



Course Syllabus: Oceanography

McCoy College of Science, Mathematics, and Engineering
Lecture - GEOS 3034 Section 101
Fall 2023
MWF 9 - 9:50 am | Bolin Hall 125

[Course D2L Site](#)

Laboratory Sections

GEOS 3034 Section 11A: R 3 – 4:50 pm | Bolin Hall 125

Contact Information

Instructor: Dr. Steven J. Rosscoe
Office: Bolin Hall 131a / Pierce Hall 204 (after Nov. 1)
Office hours: MWF 10 – 11 am | T 9 am – 11 am | By Appointment
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Course Description

An introduction to the physical, chemical, geological, and biological processes of the oceans. Integration of tectonic biologic, ecologic, and chemical processes will be stressed. Topics include bathymetry, ocean currents, hurricanes, atmospheric circulation, chemical cycles, marine biology, and the history of ocean exploration. Labs include analysis of NASA and NOAA datasets.

Course Learning Objectives

The successful completion of this course will be evaluated around the following course learning objectives. Each of these course learning objectives include aspects of both content knowledge and skills development. Students will:

1. Learn the detailed geography of the world ocean and be able to explain the formation of the ocean basins.
2. Learn the landforms, geographic features, and sediments of the sea floor and be able to explain their formation and origin.
3. Be able to explain the major ocean processes like waves, currents, and tides and be able to relate them back to the principles of physics and chemistry.

4. Discuss the distribution and role of life in the world ocean and the relationship of that life with the physical environment and human activities.

Textbook & Instructional Materials

Required Textbooks:

Garrison, Tom and Ellis, Robert. 2016. Oceanography: An Invitation to Marine Science, 9th Edition. Cengage Learning. ISBN: 987-1-305-10516-4

Note: The tenth edition is out and a little cheaper. Go ahead and get that if you would like. I'll give pages/chapters for either edition.

Grading

The formal grade for this course is determined by your performance on lecture exams, online discussions, laboratory activities, and laboratory examinations

Table 1: Points allocated to each assignment type. For more details see assignment descriptions below.

Assignments (Quantity)	Points
Lecture Examinations (2)	200
Marine Biology Presentation (1)	100
Lab Activities (10)	200
Laboratory Exams (1)	50
Field Trip Notes/Report (1)	50
Total Points	600

Table 2: Total points for final grade.

Grade	Points
A	540 and up
B	480 to 539
C	420 to 479
D	360 to 419
F	Less than 360

Lecture Examinations (Online)

There will be a midterm exam and a final exam in this course. Each examination is worth 100 points. The midterm and final will focus on lecture content related to the study of oceanography. Each exam will consist of 50 multiple-choice questions (1 point each) and 5 essay questions (10 points each). Exams are given online through D2L. You will have three hours to complete each examination and will have one attempt (note: you must complete the exam once you start it). A ten-point essay question requires complete, grammatically correct, graduate-level writing. Each answer will need to be a minimum of ten

sentences in length if you expect to earn full credit. You must answer the question asked. Unrelated or off topic answers will not earn credit.

The examinations are open notes and open textbook. Do not use the internet. **The use of only your notes and your textbook are allowed.** No aid from any other source, including web resources, AI, or people is all allowed. Copying directly or paraphrasing the works of others as answers to these questions will be considered academic dishonesty and will result in the penalties ranging from getting a zero on the question to failing the course.

The midterm will be released on Friday October 20th, 2023, by 11:59 pm and will be due by Friday October 27th, 2023, at 11:59 pm. The midterm will cover all lecture material from weeks 1 through 8. The final will be released on December 8th, 2023, by 11:59 pm and will be due by December 11th, 2023, at 11:59 pm. The final will cover all lecture material from weeks 9 through 15 and may require knowledge from weeks 1 through 8 to completely answer questions. The final exam will also cover the material presented in group presentations.

Your final exam block for this course is December 11th from 8:00 am – 10:00 am. You are not required to be present during the exam block but I will be available, in my office, for you at this time if you have any last-minute questions or study help needs.

