

## Mediterranean Cities and Climate Adaptation

EURO-3060 (3 credits)

### Spain: Choose Your Track—Climate, Psychology, Economics OR Cinema

*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.*

#### Course Description

Mediterranean cities face unprecedented climate challenges as the region experiences warming 20% faster than the global average. This course examines how cities across the Mediterranean basin are developing innovative adaptation strategies to address extreme heat, prolonged droughts, sea-level rise, and water scarcity. Using Seville as a primary case study—the first city globally to name and categorize heat waves—students will explore cutting-edge urban climate solutions including nature-based interventions, smart cooling technologies, and integrated water management systems. Students will investigate how Mediterranean cities are transforming from climate-vulnerable spaces into resilient urban environments through collaborative governance, community engagement, and evidence-based adaptation planning. The course emphasizes the intersection of climate science, urban planning, social justice, and policy innovation in creating livable cities for the 21st century.

#### Learning Outcomes

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

- **Analyze climate vulnerabilities** specific to Mediterranean urban environments, including urban heat island effects, drought patterns, and water stress indicators
- **Evaluate adaptation strategies** currently implemented across Mediterranean cities, from traditional cooling techniques to innovative nature-based solutions
- **Assess the effectiveness** of climate governance models that integrate multiple levels of government and community stakeholders
- **Design climate adaptation proposals** using evidence-based research methods and stakeholder engagement principles
- **Examine social equity dimensions** of climate adaptation, particularly how vulnerable populations are affected by and included in adaptation planning
- **Apply systems thinking** to understand the interconnections between water, energy, food, and urban development in Mediterranean contexts

## **Language of Instruction**

This course is taught in English.

## **Instructional Methods**

SIT's teaching and learning philosophy is grounded in the experiential learning theory developed by Kolb (1984; 2015) and informed by various scholars, such as Dewey, Piaget, Lewin, among others. Experiential learning theory recognizes that learning is an active process that is not confined to the formal curriculum; "knowledge is created through the transformation of experience" (Kolb, 2015, p. 49). Learning involves both content and process. Learning is holistic and happens through various life experiences upon which students draw to generate new ways of knowing and being. Learning involves a community and is a lifelong endeavor. Learning is transformational. The suggested four step-cycle of *a concrete experience, reflective observation, abstract conceptualization, and active experimentation* embedded in the experiential learning model is not linear and might not always happen in that specific order, as any learning is highly context dependent. These stages of taking part in a shared experience; reflecting on that experience by describing and interpreting it; challenging their own assumptions and beliefs to generate new knowledge; and ultimately applying new knowledge, awareness, skills, and attitudes in a variety of situations and contexts are important for students to engage in to become empowered lifelong learners.

## **Required Texts**

See the course schedule for a full list of reading assignments.

## **Attendance and Participation**

Due to the nature of SIT Study Abroad programs, and the importance of student and instructor contributions in each and every class session, attendance at all classes and for all program excursions is required. Criteria for evaluation of student performance include attendance and participation in program activities. Students must fully participate in all program components and courses. Students may not voluntarily opt out of required program activities. Valid reasons for absence -- such as illness -- must be discussed with the academic director or other designated staff person. Absences impact academic performance, may impact grades, and could result in dismissal from the program.

## **Late Assignments**

SIT Study Abroad programs integrate traditional classroom lectures and discussion with field-based experiences, site visits and debriefs. The curriculum is designed to build on itself and progress to the culmination (projects, ISP, case studies, internship, etc.). It is critical that students complete assignments in a timely manner to continue to benefit from the sequences in assignments, reflections and experiences throughout the program.

Example: Students may request a justified extension for one paper/assignment during the semester. Requests must be made in writing and at least 12 hours before the posted due date and time. If reason for request is accepted, an extension of up to one week may be granted at that time. Any further requests for extensions will not be granted. Students who fail to submit the assignment within the extension period will receive an 'F' for the assignment.

