Introduction to the Blue Ocean

Course Syllabus Version 0.1 (05Mar, 2026)

Syllabus version history and change log are provided on the last page

AOSC 375
Fall 2026

Instructor
Prof. James A. Carton (carton@atmos.umd.edu, 5-5365)

Class Meets
Mon-Wed-Fri 10:00am – 10:50am in room: **XXXX**.
Synchronous online course meets MWF 6-6:50pm via zoom: https://umd.zoom.us/j/6087942671

Office Hours
Carton: Mondays following class ATL2431 or online, synchronous by request
Teaching Assis: Wednesdays before homework due-dates and exams: 9/16, 9/30, 10/7, 10/28, 10/28, 11/2 at 2pm, room: TBD

Time-sensitive information

will be sent via ELMS announcements. Make sure you set your notifications accordingly!

Course Communication
Use the messaging on our ELMS page for written communication or email to instructors.

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Course Description

The Ocean is a major component of the Earth System that shapes life on earth, including our weather and climate. In this course we explore oceanography as an observation-based interdisciplinary science, identifying its strong connections to astronomy, biology, geography, geology, chemistry, and physics. As well as expanding ocean literacy, we use our study of the Ocean to develop the critical thinking skills needed to address such complex questions as the role of humans in the changing environment.

Learning Outcomes

After completing this course, students will be able to:

- Describe the major ocean features, and how they shape, and are shaped by, our planet,
- Identify geological, physical, chemical, and biological processes and their interdisciplinary/interactive governing principles,
- Understand the development of ocean research and of policies to protect and develop marine resources
- Identify key contemporary issues affecting the ocean, and how they are being addressed (or not) by communities, organizations, and governments
- Develop critical thinking skills, proposing solutions to current issues affecting the ocean.

Campus Policies

It is our shared responsibility to know and abide by the University of Maryland's policies that relate to all courses, which include topics like: *academic integrity*, *student and instructor conduct*, *accessibility and accommodations*, *attendance and excused absences*, *grades and appeals*, *copyright and intellectual property* etc.

Please visit www.ugst.umd.edu/courserelatedpolicies.html for the Office of Undergraduate Studies' full list of campus-wide policies and follow up with me if you have questions.

Learning Assessments include: homeworks, exams, and a group project. Grades will be assessed as follows:

- Homeworks: total of 3 - 15%
- Exams: 50%, of which:
  - Partial-term #1: 10%
  - Partial-term #2: 15%
  - Final: 30%
- Group Project: 30%, of which:
  - Draft report slides: 20%
  - Final report presentation and Peer Review: 10%

Textbook: The topic is changing so rapidly that there is no course textbook. Instead, lecture recordings will be provided along with lecture references and copies of the lecture figures. In addition, here are three open source online 'reference' textbooks you can consult:

1. *Introduction to Oceanography* by Paul Webb; https://rwu.pressbooks.pub/webboceanography/
2. *Introduction to Ocean Science* by Douglas Segar; https://www.reefimages.com/oceansci.php.
3. *Introduction to Physical Oceanography* by Robert Stewart; https://github.com/introocean/introocean-en/releases/download/v20200229/introocean-en-20200229.pdf

Homeworks are three quantitative assignments that are due one week after being assigned.

Field Trip: tour of the Smithsonian Natural History Museum (10th St. & Constitution Ave. NW) will be scheduled on a Saturday at 10am in early November (likely November 7). Natural History Museum is one of the amazing resources of the DC area.

Group Project The group project (GP) is designed to encourage critical thinking about real-world topics affecting the ocean, leveraging the diversity of expertise of this year's class. The GP teams will consist of groups of 4-5 students. It will culminate in a short (~7min) group presentation in the second to last week of the semester. Grades will reflect evaluation of the draft set of slides as well as the presentation. A project rubric will be provided to indicate grading criteria.

Exams: consist of two in-class midterm exams (the first is really just a quiz) covering the first and second thirds of the course and cumulative final exam. Each exam contains a factual portion and a portion devoted to applying physical principles to environmental problems. Practice exams will be provided.

No opportunities for **extra credit**. Sorry.

Some of your assignments will be collected via Turnitin on our course ELMS page. This tool can help you improve your writing and help me verify the integrity of student work: Turnitin Originality Checker for Students.

Grades will be determined solely by your learning assessment performance during the course (not curved).

Final Grade Cutoffs												
A+	96-100%	B+	84-87.9%	C+	72-75.9%	D+	61-64.9%					
A	92-95.9%	B	80-83.9%	C	68-71.9%	D	58-60.9%	F	<54.9%			
A-	88-91.9%	B-	76-79.9%	C-	65-67.9%	D-	55-57.9%					

All assessment scores will be posted on the course ELMS page. If you would like to review any of your grades (including the exams), or have questions about how something was scored, please email me to schedule a time for us to meet in my office.

I am happy to discuss any of your grades with you during office hours or by appointment. Formal grade disputes must be submitted in writing, within one week of grades being published in ELMS.

Online synchronous participation The course exists both in a traditional classroom setting and as an online synchronous course. I will make videos of all classes available via panopto. If you miss class because of ... family emergency, sickness, zombie attack, etc. please make an effort to review the missed class materials including the lecture recordings.

