

Climate Change and Sustainability

CLIM-3000 (3 Credits)

Jordan: Internship in Climate Change and Sustainability

This syllabus is representative of a typical semester. Because courses develop and change over time to take advantage of unique learning opportunities, actual course content varies from semester to semester.

Description

The seminar's goal is to motivate and enable students to take substantial steps toward a more sustainable world. It provides them with the tools they need to make a difference. Throughout the seminar, students will investigate the major environmental and climate change challenges confronting Jordanian communities. Water scarcity, sustainable energy production, food security, and the impact of refugees on natural resources will be among the topics addressed. The seminar takes a multifaceted approach, incorporating informative lectures, site visits to rural areas where communities and refugees live, and engaging discussions that will prepare students for their future internships. Additionally, the seminar places emphasis on the role of international relations in facilitating coordination and collaboration among countries, particularly in addressing issues such as water scarcity and hydro-politics involving Jordan, Syria, the West Bank, and Israel.

The seminar then investigates potential transformations at the governmental, non-governmental (NGOs), and local community levels to promote sustainability. Through field trips, participants witness firsthand the environmental consequences and discover innovative sustainable approaches in areas such as water resources, agriculture, sustainable energy production, waste management, community development, and tourism. The course concludes by delving into the mechanisms of social change and equipping individuals with the knowledge to take effective action toward environmental goals. All elements have associated readings.

Learning Outcomes

Upon completion of the course, students will be able to:

- Investigate the various challenges and issues concerning community development, environmental concerns, and long-term sustainability in Jordan;
- Analyze the current development and environmental obstacles confronted by local communities in Jordan;

- Define a wide range of strategies that aim to foster sustainability in both personal lifestyles and the wider community;
- Explore the dual nature of refugees as potential resource burdens or catalysts for sustainability initiatives;
- Demonstrate understanding of community needs in the context of Jordan and describe a number of proposed solutions to these existing problems;
- Assess the concept of sustainability, its fundamental principles and characteristics, and the methodologies employed in its evaluation.

Language of Instruction

This course is taught in English, but students will be exposed to vocabulary related to course content as well as the nuances of economic change and development through in-country expert lectures and field visits in a wide range of venues and regional locales.

Course Schedule

Students will be provided a detailed course schedule during orientation on the program. Please be aware that topics and excursions may vary to take advantage of any emerging events, to accommodate changes in our lecturers' availability, and to respect any changes that would affect student safety. Students will be notified if this occurs.

Module 1: Introduction to the Environment, Climate Change, and Sustainability in the Context of Jordan and the Middle East

This module provides an in-depth look at the environment, climate change, and sustainability in Jordan and the Middle East. It focuses on defining Jordan's significant environmental challenges such as water scarcity, energy production, food security, and agriculture. Additionally, students will have the opportunity to reinforce their understanding through field visits, allowing them to establish connections between theoretical concepts and applications. This module lays the groundwork for students to effectively understand and address environmental issues in the region.

Topics include:

- Water resources and scarcity in Jordan and the Middle East
- Environmental challenges in Jordan and the Middle East
- Sustainability in Jordan
- Renewable energy opportunities in Jordan (small- and large-scale projects)
- Agriculture in Jordan and sustainable strategies

Excursions:

- Royal Botanic Garden (water resource management)
- King Talal Dam (the biggest Dam in Jordan, which collects around 60 million cubic meters used in Agriculture)

Required Readings:

Dezfuli, A., Razavi, S., & Zaitchik, B. F. (2022). Compound Effects of Climate Change on Future Transboundary Water Issues in the Middle East. *Earth's Future*, 10(4). <https://doi.org/10.1029/2022ef002683>

Tyner T., Aguiar S., Corong C., de Lima, and Haqiqi (2021). *Water in the Balance: The Economic Impacts of Climate Change and Water Scarcity in the Middle East*. Technical Report. World Bank Group.

