



## Course Syllabus

### **Marine systems of the Mediterranean Region: Environmental challenges**

**Instructors: Prof. Yehuda (Hudi) Benayahu and Dr. Zafrir Kuplik**

**Academic year:** 2023/24

**Semester:** Spring

**Course number:** 0920.6300.01

**Credit hours:** 2

**Lecture times:** Wednesday, 10:15-11:45

**Classroom:** Porter building, Room 101

#### **Lecturer information**

Office hours: by appointment

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#### **Course policies**

**Requirements:** Attendance is required in **all** classes and field trip.

A 10-12 min presentation on topics related to the respective class will be led by the students during designated classes. Students should assign themselves in pair to topics mentioned in the course outline. Original reading material is e provided for each topic in the course outline. It is expected that each student will search for one additional relevant peer reviewed article to be included in the presentation. The web has very useful instructions how to prepare a scientific presentation e.g.,

[https://dornsife.usc.edu/assets/sites/605/docs/Tips\\_10\\_minute\\_Scientific\\_PowerPoint\\_Presentation](https://dornsife.usc.edu/assets/sites/605/docs/Tips_10_minute_Scientific_PowerPoint_Presentation)

**Grading:** Final written essay 75%, oral presentation during designated classes 15%, 2 quizzes - 5% each (total 10%).



## Course description

Over 70% of the earth is covered with seas and oceans at an average depth of over 2,000 m. The oceans thus offer a much larger habitable area, both in terms of surface area and volume, than all continents put together. The Mediterranean Sea, covering an approximate area of 2.5 million km<sup>2</sup> (965,000 sq mi), although technically a part of the Atlantic Ocean, is usually identified as a completely separate body of water. The Mediterranean basin covers portions of three continents, Europe, Asia, and Africa, and includes several seas such as the Ligurian Sea, the Tyrrhenian Sea, the Ionian Sea, the Adriatic Sea, and it is also linked to other seas such as the Black Sea and the northern Red Sea. As indicated by its name, derived from the Latin *mediterraneus*, meaning "in the middle of the earth" (from *medius*, "middle" and *terra*, "earth"), the Mediterranean Sea is almost completely enclosed by land: on the north by Anatolia and Europe, on the south by North Africa, and on the east by the Levant. As such, it constituted an important route for merchants and travelers of ancient times that allowed for trade and cultural exchange between various communities of the region (e.g., Phoenicians, Greek, Roman, Egyptian, Levantine, Muslim, and Jewish cultures). The immense cultural, social and economic value of the Mediterranean Sea, it directly linked to its environmental, ecological, hydrological and geomorphologic traits.

The course will provide a short introduction dealing with the above-mentioned fields, giving a whole perspective of the Mediterranean basin, including the Gulf of Aqaba (northern Red Sea). Then, students will get to know the various habitats present in the area (such as rocky bottom, sandy bottom, coral reefs, seagrass beds, mangroves, etc.), as well as their biological inhabitants. Moreover, the course will provide students with current issues related to global human impacts on the marine environment, including overexploitation of natural resources in the area, effects of climate change and sea level rise, ocean acidification, as well as coastal management and marine conservation issues.

The course will include a field trip to the Mediterranean coast of Israel. **It is mandatory to take part in this field trip.**



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## Course outline\*\*

\* Classes where students need to sign up for a 10-12 min presentation and 3 min discussion on the relevant subject. Each of the presentations should be a joined effort of 2 students- preparation and presentation. Papers for presentations are added in Reading material as internet links. It is expected that each student will search for an additional relevant peer reviewed article to be included in the presentation.

