

<b>Course</b>	Global Change and Sustainability: US/Spain case study analysis
<b>Program</b>	Study Abroad
<b>Credits ECTS</b>	3 USA
<b>Class hours</b>	45
<b>Office Hours</b>	TBA
<b>Requirements</b>	Some familiarity with the UN Sustainable Development Goals
<b>Language of instruction</b>	English
<b>Type of teaching</b>	In person (with online assignments in Blackboard)

### **COURSE PRESENTATION**

Environmental issues are becoming an increasingly evident component of academic studies, not only because of their thematic importance, but because of the economic and social repercussions they entail. Understanding the foundations of the current environmental crisis is a must for all disciplines as it conditions public policies, ethical attitudes and socioeconomic activities all over. This course is targeted for those students that independently of their academic background want to understand the scientific basis underlying current global change and sustainability challenges. It is also adequate for science students as it offers a novel approximation based on comparative European and North American views that will expand your perspectives on the perception of environmental problems and their solution. Addressing environmental issues requires an interdisciplinary approach. Issues associated with global change (global warming, deforestation, invasive species, soil degradation, etc.) are becoming an increasingly evident component in STEM but also in social and humanities studies. This course will give you the opportunity to critically understand the foundations of current environmental crisis, understand possible solutions and ultimately be part of them.

## INTRODUCTION

This course takes an interdisciplinary approach to understanding Global Change and solutions based on the sustainable use of natural resources. Students will develop both their knowledge of Global Change and multi-disciplinary critical thinking for practical application in a globalized world with the new realities that the global pandemic has introduced. We will look at a number of lenses and methodologies for understanding Global Change and how to implement sustainable resource use strategies to best take advantage of the rebuilding opportunities in a post-covid world. Specifically, we will examine strategies used in comparative case studies between the US and Spain. Given that this is an interdisciplinary course, students from all backgrounds are welcome. An interest in Sustainable Development Goals and in applying sustainability concepts across multiple sectors is a plus. The course will be separated into two sections: discourse on global change (global risks and impacts, mitigation and adaptation), and applied sustainability through various stakeholder lenses. Throughout the course, we will introduce case studies via readings and field trips for comparative analysis.

## COMPETENCIES

The teaching approach is student-centered and competency-based. This allows communication with students on what is taught, how it will be done, what should be learned, what activities are completed, what resources are used and how to evaluate learning. The course will aim to develop the following competencies:

### General Competencies (GC):

**GC1:** Ability to integrate knowledge across disciplines. Incorporate views from outside of their specific scope/major.

**GC2:** Complete research and analysis for a paper and give a coherent, concise presentation on findings.

### Specific Competencies (CE):

**SC1:** Identify sustainable use methodologies and practices in Global Change and Sustainability research.

**SC2:** Compare and contrast sustainable use practices in the US and Spain.

**SC3:** Complete a critical analysis of current sustainable resource use practices by completing a paper comparing two case studies of the student's choosing.

## METHODOLOGY

In order to develop the above competencies, the course will include:

- Weekly readings to introduce concepts and points of view.
- Readings on case studies in the US and Spain, to be compared and analyzed in class through group discussion and classroom activities.
- Written reflections (2-300 words) on the weekly readings, to be submitted 24 hours before class via the online learning platform. Students will be allowed *two* misses on these reflections.

- In-class lectures and discussion. Students are expected to actively participate, ask questions, and reflect on the facets of global change and the applications of sustainability.
- A 10-page paper on a topic of the student's choosing, being an analysis of a US/Spain case study within the topic. Students will be expected to incorporate 3 stakeholder lenses.
- A polished presentation of the above paper and its conclusions.
- Field trips related to the course content will provide students with on-the-ground insight into sustainable resource use. Some examples may be visits to places declared biosphere reserves such as the mountains range of the Region of Madrid and other regions.
- A midterm and final exam on key concepts.

### PREPARATION FOR CLASS

- Readings and reflections are to be completed prior to class.
- Students should be prepared to engage with the material during class as active participation will be part of the final grade.
- Students will be expected to prepare for their presentation by practicing outside of class.
- Students should take notes during class presentations and discussions.

### EVALUATION

- **Activities out of the classroom.**

This course will include required field trips outside of classroom time. Field trips are designed as an experiential part of the class' comparative studies.

Total 10%.

- **Exams.**

Students will be given a midterm and a final (non-cumulative) to consolidate knowledge of theory and methodology.

Total 30% (15% each).

If the teacher finds out that the student has copied in the exam, the final grade will be 0, without the possibility of making up for the exam.

The teacher may conduct pop quizzes at any time during the course. These would be at the beginning of the class and short (about 5 minutes). These can be considered a helpful classroom exercise to review key concepts.