Ministry of Environment. (2021). *The National Climate Change Adaptation Plan of Jordan*. http://www.moenv.gov.jo/ebv4.0/root_storage/ar/eb_list_page/final_draft_nap-2021.pdf

Export.Gov. (2018). Jordan – Agricultural Sectors. Retrieved from: <https://www.export.gov/article?id=Jordan-Agricultural-Sectors>

USAID. (2019). Jordan Water Resources and Environment. Retrieved from: <https://www.usaid.gov/jordan/water-and-wastewater-infrastructure>

Module 2: Local Communities, Refugees, and Sustainability

This module offers students an in-depth exploration of resource sustainability strategies employed by local communities, placing a strong emphasis on policy and social science perspectives. Students will investigate the historical practices and indigenous knowledge that have traditionally been effective in promoting resource sustainability. The module goes beyond simple observation by attempting to comprehend the underlying factors that contribute to the extinction of certain practices over time. It also critically examines the intricate relationship between sustainability and refugees, who make up a sizable portion of Jordan's population, by shedding light on how refugees can both exert pressure on resources and act as catalysts for sustainable solutions. Through engaging case studies and practical examples, students will develop a comprehensive understanding of the complex challenges faced by diverse stakeholders in addressing these dynamics. The module's focus on policy and social science perspectives equips students with the necessary tools to analyze and propose effective solutions in resource sustainability.

Topics include:

- Natural resource management and local knowledge
- Rain harvesting system design and construction: pilot projects
- Water conservation and management in arid and semi-arid regions: Al-Azraq oasis project
- Gray water reuse for green refugee camps

Excursions:

- Azraq wetland reserve
- Ancient water harvesting system (Petra)

Required Readings:

Al-Tabini, R., & Khalidi, K. (2022). Rangeland Management Between Science, Local knowledge and application. Jordan National Library, ISBN 9789923001677.

Taheripour F., Tyner E., Sajedinia E., Aguiar A., Chepeliev M., Corong E., de Lima C., and Iman Haqiqi. (2021). Smart Communities and Community Empowerment for Environmental Sustainability. IOP Conference Series: Earth and Environmental Science. Earth Environ. Sci. 940 012078

Combaz E., (2019). Jordan's environmental policies and engagement on climate change. *Knowledge, Evidence and Learning for Development*, Helpdesk Report. [619 Jordan Environment Policies and Engagemt.pdf \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/619-Jordan-Environment-Policies-and-Engagemt.pdf)

Stoeffler W. (2018). Community Empowerment In book: Handbook of Community Movements and Local Organizations in the 21st Century. DOI: [10.1007/978-3-319-77416-9_16](https://doi.org/10.1007/978-3-319-77416-9_16)

Rural Women and climate change in Jordan. UN women (2018) Environmental Change through Community Empowerment. <https://data2.unhcr.org/en/documents/download/66494>.

Gutierrez L., Moxley d., Rosegrant A., and Johnson A. (2005) The Complexity of Community Empowerment, *Journal of Community Practice*, 13:2, 1-3, DOI: 10.1300/J125v13n02_01. http://dx.doi.org/10.1300/J125v13n02_01

Module 3: The Impact of Climate Change and Sustainability Initiatives on Water Scarcity, Food Security and Agriculture

In Module 3, students engage in an introductory exploration scientific and technical perspectives and approaches to climate change and sustainability projects alongside policy challenges. With a particular focus on the impact of these issues on water scarcity, food security, and agriculture, students analyze the intricate interconnections between them. They delve into the scientific foundations of these challenges, studying innovative and technical projects aimed at effectively addressing them. Furthermore, the module delves into the political dimensions of Middle Eastern food security, recognizing the importance of policy considerations in shaping sustainable practices. During an excursion to the Jordan River, students have the opportunity to witness and understand the complexities of water politics and agricultural practices in three countries: Jordan, Israel, and the West Bank. This immersive experience offers valuable insights into the real-world application of scientific knowledge, technical solutions, and policy considerations in addressing the pressing challenges of water scarcity, food security, and agriculture. In addition to the aforementioned aspects, Module 3 also places a strong emphasis on exploring the tools and mechanisms of social change within the context of sustainability and climate change. By delving into the tools and mechanisms of social change, students will be equipped with a comprehensive toolkit that combines scientific understanding, policy considerations, and social engagement. This holistic

approach prepares them to be proactive agents of change, capable of driving sustainable practices and influencing the transition towards a more resilient and equitable future.

