



SAINT LOUIS UNIVERSITY  
MADRID

**EAS-1050-M01: Introduction to Oceanography**  
Spring 2018

**Class Days and Time:** M & W 17:30- 18:45

**Classroom:** SIH-A

**Prerequisite(s):** None

**Credit(s):** 3

**Instructor:** Monica Perez-Bedmar

**Instructor's Email:** monica.perezbedmar.1@slu.edu

**Instructor's Campus Phone:** 91 554 58 58, ext. 266

**Office:** PRH, Science Office, First Floor

**Office Hours:** M 16:30.17:30

**Course Description:** This course will provide an approach to the study of the ocean in basic formation, chemical and physical properties of seawater, waves, currents, tidal forces and tides, interaction of land and ocean in coastal environments, marine biology and ocean resources. A field trip will also complement the understanding of present day issues in Oceanography from a Spanish perspective.

**Course Goals and Student Learning Outcomes:** To have students understand the formation of the oceans, the chemical and physical processes the oceans undergo, and why organisms live in their environments, and how humans interact and impact these different environments

At the end of the course, students will:

- A greater interest in the oceans
- A familiarity with basic terminology and descriptions of materials and processes in the subdisciplines of geological, physical, chemical and biological oceanography
- An appreciation of the importance of the world ocean to our planet
- A healthy skepticism of facts and an appreciation for where knowledge comes from
- A desire to better protect the oceans through active involvement with government and environmental organizations.

Saint Louis University - Madrid Campus is committed to excellent and innovative educational practices. In order to maintain quality academic offerings and to conform to relevant accreditation requirements, the Campus regularly assesses its teaching, services, and programs for evidence of student learning outcomes achievement. For this purpose anonymized representative examples of student work from all courses and programs is kept on file, such as assignments, papers, exams, portfolios, and results from student surveys, focus groups, and reflective exercises. *Thus, copies of student work for this course, including written assignments, in-class exercises, and exams may be kept on file for institutional research, assessment and accreditation purposes.* If students prefer that Saint Louis University - Madrid Campus does not keep their work on file, they need to communicate their decision in writing to the professor.

**Required Texts and Materials:** Reading texts and materials will be posted on Blackboard. Please make sure that you are able to access Blackboard.

**Attendance Policy:**

1. Students are encouraged to participate in class discussions and to ask questions.
2. Announcements may be made during the semester.
3. Syllabus, reading and articles are subject to change.
4. Students are responsible for the lecture material, handouts, homework and assigned reading.
5. It is mandatory to attend all classes unless a reasonable excuse is given.
6. Make up exams are not given. Students who legitimately miss an exam, due to a doctor's visit or family emergency must provide written documentation of the circumstances. A letter from the university counselor is accepted. Exams that are missed illegitimately result in a score of F. Grades for these students will be based on the remaining exams. Missing more than one exam results in an F grade.

**Course Requirements and Grading Rationale/System:**

- The grade will be obtained from the following areas:
- Mid-term I: 20%
- Mid-term II: 20%
- Final: 20 %
- Poster presentation: 10%
- Field trip notebook: 15%
- Article reviews: 10%
- Attendance, class participation: 5%

**Grading Scales from Exams**

A	93-100%
A-	90-92.9%
B+	87-89.9%
B	83-86.9%
B-	80-82.9%
C+	77-79.9%
C	73-76.9%
C-	70-72.9%
D	60-69.9%
F	0-59.9%

**E-mail:** Campus and course announcements will often be handled by e-mail. Students should check their "@slu.edu" e-mail regularly.

**University Statement on Academic Integrity:** Academic integrity is honest, truthful and responsible conduct in all academic endeavors. The mission of Saint Louis University is "the pursuit of truth for the greater glory of God and for the service of humanity." Accordingly, all acts of falsehood demean and compromise the corporate endeavors of teaching, research, health care and community service via which SLU embodies its mission. The University strives to prepare students for lives of personal and professional integrity, and therefore regards all breaches of academic integrity as matters of serious concern.

The governing University-level Academic Integrity Policy can be accessed on the Provost's Office [website](#) at:. Additionally, SLU-Madrid has posted its academic integrity policy online: <http://www.slu.edu/madrid/academics>. As a member of the University community, you are expected to know and abide by these policies, which detail definitions of violations, processes for reporting violations, sanctions and appeals.

The professor will review these matters during the first weeks of the term. Please direct questions about any facet of academic integrity to your faculty, the chair of the department of your academic program or the Academic Dean of the Madrid Campus.

**University Title IX Statement:** Saint Louis University and its faculty are committed to supporting our students and seeking an environment that is free of bias, discrimination, and harassment. If you have encountered any form of sexual misconduct (e.g. sexual assault, sexual harassment, stalking, domestic or dating violence), we encourage you

to report this to the University. If you speak with a faculty member about an incident of misconduct, that faculty member must notify SLU's Title IX deputy coordinator, Marta Maruri, whose office is located on the ground floor of Padre Rubio Hall, Avenida del Valle, 28 (mmaruri@slu.edu; 915-54-5858, ext. 213) and share the basic fact of your experience with her. The Title IX deputy coordinator will then be available to assist you in understanding all of your options and in connecting you with all possible resources on and off campus.

