ES/GE 320 DANGEROUS LIASONS: CITIES AND WATER IN THE MEDITERRANEAN
IES Abroad Nice

DESCRIPTION:
Access to the sea and sources of freshwater for domestic use and agricultural purposes has in the past determined the establishment of Mediterranean cities and shaped their destiny.
Today, in a context of global environmental change, urban sprawl and various anthropogenic pressures on scarce natural resources, this proximity to the sea as well as a risky connection to freshwater (too much or not enough) is making these coastal cities vulnerable, threatening their future.

Marine resources, including coastal zones, have long been considered mere resources for people to mine. It is increasingly clear today that coastal zones provide many other ecosystems services, such as storm mitigation and habitats for biodiversity, requiring a shift to integrated coastal zone management approach. Sources of freshwater, rivers, and ground aquifers also need to be given a central role in government policies as vital ecosystems for the cities that depend on them for their survival.

Competition among urban dwellers, farmers and industries for increasingly scarce and polluted sources of freshwater is demanding a new approach that requires balancing all uses but also focusing on water demand management.

Resilience and adaptation to these new challenges will depend on managing these coastal cities as linked social and ecological systems, and recognizing their dependence on their hinter-lands. Wise stewardship could provide effective protection against sea level rise, storm surges, saline intrusion in ground aquifers and other possible natural hazards.

Coastal cities selected as case studies will be well-established coastal settlements with a long past linked to the coast and the sea such as Marseilles, Alexandria, Genoa, Palermo, Tangiers.

This course will explore the vital and inextricable link between urbanization, freshwater management and coastal management in Mediterranean coastal cities, demonstrate the importance of maintaining healthy ecosystems services to enable people to adapt to global environmental change and discuss institutions at all scales needed to implement adaptive policies.

CREDITS: 3 credits

CONTACT HOURS: 45 hours

LANGUAGE OF INSTRUCTION: English

ADDITIONAL COSTS: Course Related Trips

PREREQUISITES: None

METHOD OF PRESENTATION:
Lectures
About half of each class will consist of discussions of key themes. The students will be provided with the texts to read for each class (mainly online information resources), together with a list of reading questions designed to focus their attention on key points and concepts in the texts. These will form the basis of the class discussions. The theoretical readings will be supplemented with archival sources (such as maps, texts, iconography), distributed through Moodle.

Class discussion
In-class presentations will serve to illustrate the issues presented in the lectures and the readings. Additional reading may be assigned during the course of the semester.
Course Related Trips
Field studies will be organized in order to illustrate the different challenges of sustainable urban development, coastal zone management and urban water management in Marseilles and its region.

1. **Marseilles water management systems**: The people of Provence have developed a real water culture over the years. Marseilles is located in a drought prone region, but in 1849, the mayor Maxime Consulat ensured that Marseilles could have an ample supply of water through river diversion. The students will be briefed by experts on the exemplary experience of Marseilles and that of Provence in the water domain. They will visit the “Geolide” Marseilles, the largest underground water treatment system in the world.

2. **Roquebrune Cap Martin: Integrated coastal zone management**

REQUIRED WORK AND FORM OF ASSESSMENT:

- Course participation -10%
- Press reviews and Oral Presentations 15%
- Midterm Exam 20%
- Final Exam -25%
- Research Paper draft – 10%
- Research Paper -20%

Course Participation
Class participation: Students will be expected to come to class prepared and to participate actively in class.

Midterm Exam
This will use different formats to assess students’ progress towards the learning outcomes in the first half of the course. The question formats will include essay questions, multiple choice questions, short answer questions and justified True/False questions.

Final Exam
This will use different formats to assess students’ progress towards the learning outcomes of the entire course. The question formats will include essay questions, multiple choice questions, short answer questions and justified True/False questions.

Research Paper
Students will write the first draft of a research paper on one of the suggested topics on Mediterranean vulnerabilities using required and recommended readings (document of 15 pages, double-spaced; standard margins and fonts). Students will first submit the topic by week 7 and a draft (week 10). After receiving comments from the instructor, the student will then work on the final version of his research paper, (submitted on week 14). This paper will be evaluated by taking into account the analytical, organizational and formalistic quality of the work as well as the extent to which the student has effectively incorporated the instructor’s’ comments on the draft.

Other
Each week, one student will present a press review by selecting press articles on the topic covered during the week. The students will also in turn present a short summary of the assigned readings which will be discussed in class;

LEARNING OUTCOMES:
By the end of the course students will be able to:

- Explain the nature of urbanization in the past, present and future in the Mediterranean region
- Define challenges related to water and coastal management in key Mediterranean cities with a particular emphasis on Marseilles, the oldest city in France
- Discuss the value of aquatic ecosystem services in Mediterranean coastal cities
- Analyze policies using the Plan Bleu framework for sustainable development of coastal tourism in selected cities of the Mediterranean.
- Compare various urban systems from the South and the Northern shores of the Mediterranean.
- Interpret various cultural approaches to water usage in various Mediterranean cities throughout the centuries.
- Understand the importance of a multiscale approach (spatial, temporal and generational scales) in managing common pool resources such as urban commons and water commons.