Topics include:

- Water politics and agriculture
- Food security and security in the Middle East.
- Climate change between wars and peace.

Excursions:

- Jordan River
- Um Qais and Irbid: Agriculture in the northern part of Jordan.

Required Reading:

Olawuyi D. (2022). *Climate Change Law and Policy in the Middle East and North Africa Region*. Routledge, London. DOI: [10.4324/9781003044109](https://doi.org/10.4324/9781003044109).

Salameh E., and Abdallat G. (2020). The Impacts of Climate Change on the Availability of Surface Water Resources in Jordan. *Journal of Geoscience and Environment Protection*, 8, 52-72. ISSN Online: 2327-4344.
<https://www.scirp.org/journal/paperinformation.aspx?paperid=103424>

Whitman E., (2019). A land without water: the scramble to stop Jordan from running dry. Springer Nature Limited. Vol 537, *Nature*.

Water strategies and potential of desalination in Jordan:
<https://eis.hu.edu.jo/deanshipfiles/pub10164169.pdf>

Evaluation and Grading Criteria

Description of Assignments:

These activities require students' analytical reflection as well as the incorporation of briefings, lectures, readings, and field trips. Students are encouraged to think critically and synthesize their knowledge across these components in order to meet the course learning outcomes.

Leadership Discussion (30%): This is a group assignment. Students will also be required to lead one synthesis session. Leading a synthesis session requires that students prepare a summary of the assigned lectures and readings, make comments, and prepare questions for class discussion.

Critical Analysis (40%): Students will complete a critical analysis assignment throughout the semester in which they will choose a specific topic related to climate change and sustainability based on lectures, and assigned readings. The five-page paper will focus

on a thoughtful discussion of the chosen topic, drawing on knowledge and insights gained from the course materials.

Field Visit Report (20%): Following a field site visit assigned by the AD, students will be expected to prepare a three- to four-page analytical paper focusing on observations made during the visit, issues raised during presentations given by experts during the visit, and answering the question(s) requested by the AD.

Participation (10%):

Students are expected to show up prepared for class, and having completed the appropriate readings, participate in class discussions, field activities, and carry out all assignments and other activities.

Assessment:

Leadership Discussion	30%
Critical Analysis	40%
Field Visit Report	20%
Participation	10%

Grading Scale

94-100%	A	Excellent
90-93%	A-	
87-89%	B+	
84-86%	B	Above Average
80-83%	B-	
77-79%	C+	
74-76%	C	Average
70-73%	C-	
67-69%	D+	
64-66%	D	Below Average
below 64	F	Fail

Expectations and Policies

- Show up prepared. Be on time, have your readings completed and points in mind for discussion or clarification. Complying with these elements raises the level of class discussion for everyone.
- Have assignments completed on schedule, printed, and done accordingly to the specified requirements. This will help ensure that your assignments are returned in a timely manner.
- Ask questions in class. Engage the lecturer. These are often very busy professionals who are doing us an honor by coming to speak....
- Comply with academic integrity policies (no plagiarism or cheating, nothing unethical).

- Respect differences of opinion (classmates', lecturers, local constituents engaged with on the visits). You are not expected to agree with everything you hear, but you are expected to listen across difference and consider other perspectives with respect.

Please refer to the SIT Study Abroad Student Handbook for policies on academic integrity, ethics, warning and probation, diversity and disability, sexual harassment, and the academic appeals process.

Disability Services: Students with disabilities are encouraged to contact Disability Services at disabilityservices@sit.edu for information and support in facilitating an accessible educational experience. Additional information regarding SIT Disability Services, including a link to the online request form, can be found on the Disability Services website at <http://studyabroad.sit.edu/disabilityservices>.