

# The Oceans GEL 16 Syllabus

# **Course Details**

<u>Course Description</u>: Welcome to The Oceans! The official description of this course is: Introductory survey of the marine environment. Oceanic physical phenomena, chemical constituents and chemistry of water, geological history, the seas biota and human utilization of marine resources.

Basically we are going to learn about the way the that the ocean works including how the chemistry, physics, biology and geology all work together to create the interconnected earth ocean system we experience every day. I am glad to have the chance to learn in community with you this quarter. I cannot wait to get to know each of you.

#### Instructor Information:

Dr. Claire McKinley (She / Her)
Office: Earth and Physical Sciences Room 1131
Office Hours: Thursdays 11:00-12:00 and by appointment.
About: Dr. McKinley is from Portland, Oregon and has a PhD in Oceanography from Texas A&M.
Contact: We will have a course Discord and that is the best way to contact me, but you can also reach out using Inbox on Canvas.
Email: ccmckinley@ucdavis.edu
Office Phone: 530-752-0351



**Teaching philosophy:** In a welcoming and ethical classroom, I believe all students can develop skills that foster life-long learning through active learning and authentic inquiry.

My goals in every course are to:

- Foster a supportive community among my students, where every student is safe and feels comfortable participating in class.
- Build skills that empower students to become effective learners and citizens,
- Create a learner-centered environment.
- Build a course that is flexible enough that students can succeed in the context of the Pandemic, and other global, local, and personal interruptions and emergencies.

#### **Course Goals:**

- Practice applying scientific, quantitative, critical thinking skills to scientific and societal problems
- Create links between concepts to appreciate the ocean as an interconnected system that humans are a part of and influence
- Learn about oneself as a scholar and a citizen of the planet, to build the skills as a lifelong learner and marine scientist

#### **Learning Outcomes:**

These learning outcomes are mapped on to Fink's taxonomy of significant learning **Foundational Knowledge** (*The basic components of Oceanography*)

- **Explain** the theory of plate tectonics and its relationship to the formation of major features on the seafloor
- **Draw** the atmospheric and oceanic circulation systems, their interconnections, and explain their driving forces
- **Summarize** the major physical and chemical properties of seawater and how each affects marine life

**Application** (*How to use scientific, qualitative, critical thinking skills to develop as a scholar*)

- **Interpret** and **compare** graphs, for example: time series, temperature vs. salinity, oceanographic cross section.
- **Identify** and **apply** components of equations, for example: the density, gravity and wave equations.

# **Integration** (*Creating links between concepts, understanding the ocean as an interconnected system*)

- **Describe** the principals involved in the generation of waves and tides.
- Analyze how the oceans are connected to and drive major Earth processes and functions, such as atmospheric and oceanic circulation, climate and weather, plate tectonics, and providing sustenance for human and marine populations
- **Explain** the relationship between plants and animals in the ocean and describe or draw how they affect the cycling of carbon in the ocean, atmosphere, and sediments

# Human Dimension (Learning about oneself as a scholar, and a citizen of the planet)

- Evaluate your performance in Oceanography, and as a scholar overall.
- **Develop** an appreciation for the work and scientific process that goes into understanding the Earth and Oceans.
- **Identify** how humans impact the health of the ocean and where humans are a part of ocean and coastal ecosystems.

**Caring about The Ocean** (how the we impact the ocean, and the ocean impacts us)

- **Predict** the consequences of a rise in sea-level on the coastal zone and society and propose possible mitigation and adaptation strategies.
- **Identify** reasons why sustainable practices regarding ocean resources (e.g. fisheries, hydrocarbons) are important; affect your present and future life and the world economy.

# Learning how to learn

- **Formulate** study habits that include self-reflection and self-evaluation.
- Apply interpretation and reflection skills in this and other undergraduate courses.
- **Develop** a lifelong commitment to understanding the world around you.
- **Become** a self-directed life-long learner.