## **Assignment Descriptions and Grading Criteria**

1. **In-Class Participation and Field Engagement (10%):** Active participation is essential for learning in this course. Students are expected to engage meaningfully in class discussions, field activities, and interactions with guest speakers and local organizations. Students will be evaluated on the quality of their contributions, critical thinking skills, respectful engagement with diverse perspectives, and ability to connect field experiences to theoretical concepts.
2. **Neighborhood Climate Assessment (25%):** Working in teams, students investigate how climate change affects a specific Seville neighborhood through systematic observation, temperature monitoring, and resident interviews. Students analyze the relationship between urban design, green space, and thermal comfort while documenting community adaptation strategies. The project combines scientific observation with human stories to understand local climate impacts. Students will be expected to produce a research report (8-10 pages) with maps, photos, and data visualizations plus community presentation.
3. **Mediterranean Climate Solutions Showcase (30%):** Students research and present one inspiring climate adaptation example from anywhere in the Mediterranean region. This could be a cool roof project in Athens, urban gardens in Barcelona, or traditional architecture in Morocco. Students explain how the solution works, why it's effective, and whether similar approaches could help Seville. The focus is on clear communication and creative presentation rather than technical analysis. Students will be expected to deliver a 15-minute presentation using any format (video, interactive poster, demonstration, etc.).
4. **Climate Adaptation Action Plan (35%):** Students develop a practical action plan for addressing a specific climate challenge in their study neighborhood. Based on their field research and analysis of successful Mediterranean examples, students propose realistic interventions that could be implemented by community groups, local organizations, or city departments. The plan includes background research, stakeholder analysis, implementation steps, and potential barriers. Deliverable: Action plan document (10-12 pages) plus presentation to community partners and local experts.

### Grading Scale

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

### Program Expectations

- **Show up prepared.** For an interactive course to succeed, you must be present, on time, and have your readings completed and points in mind for discussion or clarification. Being prepared with these elements raises the level of class discussion for everyone. Moreover, the content of this course is learned collaboratively, meaning that when a student isn't here, they take away from everyone's opportunity to learn. The only way to maximize our collective learning potential is if we are all here contributing. Valid reasons for absence – such as illness – must be discussed with the academic director or other designated staff person. Absences impact academic performance, may impact grades, and could result in dismissal from the program
- **Submit assignments on time:** SIT Study Abroad programs integrate traditional classroom lectures and discussion with field- based experiences, site visits and debriefs. The curriculum is designed to build on itself and progress to the culmination (projects, ISP, case studies, internship,

etc.). It is critical that students complete assignments in a timely manner to continue to benefit from the sequences in assignments, reflections and experiences throughout the program.

- **Bring your curiosity:** Ask questions in class. Engage the guest lecturers, as these are often very busy professionals who are doing us an honor by coming to speak. Remember, there are no foolish questions, and your inquiries might help others in class who have similar ideas/thoughts. By actively participating and showing curiosity, you demonstrate respect for our guests and contribute to creating a dynamic learning environment for everyone.
- **Maintain academic integrity:** As members of a learning community, we all want to submit work that reflects our own ideas and efforts. Even if it is unintentional, plagiarism can have serious consequences. Before you submit each assignment, ask yourself these questions:
  - Did I reference ideas, quotes, phrases, or facts I read about in a book, article, or website, without citing the author and year of the source where I read about them?
  - Did I paraphrase by changing only a word or two or moving the words around?
  - Did you answer “yes” to any of the above questions? If so, you are committing plagiarism and need to give credit to appropriate sources before you submit your assignment
- **Principled Disagreement:** Learning often involves discomfort. Some discomfort can facilitate personal and collective growth. You, your peers, guest lecturers, instructors, and local constituents, have diverse experiences, values, beliefs, affiliations, and identities. Reflecting on these differences can be emotionally challenging, even when it deepens self-awareness and mutual understanding. In this course, we aim to encourage brave spaces where principled disagreement is encouraged rather than avoiding difficult conversations. *This is challenging work, and we will inevitably make mistakes.* Our goal is to thoughtfully critique ideas rather than attacking individuals. We aim to embrace productive discomfort and minimize unproductive discomfort, striving for principled disagreement.
- **Content Considerations:** Some texts and activities you will encounter in this course delve into sensitive topics that may be emotionally and intellectually challenging. Our classroom is a brave space where we can engage with challenging ideas, question assumptions, and navigate difficult topics with respect and maturity. As possible, I will flag content and activities that are especially graphic or intense, so we are prepared to address them soberly and sensitively. If you are struggling to keep up with the work or participate in the course because of the nature of the content and activities, you should speak with me and/or seek help from counseling services.
- **Our social identities** – Our social identities - race/ethnicity, class, gender, sexual identity, religion, mental and physical ability, size, national origin, citizenship status, and more – shape how we are perceived, represented, and treated. They also influence what knowledge and learning is deemed valuable and legitimate. To challenge hegemonic paradigms and perspectives, this course intentionally includes readings, topics, videos, and assignments from authors and perspectives of diverse backgrounds. However, there may be gaps we have overlooked. Your constructive feedback is always welcome on how to make this course more inclusive and transformative.
- **Storing Your Work:** Keep several copies of your work as back up and keep one copy accessible to you through an online forum, such as an attachment in your email, the course learning management system, or cloud-based storage. This way your work will always be available to despite technical issues. Lost files, deleted drives, or computer crashes are not excuses for late, missing work.
- **Personal Technology Use:** Cell phones and other personal electronics can be used for taking notes and other class activities. Off-task usage is not acceptable. You may be marked as absent for habitually using them for something other than classroom activities.

