## SIO 30 – SYLLABUS (Fall Quarter 2023)

Course Instructors:	Sarah Gille ( <u>sgille@ucsd.edu</u> ); physical oceanography, marine biology Sarah Aarons ( <u>smaarons@ucsd.edu</u> ); marine geology, marine chemistry
Course Schedule: Teaching Assistants:	MWF 1:00-1:50 HSS 1330 Chih-Chieh Chien <cchien@ucsd.edu> (sections A01, A02) Ralph Torres <rrtorres@ucsd.edu> (sections A03, A04)</rrtorres@ucsd.edu></cchien@ucsd.edu>
Discussion sessions:	A01 (3:00–3:50 p.m., M) HSS 1315 A02 (4:00-4:50 p.m., M) HSS 1315 A03 (9:00-9:50 a.m. M) SOLIS 109 A04 (9:00-9:50 a.m. W) HSS 2154; scheduled to move into WLH 2114 starting on October 30, 2023
Office Hours:	<ul><li>Prof. Gille: Wednesdays 10-11 am, Nierenberg Hall 348</li><li>Prof. Aarons: Thursdays 2-3 pm, Sverdrup Hall 3131</li><li>TA office hours: to be announced</li><li>or contact any of us via email to schedule an appointment</li></ul>
Textbook:	Garrison & Ellis, <i>Oceanography: An Invitation to Marine Science</i> , 9 <sup>th</sup> edition (Available for purchase in digital form via Inclusive Access. You may opt out before the add/drop deadline, if, for example, you prefer to purchase a hard copy version of the textbook. Reading assignments will be based on the 9th edition; if you choose to read a different edition, let us know, and we can provide guidance.)
Clickers:	We will use iClickers during class to help you evaluate your understanding. (See "Participation" below.) Please bring an iClicker to class. If you do not already have one, you can purchase your own at the bookstore.

**Rationale and goals:** This course is an introduction to oceanography, intended for both science and non-science students; students taking the course must be enrolled in both lecture and discussion sections. The general topics that will be covered during lectures are listed below and will be discussed further during discussion sessions. We highly recommend that students participate in discussion sections, as they reinforce concepts learned during lectures and provide an opportunity to ask questions and solidify course material. Students are expected to learn about the oceans as much as they can from the lectures and required reading.

## **Course Grade and Description:**

Grades will be based on 3 components: exams, participation, and short assignments.

- Exams (70%----nominally 20% Exam I; 20% Exam II; 30% Final) questions will be taken primarily from lecture materials; the required reading is meant primarily to clarify the material. All students must take the 3 exams. The final exam is comprehensive, and will cover all the topics discussed during the quarter. The relative weightings of the midterms and final will be adapted in the final allocation of grades, so that the highest exam score will be weighted more than the lower(est) scores. (Actual weights will be discussed in class.)
- **Participation (10%).** Participation will be evaluated based on participation in in-class clicker questions and/or on-line Canvas "reading" quizzes. You need to complete a minimum of 50% of available participation activities for each unit of the class. (For example, if you are not in class for clicker questions, you should be sure to do the Canvas quiz.) Clicker and Canvas questions may not be exactly the same, and we encourage you to do them both.

• Assignments (20%). Approximately four short assignments will be given, each intended to help you explore aspects of the ocean using on-line resources.

Learning Objectives: By the end of the quarter, you should:

- Understand the processes that led to the formation of the ocean and its influence on life,
- Know the chemical and physical properties of seawater,
- Be able to describe ocean circulation,
- Understand the key components of marine ecosystems,
- Understand the role of the ocean in regulating Earth's climate,
- Be able to apply your understanding of the ocean in a system-wide, interdisciplinary perspective,
- Be able to evaluate natural phenomena in the ocean using scientific information and share your findings (as demonstrated through short homework assignments).

## Lectures:

Marine Geology (Aarons)

- Sept 29 F Origin of the Earth and oceans (Read Ch. 1.1, 1.3, 1.4)
- Oct 2 M Introduction to Marine Geology (Read Ch. 2 & 3)
- Oct 4 W Plate Tectonics I (Plate tectonic assignment distributed) (Read Ch. 3 & 4)

Oct 6 F Plate tectonics II

- Oct 9 M Ocean basins & margins I (Still in Ch. 3 & 4)
- Oct 11 W Ocean basins & margins II (Plate tectonic assignment due)
- Oct 13 F Marine sediments I (Read Ch. 5)
- Oct 16 M Marine sediments II
- Oct 18 W Marine sediments III
- Oct 20 F EXAM I