**ATTENDANCE POLICY:**
Attendance is mandatory for all IES Abroad classes, including course related trips. Any exams, tests, presentations, or other work missed due to student absences can only be rescheduled in cases of documented medical or family emergencies. If a student misses more than two classes in any course half a letter grade will be deducted from the final grade for every additional absence. Seven absences in any course will result in a failing grade.

**CONTENT:**

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<tr>
<th>Lesson</th>
<th>Content</th>
<th>Assignments</th>
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<td>Lesson 4: The Wealth of Mediterranean Cities: Green Infrastructure and Ecosystem Services</td>
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<td>The tradition of urban fountains and urban gardens as a celebration of anthropogenic nature.</td>
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**Reading assignments:**


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<tr>
<th>Lesson 5: Urban Planning and Integrated Coastal Zone Management in the Mediterranean</th>
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<td>Integrated coastal management aims for the coordinated application of the different policies affecting the coastal zone and related to activities such as nature protection, aquaculture, fisheries, agriculture, industry, off shore wind energy, shipping, tourism, development of infrastructure and mitigation and adaptation to climate change. It will contribute to sustainable development of coastal zones by the application of an approach that respects the limits of natural resources and ecosystems, the so-called 'ecosystem based approach'.</td>
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**COURSE RELATED TRIP ONE:** Roquebrune Cap Martin.

**Reading assignments:**

be regarded as a cornerstone for the promotion of environmental protection and integration in the Mediterranean.

| Part II: The Way Forward | Why do governments neglect poor people settled in vulnerable, risk prone areas in cities? | Reading assignments:  
- The Geography of poverty, disasters and climate extremes in 2030. **Only pp1-43.**  
- Balancing water stress and human crisis in the Bekaa Valley. Reflect and Act. **OnlyPP1-4**  
  https://www.unisdr.org/we/inform/publications/36896 |

| Lesson 7 | MID TERM EXAM |  |

| Lesson 8: Managing Water in Mediterranean Cities – Navigating and Meditating Competing Interests and Users; Access to Clean Water and Sanitation, Urban Farming, Industrial Uses | COURSE RELATED TRIP TWO: Water Systems in Marseille Cities, farmers and industries are competing for an increasingly scarce resource. What are the policy tools available to governments at all scales from global to local? | Reading assignments:  
- Orjebin‐yousfaoui, C. (2014). Financing access to water and sanitation in the Mediterranean: Is innovative funding a solution or an illusion. IPEMED. Only pp1-53  
- Website: SDG 6: Ensure availability and sustainable management of water and sanitation for all  
  https://sustainabledevelopment.un.org/sdg6 |

| Lesson 9: The Water Energy Food Nexus | To produce enough food to support a growing population in Mediterranean cities we need more water and energy. Producing energy requires water, while making water accessible and clean for human consumption demands energy. So far policies have emphasised satisfying growing water demand through water supply management, in an era of growing freshwater scarcity it is time to shift to water demand management in order to reduce consumption and waste. | Reading assignments:  
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<th>Lesson 10: Redefining Spatial, Temporal, and Generational Scales of Water Governance in Urban Regions</th>
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<td>Defining the right spatial scale of management: Adopting a watershed scale for river basins management</td>
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<th>Lesson 11: Rethinking Coastal Tourism</th>
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<td>Is tourism a sustainable use of resources in the Mediterranean coastal areas?</td>
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<tr>
<td>The Future of the Cote d’Azur: Is Monaco a resilient City state?</td>
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<tr>
<td>Reading assignments:</td>
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<tr>
<td>• ARLEM. (2014). Report on sustainable tourism in the Mediterranean. PP 1-14</td>
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<th>Lesson 12: Mixed Seascapes and Landscapes – The Potential of Well-managed Wetlands</th>
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<td>The Camargue: an invaluable anthropogenic wetland.</td>
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<th>Lesson 13: Governance and Institutions for Managing Common Pool Resources in Mediterranean Coastal Cities</th>
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<tr>
<td>Sustainable fisheries in the Mediterranean</td>
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<tr>
<td>Reading assignments:</td>
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<tr>
<td>• Rove, C. (2005). The importance of trust and legitimacy in the management of Common Pool Resources; lessons learned from implementation of fishery co-management system in a complex society. Paper given at Survival of the Commons:</td>
</tr>
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</table>
| Lesson 14: Towards a Blue Economy for Mediterranean Cities | Opportunities, institutions, governance framework that could support a thriving economy based on healthy marine ecosystems. | Reading assignments:  
| Lesson 15 | FINAL EXAM |  

**COURSE RELATED TRIPS:**
- Marseilles Water management system
- Roquebrune Cap Martin : integrated coastal zone management

**REQUIRED READINGS:**
• Orjebin-yousfaoui, C. (2014). Financing access to water and sanitation in the Mediterranean: Is innovative funding a solution or an illusion. IPEMED. Only pp1-53
• Website: SDG 6: Ensure availability and sustainable management of water and sanitation for all https://sustainabledevelopment.un.org/sdg6
• Support to the Barcelona Convention for the implementation of the ecosystem approach, including the establishment of MPAs in open seas areas, including deep sea. PP1-50
• ARLEM. (2014). Report on sustainable tourism in the Mediterranean 1-14
RECOMMENDED READINGS:

- Falkenmark M, Rockstrom J (2004) Balancing water for humans and nature. a new approach for in ecohydrology. Earthscan,