Marine Biology Presentation (Outside of Class/Group/Class Presentation)

A vital part about understanding the global ocean system is understanding the pivotal role that marine life plays in the ocean and overall Earth systems. A vital part of an undergraduate science education is learning how to process large volumes of material, determine what is important, and distill it down to an appropriate size for classroom instruction.

In week two of the semester you will be grouped (groups of two or three) randomly and assigned one of the chapters in Marine Biology to be presented at the end of the course. The presentation will need to be between 30 and 40 minutes in length and presented using PowerPoint.

- In lab on 10/12, each group will meet with Dr. Rosscoe to show an outline of their research and at least a rough outline of the presentation that they will be giving (20 points).
- The PowerPoint presentation must be uploaded as a .ppt or .pptx file by 11:59 pm on 11/20. It will be graded on content, organization, and overall appearance of the presentation (40 points).
- The MS Word examination questions must be uploaded as a .doc or .docx file by 11:59pm on 11/20. You must provide five five-choice multiple-choice questions and the correct answer. You must provide one ten-point essay question with a suggested answer as well (20 points).

- Presentations will be given on the date according to class schedule. Presentations will be graded on duration (30-40 minutes), ability to answer questions from the class, participation of the entire group, and delivery (evidence of practice and preparation) (20 points).

Table 3: The table shows checkpoints and deadlines for the group podcast marine biology presentation project.

Checkpoint/Deadline	Due Date	Format
Presentation Project Meetings	R 10/12	In Lab
PowerPoints and Exam Questions Due	F 11/20	File Uploads
Presentations in Class	12/01-08	In Class

Lab Activities (In Lab)

There are 10 formal labs that will be completed for this course. Each lab focuses on an aspect of the geography and geology of the oceans, the processes acting on the oceans, and the impact of climate change on the oceans. These labs are designed to build your comfort and skill in the terminology, analysis, and interpretation of the global ocean.

Each of the ten labs will be designed to build your experience with the skills and interpretations related to the week's lab materials. Each lab period will start with a brief introduction to the content and will be followed with time to work on the lab activity. The bulk of the lab activity is to practice and build skills and is not graded, a portion of the lab activity will be turned in for grading. At the start of the next laboratory period students will submit the graded activity to the instructor for grading.

Laboratory Examination (In Class)

There will be one laboratory examination at the end of the course. This examination is worth 50 points. This examination will evaluate your understanding of the lab materials presented through the semester. The examination will include specimens, maps/charts, and graphs. This examination will occur during our last laboratory meeting on December 7th, 2023, from 3:00 pm to 5:00 pm. It must be completed during this time as it is a material-based examination. This examination is open notes. You may use only your lab notes, course textbook, supplemental lab readings, and lab handouts. You may not use the internet, AI, or other people as you complete this examination.

Field Trip Notes and Report

Any geology course will have a vital field component. Our field trip for this course will bring us to the Arbuckle Mountains, in Oklahoma (Saturday, October 28, 2023). You must attend this field trip. More details on the field trip will be made available in D2L as the trip approaches. You will take detailed notes and submit your field notes to Dr. Rosscoe to be graded. You will also write a brief report

explaining what happened to sea-level over the time interval we investigated and how the rocks provide the evidence for that. More detailed instructions will be made available in D2L.

The field trip grade is distributed in the following manner: 10 points for attendance and active participation. 20 points for field notes. 20 points for the field report. The due date for the field notes and field report is 11/20 at 11:59 pm.

Late Work

Most assignments in this course have at least a week of lead time before their due dates. It is your responsibility to complete the assignment before the due date. If you have something that will prevent you from completing the assignment on the day it is due, get it done earlier. **No late work will be accepted.** Missed labs and examinations may be made up with a legal, paper-documented, excuse.

Make-Up Work/Tests

For legal, paper-documented excuses make-ups for labs and examinations can be completed. Make-up work should be arranged for in advance wherever possible. The instructor will give you a new deadline that is reasonable for the course timeline. **No make-up work (lecture or lab) will be allowed beyond 10 days past the original deadline.**

The group project cannot be made-up as it requires active participation in the group throughout the semester. While your group should work with your schedule to include you and reschedule meetings due to illness, if you do not participate at all you will not be able to make-up the assignment.

