrity is the pursuit of scholarly activity in an open, honest, and responsible manner. It is a guiding principle for all academic activity at Loyola University Chicago, and all members of the University community are expected to act in accordance with this principle. Plagiarism and other forms of academic dishonesty are unacceptable at the ROME CENTER and will be dealt with in accordance with Loyola University Chicago's guidelines.

Failing to meet the following academic integrity standards is a serious violation of personal honesty and the academic ideals that bind the University into a learning community. These standards apply to both individual and group assignments. Individuals working in a group may be held responsible if one of the group members has violated one or more of these standards.

1. Students may not plagiarize; the use of AI is considered plagiarism too and treated as such.
2. Students may not submit the same work for credit for more than one assignment (known as self-plagiarism).
3. Students may not fabricate data.
4. Students may not collude.
5. Students may not cheat.
6. Students may not facilitate academic misconduct.

You are responsible for complying with the LUC Student Handbook. Please familiarize yourself with Loyola's standards, sanctions, and academic misconduct procedures by following this link: http://www.luc.edu/academics/catalog/undergrad/reg_academicintegrity.shtml.

LATE OR MISSED ASSIGNMENTS

Late or missed assignments will not be accepted for grading without the authorization of the instructor. Late assignments, in case of acceptance, will be given a maximum of 50% of the original points.

ACCESSIBILITY ACCOMMODATIONS

Students registered with the Student Accessibility Center (SAC) requiring academic accommodations should contact the Office of the Dean at the John Felice Rome Center, within the first week of classes, as there is no SAC office in ROME CENTER.

COURSE SCHEDULE

Below you will find a short and general description of the main topics covered in the course. The order and content of sessions might be slightly changed if necessary. For example, Session 7 topic might be replaced by field activity in the garden of the campus, or another outdoor location.

Session #	Topics	Chapter/Reference	Date
1	Course introduction/A roadmap to environmental science Systems, science, and scientific method	Chapter 1, SDGs Guide	Jan 20, 2025
2	Environmental Ethics	Chapter 2	Jan 27, 2025
3	The building blocks of life	Chapter 3	Feb 3, 2025
4	Geology & Resources of Earth	Chapter 3	Feb 10, 2025
5	Atmosphere & Climate	Chapter 3	Feb 17, 2025
6	Midterm Exam Probability and Statistics	Paper 1	Feb 24, 2025
7	More on Math and Chemistry	Misc	Mar 3, 2025
Spring SEMESTER BREAK			(7 – 16 Mar)
8	Life, cell, population of species	Chapter 4	Mar 17, 2025
9	Ecological Communities	Chapter 6	Fri , Mar 21, 2025
10	Biomes	Chapter 7	Mar 24, 2025
11	Biodiversity I: Species	Chapter 8	Mar 31, 2025
12	Group-Presentations		Apr 7, 2025
13	Biodiversity II: Landscapes	Paper 2, Paper 3	Apr 14, 2025
Easter Break			(18 – 21 Apr)
14	Final Exam		Apr 28, 2025