# **Course Format and Schedule:**

This course is formatted as a "flipped class" this means students will gain first-exposure to learning via recorded lectures prior to class and focus on the processing part of learning (synthesizing, analyzing, problem-solving, etc.) in class. We will do a combination of individual and group problem-solving during class, as well as take time to work on discussion

posts, quizzes, and reflections. Attending the in-person lecture is encouraged but not required, if you are sick, have been exposed to COVID or cannot come to class you will not be penalized. The class will be recorded, and the sessions posted to Canvas. However, you are expected to engage with the course and the course community and can earn engagement points by attending class. There is more information about engagement points below. In the event that I am exposed to COVID, and cannot teach in person, enough of you have been exposed that it is not worth meeting in person, or we are asked by the university to pivot to online teaching these sessions will be held over zoom synchronously instead of in the classroom.

#### Course Materials

Optional Textbook: Investigating Oceanography, 2<sup>nd</sup> Edition, Sverdrop and Kudela. This textbook is optional but it will be complimentary to the lectures, and class materials will follow the text. The chapters listed at the beginning of each class lecture are meant to reinforce the class material. Digital copies of the textbook are available, and the publishers have reduced the cost compared to print versions. There are some nice features of the online version that will help you think about your learning as you go, but the print version, or even the 1<sup>st</sup> edition will be adequate.

There are several open source free texts online that will also help supplement your learning if you would like to go that route. There are links to those posted in Canvas.

<u>Computer:</u> You will need access a computer or tablet and internet that will allow you to operate basic computer software and access and navigate Canvas, Zoom and other websites including the web version of Google Earth. You will need the ability to view lecture materials online, complete quizzes, and written assignments using Canvas and other basic computer programs. If you do not have access to these resources or lose access to these resources, please see me and we will work together to ensure your success. It will be useful to bring a computer to class because we will occasionally work on assignments and quizzes during this time.

Assignment	Percentage of Grade	Number of Assignments
Exams	30%	2 exams, a portion of points
		can be recovered with
		corrections.
Short Quizzes & Surveys	40%	About twenty reading quizzes
		retakes allowed, lowest two
		drop
Online Discussions	20%	Three online discussions,
		lowest dropped
Engagement Points	10%	Engagement points can be
		earned through in class
		activities, and course
		participation.

# **Description of Course Assignments**

**Exams:** There will be two exams. Each exam will cover materials and chapters listed in the course outline, however, knowledge of basic concepts covered previously will be assumed. Each exam will be worth 15% of your grade. Exams will be open note open book, but the questions are designed to require you to synthesize information, something we will practice in class. There will be no makeup exams except in cases of university excused absences, but exams will be

open for several days and once you begin you will have a set amount of time (3hrs\*) to complete it. Exams will be a combination of multiple choice, and short-answer questions. You will receive example short answer questions to study before the exam, and five similar questions will be present as the short answer questions on the exam. Makeup exams may be entirely essay exams. Each Student will complete an exam wrapper, which includes the opportunity to correct your short answer questions for points back. The completion of the exam wrapper is also worth points towards your overall exam grade. *\*Where this time is variable depending on exam length and individual accommodations*.

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Total = 10 points	Masterful	Skilled	Able	Developing	Novice
Total – To points	(90-100%)	(80-89%)	(70-79%)	(60-69%)	(<60%)
Complete Answer	The answer correctly and fully addresses every aspect of the question.	The answer addresses every aspect of the question.	Some concepts are missing or inaccurate.	Aspects of the question are not addressed.	The majority of concepts are missing or inaccurate.
Integration of Concepts	The answer is correct and applies interconnected ocean concepts to explain their answer.	The answer is correct and displays an understanding of the interconnected nature of the ocean processes	The answer is correct but uses mostly simplistic explanations of ocean processes to draw conclusions.	The answer is correct but without drawing connections between ocean processes.	The answer does not display an application of the materials introduced in the course or is incorrect.
Supporting evidence for the answer	Consistent evidence with originality and depth of ideas; Main points are sufficiently supported.	Ideas supported; support is sound, valid and logical.	Main points are only indirectly supported; Support is not sufficient.	Insufficient, non- specific and/or irrelevant support.	Lack of support; Illogical generalizations without support.