If you wish to speak with a confidential source, you may contact the counselors at the SLU-Madrid's Counseling Services on the third floor of San Ignacio Hall (counselingcenter-madrid@slu.edu; 915-54-5858, ext. 230) or Sinews Multiplettherapy Institute, the off-campus provider of counseling services for SLU-Madrid (www.sinews.es; 917-00-1979). To view SLU-Madrid's sexual misconduct policy and for resources, please visit the following web address: <http://www.slu.edu/Documents/Madrid/campus-life/SLUMadridSexualMisconductPolicy.pdf>.

**Students with Special Needs:** In recognition that people learn in a variety of ways and that learning is influenced by multiple factors (e.g., prior experience, study skills, learning disability), resources to support student success are available on campus. Students who think they might benefit from these resources can find out more about:

- Course-level support (e.g., faculty member, departmental resources, etc.) by asking your course instructor.
- University-level support (e.g., tutoring/writing services, Disability Services) by visiting the Academic Dean's Office (San Ignacio Hall) or by going to <http://www.slu.edu/madrid/learning-resources>.

Students with a documented disability who wish to request academic accommodations must contact Disability Services to discuss accommodation requests and eligibility requirements. Once successfully registered, the student also must notify the course instructor that they wish to access accommodations in the course. Please contact Disability Services at disabilityservices-madrid@slu.edu or +915 54 58 58, ext. 230 for an appointment. Confidentiality will be observed in all inquiries. Once approved, information about the student's eligibility for academic accommodations will be shared with course instructors via email from Disability Services. For more information about academic accommodations, see "Student Resources" on the SLU-Madrid webpage.

Note: Students who do not have a documented disability but who think they may have one are encouraged to contact Disability Services.

**Mandatory Trips/Activities:** A visit to Spain's southeastern coast to study the main environmental issues the Mediterranean Sea is facing. The field trip includes visit to oceanography institutes, a desalination site, natural reserves and natural parks. The excursion includes diving exercise at one of the most important Mediterranean reserves, Islas Hormigas, off the coast of Murcia, which provides the opportunity – weather permitting – to snorkel in its crystal blue waters and identify the different organisms studied in the course. The trip also includes kayaking along the most developed Mediterranean coastlines, to identify coastal issues and successful restoration projects. Price includes transportation, lodging, excursions included in final itinerary, and breakfast.

Students enrolled in this class must participate and make payment for all mandatory trips/activities. The prices posted on the web are approximate; and the final price will be based on the number of students enrolled on the last day of the Add/Drop period. All students, including those who withdraw from the class after this date, are required to pay these fees, which are non-refundable, unless the trip is cancelled due to low enrollment. Please review SLU-Madrid's trip policies, available on-line.

**Spring 2018 Course Schedule:**

Wednesday, January 10	<b>Why Study the Oceans? Geographical Aspects:</b> Overview of the course. Importance of the oceans and marine science. Dimensions and make-up: latitude and longitude; geophysical descriptions; geochemical descriptions.
Monday, January 15	<b>A History of Marine Science:</b> History of ocean exploration and the beginnings of ocean science. A discussion of a few of the major breakthroughs and discoveries that have expanded our knowledge of the oceans.
Friday, January 19	<b>Did life start salty?</b> The origin of the earth, the oceans and life. Could there be life elsewhere?