Physical Oceanography (Gille)

- Oct 23 M Physical properties of the ocean: temperature, salinity, and density (Read Ch. 6.5-6.9)
- Oct 25 W Forces acting on the ocean (Read Ch. 8.1-8.3)
- Oct 27 F Forces in action (Read Ch 8.4-8.6)
- Oct 30 M Forces continued (Read Ch. 9.1-9.2)

Marine Chemistry (Aarons)

- Nov 1 W Water & ocean chemistry I (Marine chem. assignment distributed) (Read Ch. 6 & 7)
- Nov 3 F Water & ocean chemistry II
- Nov 6 M Water & ocean chemistry III (Marine chemistry assignment due)
- Nov 8 W Marine resources and environment (Read Ch. 17)
- Nov 10 F Veterans Day Holiday (NO CLASS)

Physical Oceanography continued (Gille)

- Nov 13 M Global circulation (Read Ch 9.3-9.6)
- Nov 15 W Waves (Read Ch. 10)
- Nov 17 F Tides (Read Ch. 11)
- Nov 20 M EXAM 2

Biological Oceanography (Gille)

- Nov 22 W Overview, terminology, biomes of the sea (Read Ch. 13-13.4)
- Nov 24 F Thanksgiving Holiday (NO CLASS)
- Nov 27 M Interactions: nutrient cycles and the circle of life (Read Ch 13.5-13.8)

Nov 29	W	Who's who in the sea: small (Read Ch. 14)
Dec 1	F	Who's who in the sea: medium-large (Read Ch. 15)
Dec 4	Μ	Unique environments: coral reefs, hydrothermal vents, Arctic, others (tbd) (Read Ch. 16)
Dec 6	W	Interactions: ecology of the sea (Read Ch. 18.1-18.4)
Dec 8	F	Climate change and the IPCC report (Read Ch. 18.5-18.6)

Dec 11 M FINAL EXAM - 11:30 a.m - 2:29 p.m., TBA

**Course Policies:** The course is in person. If you are sick, you should not attend lecture in person and there will be options for making up missed participation on Canvas. We have asked that the class be podcasted. (If this isn't working, you should let us know.) We will post lecture slides on Canvas before lecture (and we'll post updates after lecture, if any changes are made to the slides).

**Piazza:** This term we will be using Piazza for class on-line discussion. The system is designed to get you help fast and efficiently from classmates, the TAs, and the professors. We encourage you to post your questions on Piazza. If you have any problems or feedback for the Piazza developers, email team@piazza.com.

Find our class signup link at: https://piazza.com/ucsd/fall2023/sio30\_fa23\_a00

**Exams and make up policy:** All exams will be in person but taken through Canvas. You will need to bring your laptops to class to take each exam, if this is an issue please contact the instructors well in advance and we will make other arrangements for you. University policy does not allow you to reschedule exams for personal reasons. If you have an authorized justification for a conflict with an exam, please let us know as early as possible.

**Statement on Diversity and Inclusion:** We will strive to create a learning environment that supports a diversity of thoughts, perspectives, and experiences, and honors your identities, including race, gender, class, sexuality, religion, ability, etc. We will also ask all of you to support and respect the diverse experiences and perspectives of your classmates. Towards these goals:

- If you have a preferred name and/or set of pronouns that is not already recognized on your UC San Diego record, please let us know!
- If you feel like your performance in the class is impacted by experiences or situations related to anything that is happening, either in or outside of class, please come and talk with us. We are happy to discuss possibilities for flexibility and accommodations to help you succeed in your academic goals.

Academic Integrity statement: Integrity of scholarship is essential for an academic community. This course will adhere strictly to the UCSD policy on academic integrity: "Students are expected to do their own work without unauthorized aids of any kind," as outlined in the UCSD Policy on Integrity of Scholarship. In particular, students agree that by taking this course, all required written homework and scholarship will be their own writing and sources will all be correctly referenced. Cheating on exams will not be tolerated and all detections of cheating will be considered academic misconduct and subject to disciplinary process. For more details on what constitutes cheating see here: <a href="https://academicintegrity.ucsd.edu/excel-integrity/define-cheating/index.html">https://academicintegrity.ucsd.edu/excel-integrity/define-cheating/index.html</a>.

**ADA statement:** We are happy to provide accommodations for this course for students with documented disabilities. Students must provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD). We request that contact from the student and the OSD office be provided in advance so that accommodations may be arranged.