#### **Exam Short Answer Rubric**

**Short Quizzes and Surveys:** Each week there will be short quizzes (8-10 questions) associated with a reading, video, or lecture. The quizzes for each week will open on Tuesday and close on the evening of the following Monday; you will be able to re-take each quiz up to five times before it closes. Additionally, there will be several surveys throughout the semester that will be worth the same amount of points as the quiz that you will get credit for filling out.

**Engagement Points**: We will meet twice a week in person on Tuesdays and Thursdays. The in person meetings are optional, so you can earn points for your engagement in several different ways. Each activity is worth between one and five points, and there are more points possible (about 100) than you need to receive 100% in engagement points (50) possible points (10% of the final course grade). You can earn points by:

 Attending class and filling out the class sessions' "one minute paper" a short question or reflection that I will use to track who was present each class period. (2 points per class)
 Attend a short check in meeting. You can sign up to meet with me one on one throughout the quarter for a brief check in, where you can ask questions. (5 points per short check-in)

3) Attend office hours. You can pop into office hours to ask a question. (2 points)4) Posting lecture class notes to the "notes discussion board" on Canvas. Your notes should be legible (i.e., not blurry photos or completely unreadable handwriting), relevant to the lecture/discussion of the week and well organized to be useful to your classmates. Your notes should not simply be a transcription of the slides used in a lecture, there are recordings of the lectures and slides available already. (5 points per notes)

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**Online Discussions:** Every week there will be several articles available for discussion. The articles will be about recent and current events related to the week's material. Every student will write a two or three discussion posts. The third discussion grade drops so if you are happy with your first two grades you do not need to complete the third. Each post will contain:

- 1) A summary of one article (minimum of 250 words, maximum 500)
- 2) Reflection drawing connections between the article and what we have learned so far in the class.
- 3) Thoughtful responses to two peer's post, each response should be a minimum of 80 words, maximum 200.

Total - 20 points	Masterful	Skilled	Able	Developing	Novice
10tal = 50 points	(90-100%)	(80-79%)	(70-79%)	(60-69%)	(<60%)
Correct Focus and realistic summary (10 pts)	Summary engages main ideas present in the article; identifies nuance and secondary ideas.	Competent and well-developed; adequate summary of the topic.	Mostly intelligible summary; idea is weak, unclear or too broad.	Mostly simplistic and unfocussed summary; Little sense of purpose.	Ideas are extremely simplistic, showing signs of confusion, main ideas in summary not present or identifiable.
Connection between article and in class material (10 pts)	Consistent connection between article and in class material with originality, reflection and depth of ideas.	Connections made and support for them is sound, valid and logical.	Connections and points are only indirectly drawn; or connections are not sufficient.	Insufficient, non- specific and/or irrelevant connections.	Lack of connection to in class topics; Illogical generalizations without support.
Contributions to the learning community (10 pts)	Posts thoughtful questions or novel ideas to peers that generate new ideas and group discussion and draws connections between different articles.	Asks questions or posts thoughtful responses to generate peer's response.	Asks questions or posts responses that do not move the learning community forward.	Posts minimal or vague responses to peers that do not motivate a response (e.g., "I agree with you, Sherry!").	Does not post a response and/or does not reply to peers.

#### **Online Discussions Rubric**

# **Course Expectations and Policies**

#### **Course Expectations**

Students in this course will be held to high expectations that will enable them to be successful as students and scientists. You already are a student at UC Davis, which means you are smart and capable. We will work together to help you build the skills you need to be successful in this course as well as throughout College. You will be introduced to concepts outside of class and work on synthesis and application of that knowledge in class. A large portion of course time will be used for hands-on studies and working out problems in. Below are preliminary responsibilities outlined for you, me (the instructor), and our new community. We will discuss these briefly on the first day and make additions based on what you would like our course, and community to look like.