Note: You must complete the assignments, laboratories, and examinations presented in this syllabus. No substitute assignments will be allowed to compensate for poor performance or missed deadlines.

Instructor Class Policies

The following policies are the policies that are integral for our successful completion of the course and should be read thoroughly. If you have any questions, please see the instructor.

Academic Honesty

Academic dishonesty is considered cheating, collusion, and plagiarism. Any unauthorized assistance during the completion of assignments, using on aids beyond those authorized for an assignment, or the use of other people or services to complete assignments is considered cheating. Working with others in a way that is not authorized by the instructor to complete assignments is considered to be collusion. Plagiarism is the use of another person's materials (by paraphrase or direct quotation) without giving them full and clear

acknowledgement. The use of material prepared by another person or agency selling term papers and academic materials is also considered plagiarism.

The use of any artificial intelligence (AI) in completing course assignments is NOT allowed. AI in this sense is any technology that summarizes, writes, or answers questions on its own. Recent court rulings have allowed lawsuits to go forward against Chat GPT and other AI operators because it directly plagiarizes the works of others. College is about you learning to write, you developing your voice, and you learning how to process, summarize, and properly cite information. Any use of AI is considered a violation of this academic honesty policy.

If a student is caught cheating, colluding, or plagiarizing on any assignment the assignment grade will automatically be a zero. Two or more violations will result in failure of the course.

Classroom Civility (IMPORTANT)

Learning, especially in science, can be a very challenging process. Learning often requires putting yourself out there and being vulnerable. Science also happens to be at the forefront of information which may conflict with personal beliefs. Your beliefs are yours and nothing will change that, though those beliefs may not get you credit on the exam. We are focused on science and what understandings have been developed in the field. Additionally, no scientist thinks the same way as every other scientist. To develop the best understandings of our universe, we must seek input from all people in the field.

In my classroom, we strive to create an environment where everyone is respected and valued for who they are. We are all here together, learning together, and working toward the same goal. This is not a place for hate of any kind. The use of derogatory language, hate speech, or violence is absolutely unacceptable in this classroom and in any setting related to the course. Learn to work with and value all people. Be civil and treat each other with respect. Do your best to listen to each other, in any conversation. Use of derogatory language, hate speech, or violence will result in removal to the classroom or the course.

Dr. Rosscoe (me) is available to help if you have any concerns or questions about building a positive classroom environment. The campus also has numerous resources related to a safe and welcoming experience at MSU. Also, don't forget the MSU Safety App.

- [MOSAIC Cross Cultural Center](#): Works to create a campus community where all students feel included, affirmed, and successful.
- [Title IX Misconduct](#): Dating violence, sexual assault, sexual harassment, stalking, and other forms of sexual misconduct.

- [Bias Incident Reporting](#): Bias and hate incidents related to race, gender, or sexual identity.
- [Disability Grievance Procedures](#): Discrimination on the basis of disability.

COVID-19 and Illnesses

Since COVID-19, classroom health has been a necessary and probably long overdue focus. While there are no longer COVID-19 policies in place by the university the following procedures are scientific best practices. These same principles can be applied to any viral infection (flu, cold, etc.).

- If you become ill and have symptoms, get tested.
- If you are positive for COVID-19, stay home. It's good for your recovery and good for protecting your peers.
- Illness happens and if you absolutely must be in public, wear a mask. Even a cloth mask reduces the chance you will spread the illness to others.
- If you stay home or miss assignments, be sure to get a Doctor's note and excuse. It let's me help you make things up.

In the case of long-term illnesses or medical situations that will prevent you from attending classes regularly, contact the professor (me) as soon as possible. We will work together to make sure that you can succeed, just make sure it's Doctor-documented. I can't do much to help, if I don't know until the day before the semester ends.

Electronic Devices

Use of electronic devices for taking notes is allowed in my classroom. Recording (audio or video) is not allowed unless approved by the instructor for educational purposes. The use of social media or streaming anything is not an appropriate use of technology during class. If your use of technology is non-educational or is being disruptive to your peers, you will be asked to leave.