Sunday, January 21	<a href="#">Last Day to Drop a Class Without a Grade of W and /or Add a Class, choose Audit (AU) or Satisfactory/Unsatisfactory (S/U) Options</a>
Monday, January 22	<b>Plate Tectonics:</b> Plate theory: Sea floor spreading and continental drift; evidence of these processes.
Wednesday, January 24	<b>Continental Margins and Ocean Basins:</b> Continental Margins and Ocean Basins and Consequences of Change. Features of the sea floor.
Monday, January 29	<b>Coastal Morphology:</b> Formation and morphology of coastlines. Primary and secondary coast. Biological modified coasts.
Wednesday, January 31	<b>Coastal Environments and Issues:</b> The physical environment of the United States coastline...coasts, estuaries, beaches, waves, tides... trends in population development along the coast...Resources of the near shore environment. Comparison between Spain and the U.S. Coastal Issues.
Monday, February 5	Review for Midterm I, 1 <sup>st</sup> set of articles due
Wednesday, February 7	Midterm I
Monday, February 12	<b>Atmospheric Circulation:</b> Weather and the ocean. links to the atmosphere. Changes in climate. Wind patterns. Global warming.
Wednesday, February 14	<b>Ocean Circulation:</b> Ocean Currents: what are they, how do they form, and what is their role in the global scheme of things? Wind-driven ocean circulation and upwelling. Density driven circulation. The great conveyor belt.
Monday, February 19	<b>Ocean Chemistry and Ocean Physics:</b> Elements in seawater; residence times; conservative and non-conservative properties; biogeochemical cycles; tracers of circulation.
Wednesday, February 21	<b>The Clines:</b> The physical structure of the oceans: Pycnocline, thermocline, halocline. Temperature/salinity/density... Light and sound in the ocean.
<a href="#">Thursday, February 22</a>	<a href="#">Fall Break</a>
<a href="#">Friday, February 23</a>	
<a href="#">Saturday February 24</a>	
<a href="#">Sunday, February 25</a>	
Monday, February 26	<b>Waves and Tides:</b> Types of waves. Shallow vs. deep waves. Tsunamis. Tidal patterns and types.
Tuesday, February 27	<a href="#">Midterm Grades Due.</a>
Wednesday, February 28	<b>Climate Change:</b> Fact or fiction? Historical trends. Measurements of climate change. Consequences and solutions.
Monday, March 5	Review Midterm II, 2 <sup>nd</sup> set of articles due
Wednesday, March 7	Midterm II
Friday, March 9	<a href="#">Last Day to Drop a Class and Receive the Grade of W.</a>
Monday, March 12	<b>Marine Ecology:</b> Definition of life and its role in nature. Distribution of light and nutrients. Biogeochemical cycles. Adaptations for living in the marine environment. Zonation of life in the ocean.
Wednesday, March 14	<b>A View of Life in the Oceans:</b> Primary productivity of the oceans. Different types of primary producers -- bacteria; diatoms, dinoflagellates, coccolithophores and plants; Measuring primary production.
Monday, March 19	<b>Zooplankton and Marine Invertebrates:</b> Types of zooplankton and marine invertebrates: Ways of feeding, vertical migration, bioluminescence, life histories - holoplankton vs meroplankton; lifestages. Food chains and food webs.
Wednesday, March 21	<b>Zooplankton and Marine Invertebrates:</b> Types of zooplankton and marine invertebrates: Ways of feeding, vertical migration, bioluminescence, life histories - holoplankton vs meroplankton; lifestages. Food chains and food webs.
March 26- April 1	<a href="#">Semana Santa holiday (University closed)</a>
Monday, April 2	<b>Marine turtles:</b> Types, endangered and threatened species, nesting characteristic, principal threats, protective measures and hard bottoms.
Wednesday, April 4	<b>Nekton, the free swimmers :</b> Fish - variety of forms, some examples: demersal forms (cod), pelagic forms (tuna, swordfish), small pelagics (sardines,

	anchovies). Types, physiological characteristics, geographical distribution. Are sharks a threat to humans or humans threats to sharks? <a href="#">Fall Registration Opens!</a>
<a href="#">April 5-April 8</a>	<a href="#">Field Trip</a>
Monday, April 9	<b>Fishing and Fisheries:</b> Fisheries, economic values, trends in fish stocks... the future of fisheries. Rules and regulations.
Wednesday, April 11	<b>Ecosystems in the Sea:</b> Oligotrophic central gyres - the ocean deserts; Nutrient-rich subpolar regions; Upwelling regions; Coastal regions; Estuaries. The benthos - in /on the sediments; Vents, reefs
Monday, April 16	<b>Marine Mammals and Cetaceans:</b> Types of marine mammals; migration patterns, tracking endangered species. Types of cetaceans, life styles, endangered species, behavior patterns, protective measures Understanding behavior. Whales and marine mammals: their past and future
Wednesday, April 18	<b>Oceanic Resources and:</b> Marine life, food chains, productivity, types of resources, regulations and protection. Emphasis is on the physical environment, and influence of human population, exploitation
Monday, April 23	<b>Marine Pollution:</b> Worst concerns for oceanographers. Plastics and microplastics Red Tides and Harmful Algae Blooms. Petroleum Spills.
Wednesday, April 25	Group presentations
Monday, April 30	Review for final
<a href="#">Wednesday, May 2</a>	<a href="#">University Closed</a>
Thursday, May 10 (15:30-18:30)	FINAL EXAM
<a href="#">Sunday, May 13</a>	<a href="#">Grades Due to Registrar</a>

#### SPRING 2018 FINAL EXAM SCHEDULE

SPRING 2018					
	4 May (Fr)	7 May (Mn)	8 May (Tu)	9 May (Wd)	10 May (Th)
<b>08:30-11:30</b>	Mn classes that meet at 9:00 & 9:30	Mn classes that meet at 10:00	Mn classes that meet at 11:00 & 11:30	Tu classes that meet at 9:30	Tu classes that meet at 8:00
<b>12:00-15:00</b>	Tu classes that meet at 11:00	Mn classes that meet at 13:00	Tu classes that meet at 14:30	Mn classes that meet at 12:00 & 12:30	Tu classes that meet at 12:30
<b>15:30-18:30</b>	Mn classes that meet at 14:30	Tu classes that meet at 17:00 & 17:30	Mn classes that meet at 16:00	Tu classes that meet at 16:00	Mn classes that meet at 17:30
<b>19:00-22:00</b>	---	---	Mn classes that meet at 18:30 & 19:00	Tu classes that meet at 19:00	