



## Course Syllabus: Marine Ecosystems - MarS 228

<b>Division</b>	Biological and Environmental Sciences & Engineering Division
<b>Course Number</b>	MarS 228
<b>Course Title</b>	Marine Ecosystems
<b>Academic Semester</b>	Spring
<b>Academic Year</b>	2016/2017
<b>Semester Start Date</b>	01/22/2017
<b>Semester End Date</b>	05/18/2017
<b>Class Schedule</b> (Days & Time)	08:00 AM - 04:00 PM   Sun Mon Tue Wed Thu

Instructor(s)				
Name	Email	Phone	Office Location	Office Hours
Carlos Manuel Duarte	carlos.duarte@kaust.edu.sa	+966 (12) 808 2842	Level 3, Room 3219, 2, Ibn Al-Haytham (bldg. 2)	by appointment
Susana Requena Agusti	susana.agusti@kaust.edu.sa	808 2848	3274, 2, Ibn Al-Haytham (bldg. 2)	by appointment

Teaching Assistant(s)	
Name	Email
Alexandra Coello Camba	alexandra.camba@kaust.edu.sa

Course Information	
<b>Comprehensive Course Description</b>	<p>The course focuses on different aspects of the functioning of marine ecosystems. Through a review of the relevant literature, the students will follow the progress of ideas and what is our present understanding about some of the basic mechanisms in marine ecosystems. Further, some ecosystems with particular specificities will be addressed specifically. The concepts and major drivers of global change affecting the oceans will be examined. The subjects addressed will include:</p> <ul style="list-style-type: none"> <li>- Vegetated coastal zones</li> <li>- The oligotrophic Ocean</li> <li>- The Arctic Ocean</li> <li>- Global change and the Anthropocene</li> <li>- Climate change</li> <li>- Increased pCO<sub>2</sub></li> <li>- Invasive species</li> <li>- Pollution and long atmospheric transport</li> <li>- Multiple Stressors</li> </ul>

<b>Course Description from Program Guide</b>	An overview of marine ecology. It addresses the global production and distribution of plankton and fish, the vertical distribution of both pelagic and benthic organisms as well as predator-prey interactions among organisms in different habitats. It describes ecosystems from the intertidal zone to the deep sea and outlines ecological principles governing the distributions of organisms and their adaptations to be successful in the different environments.
<b>Goals and Objectives</b>	The objective of this course is to provide the students with a basic understanding of the mechanisms that control the functioning of selected marine ecosystems, as well as to introduce the major drivers of global change affecting the oceans.
<b>Required Knowledge</b>	Previous marine courses
<b>Reference Texts</b>	Valiela, I. (2013). <i>Marine ecological processes</i> . Springer Science & Business Media. Duarte, Carlos M. "Global change and the future ocean: a grand challenge for marine sciences." <i>Frontiers in Marine Science</i> 1 (2014): 63. Steffen, Will, Paul J. Crutzen, and John R. McNeill. "The Anthropocene: are humans now overwhelming the great forces of nature." <i>AMBIO: A Journal of the Human Environment</i> 36.8 (2007): 614-621.
<b>Method of evaluation</b>	<b>30.00%</b> - Presentation <b>20.00%</b> - Group Project(s) <b>50.00%</b> - Attendance
<b>Nature of the assignments</b>	Presentations to the class based on readings of assigned papers Group project based on literature reviews
<b>Course Policies</b>	Attendance is mandatory to all lectures. Participation is a significant component of the grade. As a block course, students are expected to be available at any time and on short notice during the block period. Any anticipated absence should be cleared with the instructor by written (email) notification as early as possible. Students with approved absences are responsible for catching up on the materials from their classmates.
<b>Additional Information</b>	It is strongly preferred communications via email.

## Tentative Course Schedule

*(Time, topic/emphasis & resources)*

Week	Lectures	Topic
1	Sun 01/22/2017 Mon 01/23/2017 Tue 01/24/2017 Wed 01/25/2017 Thu 01/26/2017	Oligotrophic Ocean
2	Sun 01/29/2017 Mon 01/30/2017 Tue 01/31/2017 Wed 02/01/2017 Thu 02/02/2017	Oligotrophic Oceans
3	Sun 02/05/2017 Mon 02/06/2017 Tue 02/07/2017 Wed 02/08/2017 Thu 02/09/2017	Arctic Ocean
4	Sun 02/12/2017 Mon 02/13/2017 Tue 02/14/2017 Wed 02/15/2017 Thu 02/16/2017	Arctic Ocean
5		vegetated coastal areas
6		Vegetated coastal areas
7		Global Change
8		Climate change
9		climate change
10		Mid time project
11		Increased pCO <sub>2</sub>
12		Invasive species
13		Pollutant's transport to the oceans
14		Persistent and emerging pollutants
15		Multiple stressors
16		Project evaluation
17		
18		

### Note

The instructor reserves the right to make changes to this syllabus as necessary.