- **Course Communication:** Although the course calendar provides a broad overview and the general sequence of work and assignments for the course, what we accomplish in class will vary, and revisions to the calendar will be posted at the course site. You will need to check the course site regularly. You are responsible for letting me know about any network-related problems that prevent you from accessing or submitting assignments.
- **Classroom recording policy:** To ensure the free and open discussion of ideas, students may not record classroom lectures, discussion and/or activities without the advance written permission of the instructor, and any such recording properly approved in advance can be used solely for the student's own private use.

## SIT Policies and Resources

Please refer to the [SIT Study Abroad Handbook](#) and the [Policies](#) section of the SIT website for all academic and student affairs policies. Students are accountable for complying with all published policies. Of particular relevance to this course are the policies regarding: academic integrity, Family Educational Rights and Privacy Act (FERPA), research and ethics in field study and internships, late assignments, academic status, academic appeals, diversity and disability, sexual harassment and misconduct, and the student code of conduct.

Please refer to the SIT Study Abroad Handbook and SIT website for information on important resources and services provided through our central administration in Vermont, such as [Library resources and research support](#), [Disability Services](#), [Counseling Services](#), [Title IX information](#), and [Equity, Diversity, and Inclusion](#) resources.

## Course Schedule

*\*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: Mediterranean Climate Science and Urban Vulnerability

This module establishes the scientific foundation for understanding climate change impacts in Mediterranean urban environments. Students will explore regional climate characteristics, projected changes, and how cities experience urban heat island effects, water stress, and extreme weather events. Using Seville as a primary case study, students gain hands-on exposure to climate monitoring techniques and observe the physical manifestations of climate change in urban spaces through field experiences across the city's diverse neighborhoods and climate research institutions.

### Readings:

- Aurelle, D., et al. (2022). Biodiversity, climate change, and adaptation in the Mediterranean. *Ecosphere*, 13(4), e3915. <https://doi.org/10.1002/ecs2.3915>
- IPCC AR6 Working Group II. (2022). Cross-Chapter Paper 4: Mediterranean region. In *Climate change 2022: Impacts, adaptation and vulnerability*. Cambridge University Press. <https://www.ipcc.ch/report/ar6/wg2/chapter/ccp4/>
- Nastos, P.T. et al. (2024). "Living in Mediterranean cities in the context of climate change." *International Journal of Climatology*

## Module 2: Innovative Adaptation Strategies Across Mediterranean Cities

This module examines cutting-edge adaptation technologies and traditional Mediterranean climate wisdom through direct engagement with Seville's climate adaptation projects and local experts. Students will explore nature-based solutions, smart cooling technologies, water management innovations, and traditional Andalusian architecture that has enabled Mediterranean societies to thrive in hot climates for centuries. Field experiences in Seville showcase both modern innovations like the Cartuja QANAT project and time-tested approaches found in the city's historic districts.