Course Grade and Grade Bumps

In my courses, a grade is earned by accumulating points throughout the semester. The grade you earn in the course is determined by the number of points you earn through the timely completion of assignments. As such, at the end of the semester, there are no grade bumps given out. Do not ask how or if you can be bumped up to the next letter grade, if you haven't earned the points you will not be able to get that grade.

If you believe there to be an error in the calculation of your grade, whether it is on a specific assignment or the whole course feel free to ask me to re-evaluate and double check. I will do so happily. For specific assignments, be prepared to give me specific reasons you feel the grade is wrong (which wrong answer do you think was right, etc.).

Desire-to-Learn (D2L)

Extensive use of the MSU D2L learning management system is required in this course. Each student is expected to be familiar with this program as it provides a primary source of communication regarding assignments, examination materials, and general course information. You can log into D2L through the MSU Homepage. If you experience difficulties, please contact the technicians listed for the program or contact your instructor.

Computer Requirements

Taking this course involves the completion of all lecture exams, reading quizzes, and discussions in the course learning management system (D2L). This class requires you to have access to a computer (with Internet access) to complete and upload your assignments. It is your responsibility to have (or have access to) a working computer in this class. **Assignments and tests are due by the due date, and personal computer technical difficulties will not be considered a reason for the instructor to allow students extra time to submit assignments, tests, or discussion postings.** Computers are available on campus in various areas of the buildings as well as the Academic Success Center. **Your computer being down is not an excuse for missing a deadline!!** There are many places to access your class! Our online classes can be accessed from any computer in the world which is connected to the internet. Contact your instructor immediately upon having computer trouble. If you have technical difficulties in the course, there is also a student helpdesk available to you. The college cannot work directly on student computers due to both liability and resource limitations however they are able to help you get connected to our online services. For help, log into D2L.

University Policies and Information

The following information and policies apply to this course. Please read each of these policies and ask your instructor if you have any questions.

Important Dates

Last day for term schedule changes: August 31, 2023

Deadline to file for December graduation: September 25, 2023

Deadline to file for May graduation: October 2, 2023

Last Day to drop with a grade of "W:" October 30, 2023

Attendance

Students are expected to attend all meetings of the classes in which they are enrolled. Although in general students are graded on intellectual effort and performance rather than attendance, absences may lower the student's grade where class attendance and class participation are deemed essential by the faculty member. In those classes where attendance is considered as part of the grade, the instructor should so inform students of the specifics in writing at the beginning of the semester in a syllabus or separate attendance policy statement.

An instructor who has an attendance policy must keep records on a daily basis. The instructor must give the student a verbal or written warning prior to being dropped from the class. Instructor's records will stand as evidence of absences. A student with excessive absences may be dropped from a course by the instructor. Any individual faculty member or college has the authority to establish an attendance policy, providing the policy is in accordance with the General University Policies.

Change of Schedule

A student dropping a course (but not withdrawing from the University) within the first 12 class days of a regular semester or the first four class days of a summer semester is eligible for a 100% refund of applicable tuition and fees. Dates are published in the Schedule of Classes each semester.

Refund and Repayment Policy

A student who withdraws or is administratively withdrawn from Midwestern State University (MSU) may be eligible to receive a refund for all or a portion of the tuition, fees and room/board charges that were paid to MSU for the semester. HOWEVER, if the student received financial aid (federal/state/institutional grants, loans and/or scholarships), all or a portion of the refund may be returned to the financial aid programs. As described below, two formulas (federal and state) exists in determining the amount of the refund. (Examples of each refund calculation will be made available upon request).

Services for Students with Disabilities

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable accommodations to ensure equal opportunity for qualified persons with disabilities to participate in all educational, social, and recreational programs and activities. After notification of acceptance, students requiring accommodations should make application for such assistance through Disability Support Services, located in the Clark Student Center, Room 168, (940) 397-4140. Current documentation of a disability will be required in order to provide appropriate services, and each request will be individually reviewed. For more details, please go to [Disability Support Services](#).

Campus Carry Rules/Policies

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. The new Constitutional Carry law does not change this process. Concealed carry still requires a License to Carry permit, and openly carrying handguns is not allowed on college campuses. For more information, visit [Campus Carry Rules and Policies](#)

Active Shooter

The safety and security of our campus is the responsibility of everyone in our community. Each of us has an obligation to be prepared to appropriately respond to threats to our campus, such as an active aggressor. Please review the information provided by MSU Police Department regarding the options and strategies we can all use to stay safe during difficult situations. For more information, visit [Safety / Emergency Procedures](#).