Student's Responsibilities	Instructor's responsibilities	Community responsibilities
- Attend course sessions.	- Attend all course sessions.	- Be respectful of every
- Come to class prepared.	- Generate prompt and	human in the course.
- Submit complete work on	constructive feedback.	- Be willing to work with and
time.		learn from everyone.

- Participate in course	- Foster an environment	
discussions.	where students feel safe	
- Ask questions, ask for help	asking questions, and for	
	help.	
	_	

#### Code of Conduct

In order to facilitate a safe learning environment, it is my expectation no one will discriminate on the basis of race, color, national origin, religion, sex, gender identity, pregnancy (including pregnancy, childbirth, and medical conditions related to pregnancy or childbirth), physical or mental disability, age, medical condition (cancer related or genetic characteristics), ancestry, marital status, citizenship, sexual orientation, or service in the uniformed services (includes membership, application for membership, performance of service, application for service in the uniformed services) status as a Vietnam-era veteran or special disabled veteran.

In Oceanography we all will treat people the way they want to be treated, and work towards a supportive and collaborative environment where everyone feels safe so we can all achieve the course objectives together.

This Code of Conduct applies to all activities related to this class (in-person / virtual meetings, email exchanges, and chatroom discussions).

Expected behavior includes (but is not limited to):

- Treating all participants with respect and consideration.
- Communicating openly with respect for others, critiquing ideas rather than individuals.
- Avoiding personal attacks directed toward others.
- Complying with UC Davis' Principles of Community.
- Abiding by principles of academic integrity and ethical professional conduct.

Harassment or discrimination by or of any meeting participant or of any type will not be tolerated.

#### Accessibility and Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. UC Davis is committed to educational equity in the academic setting, and in serving a diverse student body. I encourage all students who are interested in learning more about the Student Disability Center (SDC) to contact them directly at sdc.ucdavis.edu, sdc@ucdavis.edu or 530-752-3184. If you are a student who requires academic accommodations, please submit your SDC Letter of Accommodation to me as soon as possible, ideally within the first two weeks of this course.

#### UC Davis Code of Academic Conduct

This Code of Academic Conduct exists to support high standards of behavior and to ensure fair evaluation of student learning. Students who violate the Code of Academic Conduct are subject to disciplinary sanctions that include Censure, Probation, Suspension, or Dismissal from the University of California.

#### Makeup and Late Work Policy:

The course is built to allow for leniency and flexibility for students, these details are outlined in the course assignment descriptions. Quizzes and discussion posts drop and there are more engagement points available than are needed to earn 100% of the engagement points. The course is designed this way so that you do not need to provide doctors notes, or other personal information to me if something in your life comes up. If something major comes up, like your power is out during the four days the make-up exam is open I will work with you.

### **Territorial Acknowledgement**

We acknowledge that the UC Davis campus exists on land that the Wintun/Patwin have thrived on and been in relationship with since time immemorial. It is here that the Wintun/Patwin built their huts from earthen materials to wait out bad weather and carry out traditional dances in elaborate costumes. And, in places across Yolo and Solano counties, bedrock mortar sites still exist that show where the historical inhabitants ground acorns to remove their tannins. Although these communities were disrupted by the arrival of Spanish explorers who enslaved, abused and killed many Wintun/Patwin, their descendants are survived by the Yocah Dehe Wintun Nation.

As settlers, we must recognize how we benefit from colonialism and how it is has impacted the Native Peoples whose lands and relatives in this ecosystem we now use. This is especially important in the marine sciences, where early exploration is at the root of much of our discipline, but often excludes the presence, culture and knowledge of Indigenous communities that coexisted and understood those resources and ecosystems before our intellectual forefathers did.