If you are ill and cannot take an exam, you must email me within 24h of the exam with an acceptable explanation. Notes from your parents, yourself, or a trusted friend will not be accepted. Exam make-ups must be arranged within one (1) week of the date the exam or quiz was given in class.

Late work will not be accepted for course credit (just too difficult for us to organize) so please plan to have all assessments submitted before the scheduled deadline.

Academic Accommodations: If you have a documented disability, you should contact Accessibility & Disability Services (0106 Shoemaker Hall). Each semester students with documented disabilities should apply to ADS for accommodation request forms which you provide to your professors as proof of your eligibility for accommodations. More information can be found on the ADS website: https://www.counseling.umd.edu/ads/

Vaccines and Masks: to reduce the spread of infectious disease we all need to be vaccinated (with a few authorized exceptions). Unless there's a serious disease outbreak I'll be unmasked so you can hear me clearly. Here's the link to the UMD policy: https://umd.edu/virusinfo/

Students should not be penalized because of **Religious Observances**. Students will be given an opportunity, whenever feasible, to make up within a reasonable time any academic assignment that is missed due to individual participation in religious

observances. We've tried to arrange the schedule to accommodate major conflicts but let us know in advance of any intended absences for religious observances, no later than the end of the schedule adjustment period.

Advance notification of any accommodation is especially important in connection with final exams, since failure to reschedule a final exam before the conclusion of the final examination period may result in loss of credits during the semester.

The student-administered **Honor Code** and **Honor Pledge** prohibits students from cheating on exams, plagiarizing papers, submitting the same paper for credit in two courses without authorization, buying papers, submitting fraudulent documents and forging signatures. On every examination, paper or other academic exercise not specifically exempted by the instructor, students must write and/or sign the following pledge:

I pledge on my honor that I have not given or received any unauthorized assistance on this assessment.

Compliance with the code is administered by the **Student Honor Council**, which strives to promote a community of trust on the College Park campus. Any instances of academic dishonesty will immediately be referred to the Honor Council.

Asking/answering questions is good -- it encourages active learning. Like most things though, it can be carried to excess at which point it is disruptive. Please be sensitive to the needs/interests of your fellow students.

Learning is hard. Everyone can benefit from advice on time management, note taking, and exam preparation. I encourage you to consider visiting http://ter.ps/learn and schedule an appointment with an academic coach. Sharpen your communication skills (and improve your grade) by visiting http://ter.ps/writing, and schedule an appointment with the campus Writing Center. Finally, if you just need someone to talk to, visit: http://www.counseling.umd.edu.

I look forward to a great semester! Dr. Jim Carton AOSC/UMD

The **Course Schedule** with details of topics and essential assignment is provided on the next page.

Weekly Schedule {PDFs and **panopto recordings will be made available on elms}.**

- **Homeworks**: three homeworks due Friday by class-time. Upload to elms.
- **Midterms:** two non-cumulative open-book in-class midterm exams-- in early October and mid-November. Practice exams on Wednesdays before each exam
- **Group projects:** 4-5 member groups explore one topic in more detail, practice oral communication, project management, etc.
- **Final Exam**: two-hour in-class cumulative final exam check testudo.umd.edu for date/time.

Week	Date	Lecture Topics	Lecure #	Assign/Due date
1	Sep 2-4	Introduction, history 1/2	L1,L2,L3	
	Sep 7: **Labor Day**			
2	Sep 9-11	history, marine geology: sediments	L4,L5	
3	Sep 14-18	water properties meteorology;	L6-L8	HW1 due 9/18
4	Sep 21-25	energy and water cycles, ocean dynamics	L9-L11	
5	Sep28-Oct2	ocean currents, polar oceans	L12-14	HW2 due 10/2
6	Oct 5-9	tropical oceans, wind waves Wed practice test	L15-L16	in class Exam #1 10/9
	Oct 12-13: **Fall break**			
7	Oct 14-16	tides, pollution	L17-L18	
8	Oct 19-23	coasts/estuaries, plankton	L19-L21	
9	Oct 26-30 Halloween	nekton, ecology	L22-L24	HW3 due Wed 10/28
10	Nov 2-6	carbon, marine law, Wed practice test	L25-L26	in class Exam #2 11/6
11	Nov 9-13	group project work session**, paleoclimate1-2	L27-L28	
12	Nov 16-20	climate3, PRESENTATION1	L29-L30	Slides due Nov16 **Presentations Nov20**
13	Nov23	PRESENTATION2		**Presentations Nov23**
	Nov 25-29: **Thanksgiving**			
14	Nov30-Dec4	climate 4-6	L31-L33	
15	Dec7-11	marine energy/carbon sequestration / practice final		
	Dec21?	**In-class open book Final {probably Monday, December 21} 10:30am - 12:30pm**		

** Pizza will be provided

Note: please monitor the course ELMS page for current deadlines. In the event of a prolonged university closing or an extended absence from the university, adjustments to the schedule, deadlines, and assignments will be made.

Syllabus Version History and Change Log

Version	Date	History/Changes