Smoking/Tobacco Policy

College policy strictly prohibits the use of tobacco products in any building owned or operated by MSU. Adult students may smoke only in the outside designated-smoking areas at each location.

Alcohol and Drug Policy

To comply with the Drug Free Schools and Communities Act of 1989 and subsequent amendments, students and employees of Midwestern State are informed that strictly enforced policies are in place which prohibits the unlawful possession, use or distribution of any illicit drugs, including alcohol, on university property or as part of any university-sponsored activity. Students and employees are also subject to all applicable legal sanctions under local, state and federal law for any offenses involving illicit drugs on University property or at University-sponsored activities.

Grade Appeal Process

Following the appropriate procedure for grade appeals requires you to speak to your instructor first, so talk to your instructor. Students who wish to appeal a grade should consult the Midwestern State University [Undergraduate Catalog](#).

Course Schedule

Notice: Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor. All lab activities are due by the start of your lab session the week following the in-class activity. All lab exams are due at the end of the lab period of the exam.

Week	Monday (Lec.)	Wednesday (Lec.)	Friday (Lec.)
Lab Meetings			
<u>Week 1</u> 8/28 to 9/1	Introduction <i>No Reading</i>	Exploring Oceans <i>GE Chapter 2</i>	Science of the Sea <i>GE Chapter 2</i>
No Laboratory Meeting <i>First Week of Classes</i>			
<u>Week 2</u> 9/4 to 9/8	No Class <i>Labor Day</i>	Origin of Earth/Ocean <i>GE Chapter 1</i>	Origin of Earth/Ocean <i>GE Chapter 1</i>
<u>Lab 01</u> – Geography of the World Ocean			
<u>Week 3</u> 9/11 to 9/15	Plate Tectonics <i>GE Chapter 3</i>	Plate Tectonics <i>GE Chapter 2</i>	<i>Opening Oceans</i> <i>GE Chapter 2</i>
<u>Lab 02</u> – Oceans and Plate Boundaries			
<u>Week 4</u> 9/18 to 9/22	Closing Oceans <i>GE Chapter 2</i>	Mapping the Seafloor <i>GE Chapter 4</i>	The Ocean Margins <i>GE Chapter 4</i>
<u>Lab 03</u> – Geography of the Seafloor			
<u>Week 5</u> 9/25 to 9/29	The Deep <i>GE Chapter 4</i>	The Ocean Crust <i>GE Chapter 5</i>	Oceanic Sediments <i>GE Chapter 5</i>
<u>Lab 04</u> – Materials of the Seafloor (Crust and Sediment)			
<u>Week 6</u> 10/2 to 10/6	Water is Weird <i>GE Chapters 6, 7</i>	Water is Weird <i>GE Chapters 6, 7</i>	Water is Weird <i>GE Chapters 6, 7</i>
<u>Lab 05</u> – Chemistry of Seawater			
<u>Week 7</u> 10/9 to 10/13	Atmosphere-Ocean <i>GE Chapter 8</i>	Atmosphere-Ocean <i>GE Chapter 8</i>	Atmosphere-Ocean <i>GE Chapter 8</i>
<u>Lab 06</u> – Connections (Earth-Atmosphere-Ocean)			
<u>Week 8</u> 10/16 to 10/20	* Atmosphere Ocean <i>GE Chapter 8</i>	* Atmosphere-Ocean <i>GE Chapter 8</i>	Wrap-Up/Review <i>GE Chapters 1-8</i>
No Laboratory Meeting <i>Dr. Rosscoe at GSA Meeting</i>			

*Note: Dr. Rosscoe will be attending and presenting at GSA Connects in Pittsburgh, PA during week 8. Lectures on M/W will be provided as video lectures in D2L. There will be no laboratory meeting in Week 8.

Course Schedule Continued

Notice: Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor. All lab activities are due by the start of your lab session the week following the in-class activity. All lab exams are due at the end of the lab period of the exam.