Thus, it is incumbent upon us to dismantle components of settler-colonialism to ensure a more just and equitable future for not only the Wintun/Patwin, but all Indigenous Peoples. This acknowledgement was written by Priya Shukla with minor edits made by Claire McKinley. The information presented was made possible by native-land.ca and yochadehe.org. Consider using these resources to learn more about the Native Peoples' whose lands you currently occupy.

# **Recordings**

We will be using lecture capture to record the in-person sessions on Tuesdays and Thursdays. I will post them to canvas as they are sent to me. The recording will capture the presenter's audio, video, document capture and computer screen. In these cases, student audio will not be recorded unless they come up to the front of the class or are so loud the microphone can pick them up. The recordings will only be accessible to students enrolled in the course to review materials.

If we transition to zoom synchronous sessions Zoom class sessions will be recorded. In these cases, student audio and video will be recorded if they share their computer audio and video during the recorded session. The recordings will only be accessible to students enrolled in the course to review materials.

The University and Zoom have <u>FERPA</u> compliant agreements in place to protect the security and privacy of UCD Zoom accounts. Students who do not wish to give consent to being recorded should:

- 1. Choose a Zoom Profile Name that does not include any personal identifying information like their name or UCD Net ID
- 2. Not share their computer audio or video during their Zoom sessions

These recordings will not be shared with or accessible to the public and will be deleted after the course ends. By enrolling in this class, all students agree to not upload the recordings to other platforms.

#### **Plagiarism Statement**

As commonly defined, plagiarism consists of passing off as one's own, ideas, words, writing, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you have the permission of that person.

# **Standards of Work**

#### An Excellent student is one who:

-Attends class regularly and is prompt.

-Comes to class prepared to engage fully in the activities.

-Participates in class and is supportive of the participation of their peers.

-Is willing to ask questions and ask for help from peers and the instructor.

-Completes excellent work and submits it on time.

-Learns to independently generate insightful reflections and self-evaluations on the work being done in the course.

- Solicits and incorporates feedback into their work.

#### A Satisfactory Student is one who:

-Attends some of class.

-Comes to class prepared enough to participate intermittently.

-Does not participate regularly in class, interrupts or ignores the participation of their peers.

-Asks for help both from peers and the instructor occasionally.

-Completes satisfactory work and submits it on time.

-Completes required reflections but is not developing self-evaluation skills.

-Incorporates some feedback into their work.

#### A student who needs Improvement:

-Attends class infrequently.

-Comes to class unprepared and will rarely participate in the activities.

-Does not participate in class, interrupts, or actively shuts down the participation of their peers.

-Will not ask for help from peers or the instructor.

-Completes work that needs improvement or is not on time.

-Does not do reflections, is not developing self-evaluation skills in the context of the work being done in the course.

-Will not incorporate feedback into their work

# **Course Topics and Calendar of Activities**

# **\*\*Topics/Chapters subject to change, but exam dates will not change\*\***

<u>Week</u>	<u>Date</u>	<u>Topics/Chapters</u>	Assigned	<u>Discussion</u> <u>Topic</u>	<u>Due</u>
1	09/23/21	Intro to the Course + Why Oceanography (Prologue and Chapter 1.4 - 1.6)	Course Survey Quiz 1	None	09/27/21 11:59PM Monday
2	09/28/21	Origin of The Earth and Ocean (Chapter 1)	Quiz 2	Earthquakes and	10/1/21
2	09/30/21	Plate Tectonics (Chapter 2) Discussion Post 1 Quiz 3		Geohazards	11:59PM
3	10/5/21	Sea Floor and Sediment (Chapter 3)	Quiz 4	Deep Sea Mining	10/8/21
	10/7/21	Physical Properties of Water (Chapter 4)	Discussion Post 2 Quiz 5		11:59PM
4	10/12/21	The Chemistry of Seawater (Chapter 5) ( <b>No in person class</b> )	Quiz 6	Ocean	10/15/21
10/14/21		Ocean Structure (Chapter 7)	Discussion Post 3 Quiz 7	Acidification	11:59PM
5	10/19/21	The Atmosphere and Oceans (Chapter 6)	Quiz 8	Hurricones	10/22/21
10/21/21 The Atr		The Atmosphere and Oceans Part II (Chapter 6)	Discussion Post 4 Quiz 9	Turreales	11:59PM
6	10/26/21	Ocean Surface Currents (Chapter 7)	Quiz 10	None	10/27/21 11:59PM
	10/28/21	Exam 1	Chapters 1 -7 Opens 10/27/21	None	10/31/21 11:59PM
_	11/2/21	Ocean Deep Currents (Chapter 7)	Quiz 11	The Changing	11/5/21
	11/4/21	Waves (Chapter 8)	Discussion Post 5 Quiz 12	Arctic	11:59PM
8	11/9/21	The Tides (Chapter 9)	Quiz 13		11/12/21 11:59PM