- **Written work.**

Student papers will be informally evaluated throughout the course to help direct research goals. The final paper will be officially graded and is to be turned in along with the oral presentation. A

rubric will be provided to students for more detailed criteria. 5 points per day will be deducted for work that is turned in late.

Total 30%

- **Oral presentations.**

At the end of the course, students will give a polished presentation on their paper findings and be prepared to answer questions from their peers and the professor. A rubric will be provided to students in order to prepare.

Total 10%.

- **Participation.**

The weekly reflections on the readings will count toward the student's participation grade. Students must be active participants. Not only should students inquire about meaning, but must also make reflective comments and express their opinions regarding the subject matter discussed in class. Additionally, the student must read the texts assigned by the teacher and complete any other related exercises. Low participation is when students seem bored or uninterested, don't ask questions, don't make comments and almost never participate in debates, discussions or answer questions from the teacher and other students.

Total 20%

## EVALUATION

The evaluation of this course is as follows:

PARTICIPATION	20 %
ACTIVITIES AND FIELD TRIPS	10 %
MIDTERM EXAM	15 %
FINAL EXAM	15 %
RESEARCH PAPER	30 %
ORAL PRESENTATION	10 %

### Plagiarism:

Plagiarism is a violation of academic norms and as such it can result in a failed course. In extreme cases it can include the expulsion from the program. Quotes and citations should be used appropriately in the Chicago or APA style.

### ATTENDANCE

Class attendance is MANDATORY. If the student is absent for more than the allowed limit (one class absence in the summer program and two absences in the fall and spring programs), the final grade will reflect a decrease of 10 points for each non-attendance that has not been excused by a doctor's certificate or by your Program Director. It is the individual responsibility of the student to make up any missed content about the subject taught in class the day the student was absent. Students will not be allowed, in the classroom or for field trips, to arrive more than 10 minutes late. If a student has continual delays, he/she will be penalized with an absence and the instructor may not allow them into class or the visit. Attendance alone in class and field trips does not grant a grade towards the participation grade of the class. Active participation during these activities is required.

### STUDENTS WITH SPECIAL NEEDS

Students with special needs should contact Antonio Fernández: [antonio.fernandezm@uah.es](mailto:antonio.fernandezm@uah.es) Instituto Franklin-UAH can accommodate these students who show through a medical note or a note from their academic advisor that they require help in order to fulfill the requirements of the program.

### USE OF TECHNOLOGY IN CLASS

The use of technology is essential today in education, but if used inappropriately it can be harmful for students. It is necessary that students ask for permission from the teacher in order to use any technological devices. During this course, hand-written note-taking is preferred.

### USE OF BLACKBOARD

Students will use Blackboard to submit reading reflections on a weekly basis. Other assignments may also be submitted via Blackboard during the course. Students will receive detailed instructions on the first day of class.

### CLASS SCHEDULE

	CLASS SCHEDULE	ASSIGNMENTS
	<b>Introduction to Global Change</b>	Reading P. Vitousek papers and Spanish counterpart
	<b>Human impacts on ecosystems (CHANS)</b>	Readings on CHANS and telecouplings

	<b>Biodiversity and its services</b>	Millennium Ecosystem Assessment
	<b>Climate Change Impacts</b>	Reading specific IPCC reports
	<b>Vulnerability and Risk Analyses</b>	<i>Paper proposal due</i>
	<b>Adaptation</b>	Reading on Climate Nature-Based Solutions
	<b>Mitigation</b>	Readings on REDD+, W. Nordhaus
	<b>Geopolitics of the Environment</b>	Paris Agreement, Post-Covid, USA and EU positions
	<b>Ethical issues and beyond</b>	Comparative positions across religions, opinion groups and stakeholders (veganism, hunters, farmers, environmentalists, etc)
FIELD TRIP	<p>1) Climate change: Nearthental valley and a forest gradient (Puerto de Cotos, Madrid)</p> <p>2) Ecosystems conservations at the dry edge: Beech forest (Hayedo de Montejo, Madrid)</p> <p>3) Climate Natural Based Solutions: Estimating the carbon stored in a forest (Sigüenza; Guadalajara)</p>	*an equivalent comparison in the US for students to read about
	Environmental/Sustainable Development Theories: Deep Ecology, Ecofeminism, Prometheanism, Economic Growth, Env Kuznets Curve.	Dryzek, Hopwood, Daly
	Population and the Anthropocene: Is population growth the problem?	IPAT Equation Reading