Week	Monday (Lec.)	Wednesday (Lec.)	Friday (Lec.)
	Lab Meetings		
<u>Week 9</u> 10/23 to 10/27	Surface Currents <i>GE Chapter 9</i>	Surface Currents <i>GE Chapter 9</i>	Deep Currents <i>GE Chapter 9</i>
	<u>Lab 07</u> – Global Temperature Change		
	<i>10/28/2023 – Arbuckles Field Trip (8 am – 6 pm)</i>		
Week 10 10/30 to 11/3	Waves <i>GE Chapter 10</i>	Waves <i>GE Chapter 10</i>	Waves <i>GE Chapter 10</i>
	<u>Lab 08</u> – Global Sea-Level Rise		
Week 11 11/6 to 11/10	Tides <i>GE Chapter 11</i>	Tides <i>GE Chapter 11</i>	Tides <i>GE Chapter 11</i>
	<u>Lab 09</u> – Global Ice Volume and Extent		
Week 12 11/13 to 11/17	Coasts <i>GE Chapter 12</i>	Coasts <i>GE Chapter 12</i>	Marine Resources <i>GE Chapter 17</i>
	<u>Lab 10</u> – Climate Change and Ocean Chemistry		
Week 13 11/20 to 11/24	Marine Resources <i>GE Chapter 17</i>	No Class <i>Thanksgiving</i>	No Class <i>Thanksgiving</i>
	No Laboratory Meeting <i>Thanksgiving Holiday</i>		
Week 14 11/27 to 12/1	Environment. Issues <i>GE Chapter 18</i>	Environment. Issues <i>GE Chapter 18</i>	Life in the Ocean <i>GE Ch. 13</i>
	<u>Lab Exam Review</u> – Review Session		
Week 15 12/4 to 12/8	Primary Producers <i>GE Ch. 14</i>	Marine Animals <i>GE Ch. 15</i>	Marine Communities <i>GE Ch. 16</i>
	Laboratory Final Examination <i>During Lab Meeting Time</i>		
Final 12/13	Final Exam Block: Mon. Dec. 11, 8:00 am – 10:00 am		

Course Dates in Chronological Order

The following table lists the due dates of each assignment in the course.

Date	Assignment
R 09/14	Lab 1 – Geography of the World Ocean (Due 3:00 pm)
R 09/21	Lab 2 – Oceans and Plate Boundaries (Due 3:00 pm)
R 09/28	Lab 3 – Geography of the Seafloor (Due 3:00 pm)
R 10/05	Lab 4 – Materials of the Seafloor (Due 3:00 pm)
R 10/12	Lab 5 – Chemistry of Seawater (Due 3:00 pm) Presentation Project Meetings (by 6:00 pm)
F 10/20	Lecture Midterm Examination Releases (11:59 pm)
R 10/26	Lab 6 – Connections (Earth-Atmosphere-Ocean) (Due 3:00 pm)
F 10/27	Lecture Midterm Examination (Due 11:59 pm)
S 10/28	Field Trip – Arbuckles Mountains (8 am to 6:00 pm)
R 11/02	Lab 7 – Global Temperature Change (Due 3:00 pm)
R 11/09	Lab 8 – Global Sea-Level Rise (Due 3:00 pm)
R 11/16	Lab 9 – Global Ice Volume and Extent (Due 3:00 pm)
M 11/20	Group Presentation PowerPoints & Exam Questions (Due 11:59 pm) Field Trip Notes and Report (Due 11:59 pm)
R 11/30	Lab 10 – Climate Change and Ocean Chemistry (Due 3:00 pm)
F 12/01	Group 1 Presentation – Life in the Oceans (Starts 9:00 am)
M 12/04	Group 2 Presentation – Primary Producers (Starts 9:00 am)
W 12/06	Group 3 Presentation – Marine Animals (Starts 9:00 am)
F 12/08	Group 4 Presentation – Marine Communities (Starts 9:00 am)
R 12/07	Laboratory Final Examination (Due 5:00 pm)
F 12/08	Lecture Final Examination Releases (11:59 pm)
M 12/11	Lecture Final Examination (Due 11:59 pm)