### Readings:

- Arcos-Vargas, A., Gomez-Exposito, A., & Gutierrez-Garcia, F. (2019). Self-sufficient renewable energy supply in urban areas: Application to the city of Seville. *Sustainable Cities and Society*, 46, 101450. <https://doi.org/10.1016/j.scs.2019.101450>
- Millan, L. (2023, August 8). One of Europe's hottest cities rediscovers an old cooling technique. *Bloomberg*. [https://www.bloomberg.com/features/2023-seville-spain-extreme-heat/Application to Seville](https://www.bloomberg.com/features/2023-seville-spain-extreme-heat/Application%20to%20Seville)
- Palomo Amores, T., Monge Palma, R., Montero-Gutiérrez, M., Guerrero Delgado, M., Sánchez Ramos, J., & Álvarez Domínguez, S. (2023). Recovery of open spaces through thermal control: A case study in Seville. *Science Talks*, 7. <http://dx.doi.org/10.1016/j.sctalk.2023.100248>

## Module 3: Climate Governance and Community Engagement

This module focuses on how effective climate adaptation requires collaboration across government levels and meaningful community participation in decision-making processes. Students will examine Seville's pioneering proMETEO heat wave warning system and the city's multi-level governance approaches to climate action. Field experiences emphasize understanding how climate impacts affect different Seville neighborhoods and populations, and how inclusive planning processes can address these inequities through engagement with local government offices and community organizations.

### Readings:

- Albino, V., & Dangelico, R. M. (2012). Green Cities into Practice. *The Economy of Green Cities*, 3, 99–113. [https://doi.org/10.1007/978-94-007-1969-9\\_10](https://doi.org/10.1007/978-94-007-1969-9_10)
- Andrew, J. (2001). "The European Union: an evolving system of multi-level governance ... or government?", *Policy & Politics* vol 29 n2 193-208.
- Carnegie Endowment Report: "Empowering Cities: Transformative Climate Action in the Eastern Mediterranean"
- Castán Broto, V. (2017). Urban Governance and the Politics of Climate change. *World Development*, 93, 1-15. <http://dx.doi.org/10.1016/j.worlddev.2016.12.031>
- Kyprianou, I., Serghides, D. K., Varo, A., Gouveia, J. P., Kopeva, D., & Murauskaite, L. (2019). Energy poverty policies and measures in 5 EU countries: A comparative study. *Energy & Buildings*, 196, 46-60. <https://doi.org/10.1016/j.enbuild.2019.05.003>
- Reckien, D. et al. (2018). "Adaptation to climate change in cities of Mediterranean Europe" Assessment of local climate plans from 885 cities in the EU-28. *Journal of Cleaner Production*, 191, 207-219. <https://doi.org/10.1016/j.jclepro.2018.03.220>

## Module 4: Integrated Solutions and Future Pathways

This final module synthesizes learning into collaborative solutions and builds capacity for ongoing engagement with Mediterranean climate adaptation networks. Students will apply systems thinking to Seville's urban climate challenges, explore financing mechanisms for adaptation, and examine how the city connects with other Mediterranean municipalities to share knowledge and resources. Field experiences focus on presenting student work to Seville community partners and building connections for continued engagement with local climate adaptation efforts.

### **Readings:**

- Karydi, Konstantina. (2021, Oct. 1). CartujaQanat-Recovering the Street Life in a Climate Changing World Journal 2: How is Sevilla moving the needle in the fight to urban climate transformation. Urban Innovative Actions. <https://www.uia-92initiative.eu/en/news/cartujaqanat-recovering-street-life-climate-changing-world-journal2-how-sevilla-moving-needle>
- Lara, A. & del Moral, L. (2022). Nature-Based Solutions to Hydro-Climatic Risks: Barriers and Triggers for Their Implementation in Seville (Spain). *Land*, 11(6), 868. <https://doi.org/10.3390/land11060868>
- Selected reports from [Mediterranean Climate Action Partnership](#)