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	11/11/21	Veterans day	Discussion Post 6	Environmental Justice	
0	11/16/21	The Living Ocean (Chapter 11)	Quiz 14	Eiching	11/19/21
9 11/18/21 Productivity and Food Webs (Chapter 12)		Discussion Post 7 Quiz 15	Fishing	11:59PM	
10	11/23/21	Nekton & Benthos (Chapter 14)	Quiz 16	None	11/24/21
11/26/21		Thanksgiving	Thanksgiving		11:59PM
11	11/30/21	Environmental Issues (Chapter 15)	Quiz 17	Dollution	12/3/21
11 12/2/21 The Oceans and Cl (Chapter)		The Oceans and Climate Disruption (Chapter 16)	Discussion Post 8 Quiz 18	Fonution	11:59PM
12	12/7/21	Exam 2 Scheduled final time: Tuesday 12/07 at 6:00pm			12/07/21 11:59PM

# **Resources for Students and Community Members**

Resource	Website
Health and Wellness:	
Student Life Health and Wellness	https://shcs.ucdavis.edu/about/shwc
Info	
COVID 19 Info for Students	https://studentaffairs.ucdavis.edu/news/coronavirus-faqs
Student Counseling Services	https://shcs.ucdavis.edu/counseling-services
UC Davis Crisis Text Line	Text RELATE to 741741
UC Davis Crisis support resources	https://eachaggiematters.ucdavis.edu/here-are-some-
	options-immediate-crisis-support
Public Care Report for distressed or	https://ucdavis-
distressing student.	advocate.symplicity.com/care_report/index.php/pid710253?
Sexual Violence and Harassment	https://sexualviolence.ucdavis.edu/
Resources	
Services for Students	
Food Security	https://aggiecompass.ucdavis.edu/food-security
Wi-Fi and laptop loaner program	https://keepteaching.ucdavis.edu/student-
	resources/need-wi-fi
Housing Resources	https://aggiecompass.ucdavis.edu/housing-security

Public Care Report for a distressed	https://ucdavis-
or distressing student.	advocate.symplicity.com/care_report/index.php/pid710
	253?
Student Legal Services	https://asucd.ucdavis.edu/legal-services/
More Legal Service Info	https://ucdavisgsa.wordpress.com/resources/legal-
	services/
Ombudsperson (the Undergraduate	https://ombuds.ucdavis.edu/contact-us
Ombuds assists students, faculty,	
staff, and administrators with	
resolving academic conflicts for	
undergraduates on an informal and	
confidential basis)	
Student affairs list of Community	https://studentaffairs.ucdavis.edu/virtual-ucdavis
centers, including AB540 and	
Undocumented Student Center,	
Native American Academic Student	
Success Center, Transfer and	
Reentry center.	
Women's Resource Center	https://wrrc.ucdavis.edu/
LGBTQIA Resource Center	https://lgbtqia.ucdavis.edu/
Disability services. Note that If you	https://sdc.ucdavis.edu/
or a student have been injured or	
are in crisis, they can assist you	
with temporary accommodations	
and resources	

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