#	Date	Topic	Lecturer	Reading material
1	29/5/2024	World Oceans and an overview of the Mediterranean Sea	H. Benayahu	Lalli & Parsons: 8.1, 8.2 <a href="https://www.pnas.org/cgi/doi/10.1073/pnas.2005485117">https://www.pnas.org/cgi/doi/10.1073/pnas.2005485117</a>
2	5/6/2024	The abiotic and biotic features in marine environment*	H. Benayahu	Lalli & Parsons: 1.2: p. 2-3, 2.1- 2.4, 2.6 <a href="https://doi.org/10.1016/j.marpolbul.2022.114401">https://doi.org/10.1016/j.marpolbul.2022.114401</a>
3	19/6/2024	Marine biodiversity: invertebrates and their role in the ecosystem*	H. Benayahu	Lalli & Parsons: 7.2 <a href="https://doi.org/10.1016/j.msec.2019.110467">https://doi.org/10.1016/j.msec.2019.110467</a>
4	23/6/2024	Field trip	H. Benayahu Z. Kuplik	
5	26/6/2024	Corals and coral reefs* <b>Quiz 1</b>	H. Benayahu	Lalli & Parsons: 8.6 <a href="http://dx.doi.org/10.3390/d12040153">http://dx.doi.org/10.3390/d12040153</a>
	<b>3/7/2024</b>	<b>No class</b>		



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6	10/7/2024	Marine biodiversity: zooplankton, phytoplankton and jellies*	Z. Kuplik	Lalli & Parsons: 3.1, 3.2, 3.6, 4.1-4.3, 5.2.1 <a href="https://bg.copernicus.org/articles/7/1543/2010/">https://bg.copernicus.org/articles/7/1543/2010/</a> <a href="https://link.springer.com/article/10.1007/s10750-008-9620-9">https://link.springer.com/article/10.1007/s10750-008-9620-9</a>
7	11/7/2024	Fisheries*	Z. Kuplik	Lalli & Parsons: 6.6, 6.7, 6.8, 9.1 <a href="https://www.frontiersin.org/articles/10.3389/fmars.2017.00244/full">https://www.frontiersin.org/articles/10.3389/fmars.2017.00244/full</a>
8.	17/7/2024	Ecosystems: from shallow to abyssal depth*	H. Benayahu	Lalli & Parsons, 8.3, 8.7 <a href="http://dx.doi.org/10.3390/md18110560">http://dx.doi.org/10.3390/md18110560</a>
9	24/7/2024	Global change and its impact of marine ecosystems* <b>Quiz 2</b>	Z. Kuplik	Hoegh-Guldberg et al. 2007 <a href="https://www.annualreviews.org/doi/abs/10.1146/annurev-marine-041911-111611">https://www.annualreviews.org/doi/abs/10.1146/annurev-marine-041911-111611</a>
10	31/7/2024	Marine pollution*	Z. Kuplik	Lalli & Parsons: 9.2 <a href="https://www.sciencedirect.com/science/article/pii/S0025326X18307033">https://www.sciencedirect.com/science/article/pii/S0025326X18307033</a>
11	7/8/2024	Marine conservation: concepts, current issues of sustainable management of resources, international conventions*	Z. Kuplik	Crain et al. 2009 <a href="https://www.sciencedirect.com/science/article/pii/S0964569118305052">https://www.sciencedirect.com/science/article/pii/S0964569118305052</a>

\*\*Lectures listed by date are subject to change throughout the semester.

**Final Paper Due date:** 29 September 2024

**Course book:**

Lalli CM, Parsons TR, editors (2002) Biological Oceanography: An Introduction. 2 ed. Vancouver, Canada: Butterworth Heinemann. 314 p (internet edition).



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## **Additional reading:**

Crain CM, Halpern BS, Beck MW, Kappel CV (2009) Understanding and Managing Human Threats to the Coastal Marine Environment. Year in Ecology and Conservation Biology 2009. pp. 39-62.

## **Plagiarism Policy:**

The strength of the university depends on academic and personal integrity. In this course, you must be honest and truthful. Plagiarism is the use of someone else's work, words, or ideas as if they were your own. Here are three reasons not to do it: 1. By far the deepest consequence to plagiarizing is the detriment to your intellectual and moral development: you won't learn anything, and your ethics will be corrupted. 2. Giving credit where it's due but adding your own reflection will get you higher grades than putting your name on someone else's work. In an academic context, it counts more to show your ideas in conversation than to try to present them as sui generis. 3. Finally, Tel Aviv University punishes academic dishonesty severely. The most common penalty is suspension from the university, but students caught plagiarizing are also subject to lowered or failing grades as well as the possibility of expulsion.

Source: <http://writing.yalecollege.yale.edu/example-plagiarism-warning-might-appear-syllabus>.