	Equity as a pillar of sustainability - gender and environmental justice lenses	Reading and reflection: Cronon - The Trouble with Wilderness UNWomen - Realizing Women's Rights
	environmental justice case studies	US case: Leonard - Native American land use Spain case: Asociación Forestal de Soria (Omstrom award on collective governance of the commons) <i>Draft paper due</i>
FIELD TRIP	(One of these depending on site conditions):  1) Sustainable forest management (Valsaín and La Granja, Madrid)  2) Dehesa as a sustainable management system (Extremadura)  3) Challenges of rural development in sparsely populated areas (Alto Tajo)	Reading: US case study TBD
	Institutions (UNFCCC, governing bodies, NGOs, co-ops, etc) and TEK - a look at top-down vs bottom-up strategies	Reading: Taylor - Regulation as the Mother of Innovation
	The business case for sustainability The circular economy Consumer products - e-waste, planned obsolescence, recycling	Resources: Ellen MacArthur Foundation, Story of Stuff Reading: Princen - Confronting Consumption

	Case studies	<p>US case studies: 412 Food Rescue, Race to Zero Waste, Loop</p> <p>Spain case: Fundación para la economía circular. Student presentations &amp; Discussion <i>Submit final paper</i></p>
--	--------------	--

**NOTE:** This syllabus is subject to change. The final syllabus will be given to students on the first day of class.

Field trips may be subject to change. The Institutions to which the visit is programmed reserve the right to change them according to their scheduling needs or possible administrative eventualities.

## BIBLIOGRAHY

- Burroughs, W.J. (2001): *Climate change: a multidisciplinary approach*. Cambridge, Cambridge University Press
- Creswell, J. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. SAGE Publications, Inc.
- Cronon, W. (1996). *The Trouble with Wilderness: Or, Getting Back to the Wrong Nature*.
- Daly, H. (1998). Sustainable Growth: An Impossibility Theorem. *Debating the Earth, An Environmental Politics Reader*. 285-289. *Environmental History*, 1(1), 7-28.
- Dryzek, J. (2012). *The Politics of the Earth: Environmental Discourses*.
- Hopwood, B., M. Mellor and G. O'Brien. (2005). Sustainable Development: Mapping Different Approaches. *Sustainable Development* 13. 38-52.
- Emanuel, K. (2007). *What We Know About Climate Change*. Boston: MIT Press.
- Hardy, J.T. (2004). *Climate change: causes, effects, and solutions*. Chichester: John Wiley
- Hull, V. and J. Liu. (2018). Telecoupling: A new frontier for global sustainability. *Ecology and Society* 23(4):41.
- IPCC. (2012). *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change* [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, UK, and New York, NY, USA, 582 pp.

- Intergovernmental Panel on Climate Change (IPCC) (Ed.) (2013a). *Climate Change 2013 - The Physical Science Basis: Working Group I Contribution to the Fifth Assessment*. Cambridge: Cambridge University Press.
- Intergovernmental Panel on Climate Change (IPCC) (Ed.) (2013b). *Climate Change 2013 - Impacts, Adaptation and Vulnerability: Working Group II contribution to the Fifth Assessment Report of the IPCC*. Cambridge: Cambridge University Press ([http://www.ipcc.ch/publications\\_and\\_data/ar4/wg2/en/contents.html](http://www.ipcc.ch/publications_and_data/ar4/wg2/en/contents.html)).
- Leonard, Louis G. III. (1997). Sovereignty, Self-Determination, and Environmental Justice in the Mescalero Apache's Decision to Store Nuclear Waste. *Boston College Environmental Affairs Law Review* 24(3). 651-93.
- Lovejoy, T.E., & Hannah, L. (Eds.) (2005). *Climate change and biodiversity* New Haven London: Yale University Press.
- Princen, T., M. Maniates and K. Conca. (2002). Confronting Consumption. *The MIT Press*. 1-20.
- Taylor, Margaret R. and Rubin, Edward L. and Hounshell, David A. (2005). Regulation as the Mother of Innovation: The Case of So2 Control. *Law & Policy* 27(2). 348-378.
- UNWomen. (2013). *Realizing Women's Rights to Land and Other Productive Resources*. United Nations.

## WEB PAGES

Millennium Ecosystem Assessment

<https://www.millenniumassessment.org/en/index.html>

Our Common Future/Brundtland Report:

<https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf>

IPCC — Intergovernmental Panel on Climate Change

<https://www.ipcc.ch/>

Sustainable Development Goals: <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

European Commission. Towards a Circular Economy. [https://ec.europa.eu/commission/priorities/jobs-growth-and-investment/towards-circular-economy\\_en](https://ec.europa.eu/commission/priorities/jobs-growth-and-investment/towards-circular-economy_en)

## WE SPEAK ONLY IN ENGLISH

This course is taught in English