Syllabus MARS 102: Earth and Ocean Science
Galveston Fall 2021

Course Information
Course Number: MARS 102
Course Title: Earth and Ocean Sciences
Section: 401-408
Time: 10:40 to 11:30 am on M, W and F
Locations and times: Face-to-Face CLB 100
Remote access with Zoom (link available through eCampus)
Join Zoom Meeting https://tamu.zoom.us/j/97625173199?pwd=OGlsMWYrM1dkNHJhT3hzODJyQmxLQT09
Meeting ID: 976 2517 3199, Passcode: 123456
Credit Hours: 4 Credit hours

Instructor Details
Instructor: Dr. Pete van Hengstum
Office: OCSB 383
Phone: 1.409.740.4919
E-Mail: vanhenp@tamug.edu
Office Hours: 12-1 pm, Mondays. OCSB 383, or Email to set up a Zoom meeting.

Teaching Assistants
Teaching Assistant offices hours and Zoom Meeting link will be in eCampus
1. Annie Tamalavage (atamalavage91@tamu.edu): Sections 402, 407, 408
2. Lydia Mcdonald (lmmcdonald@tamu.edu): Sections 404, 406, 409
3. Nick Wellbrock (nbwellbrock68@tamu.edu): Sections 401, 403, 405

R Studio Software Support
4. Sergey Molodtsov (sergey.molodtsov@tamu.edu). Sergey will hold office hours twice a week through Zoom to support R Studio component of laboratory exercises. See eCampus for Zoom Meeting Link.

*See eCampus for Hand out on Teaching Assistant Office Hours [Lefthand Toolbar | Communication Tools]

Course Description
Introduction to Earth systems analysis, plate tectonic framework; Earth and ocean structure and chemistry, ocean and atmospheric circulation; global carbon and hydrologic cycles; focus on Earth systems interactions in the coastal zone; primary productivity and oceanic life; human modification and dependence on Earth system components; climate change analysis.

Course Prerequisites
None.

Course Learning Outcomes
1. Differentiate primary components of the Earth System (i.e., atmosphere, hydrosphere, cryosphere, lithosphere, biosphere), and predict their operation and interaction.
2. Evaluate how plate tectonics is critical to the Earth System, and its impact on global hazards and processes.
3. Summarize major physical and biological processes operating in the ocean.
4. Develop and communicate conceptual models of the ocean and Earth system interactions.
5. Create and analyze basic quantitative data about the Earth system.
6. Discover how humans actively influence global change.
7. Analyze and deconstruct Earth system interactions in the coastal zone.
8. Understand and predict basic mechanisms of climate functioning and change.
9. Defend and communicate (oral and written) hypotheses of Earth system interactions.

Textbook and/or Resource Materials

Required Text
   Notes: More technical on chemistry and physics., great emphasis on interdisciplinary aspects.

Recommended Texts (x2). These will be available on 2-hr reserve in the library

Grading Policy

Grading: A: 100-85, B: 75-84, C: 65-74, D: 64-55, F: <55
Laboratory Assignments (7 & 5%) 35% total (Divided among all exercises)
eCampus quizzes (6 available, 5 best * 2%) 10%
Test 1 10%
Test 2 10%
Test 3 10%
Final Exam 25%
Total 100%

Late Work Policy

Labs: The deliverables for laboratory exercises are expected to be submitted on the established deadline. Late work is not accepted, which is submitted a deliverable after the established deadline. Work submitted by a student as a makeup for an excused absence is not considered late work and is exempted from the late work policy (see Student Rule 7).

eCampus Quizzes: These quizzes are available in eCampus for several days prior to their closure for submission. It is the students responsibility to anticipate their own schedule needs, and complete the work in advance of the deadline. For example, an excused absence on a Friday for a university-sponsored activity means a student should submit the eCampus Quiz on the day prior to their absence.

Optional Course Information Items

1. R Studio Software Support
A tutor is available to you to help you with learning the software R Studio: Sergey Molodtsov (PhD Student in Oceanography). Free R Studio Download [https://rstudio.com/products/rstudio/download/](https://rstudio.com/products/rstudio/download/)

2. Tutor in the Library
A tutor is available to specifically discuss any academic issue that you may find challenging to understand. This is another resource that is available at any time. Schedule an appointment to get help from a tutor. (1) Log-in to Howdy, or (2) go to tutortrac.tamug.edu
   • Tutor for Fall 2021 semester: To be announced

Laboratory Sections (401 to 409)
   • Laboratory times, and schedule, and Teaching Assistants to be announced prior to course commencement.
<table>
<thead>
<tr>
<th>Week of</th>
<th>Day</th>
<th>Lecture Subject (3 contact hours weekly)</th>
<th>Readings</th>
<th>eCampus Quiz</th>
<th>Tests</th>
<th>Laboratory Topics (2 contact hrs weekly)</th>
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</table>
| Week 1  | W F | 1. Intro (first day of class)  
2. Minerals I  
3. Earth’s Interior  
4. Plate Tectonics | Chaps 1-4, & 19, Plummer | | | No Meeting |
| Week 2  | M W F | 2. Minerals II  
3. Earth’s Interior  
4. Plate Tectonics  
5. Earth Materials I  
6. Marine Geography | Chaps 1-4, & 19, Plummer | Q1 | | LAB 1 Minerals A |
| Week 3  | M W F | 5. Earth Materials I  
6. Marine Geography  
7. Marine Sediment  
8. Seawater  
9. The Atmosphere I | Chap 3 T&T | Q2 | | Lab 1 (Minerals B) |
| Week 4  | M W F | 9. The Atmosphere II  
10. Hurricanes  
11. Ocean Circulation I  
13. Waves  
14. Tides  
15. Fluvial landscapes | Chap 4, 5, 6 T&T | | Wednesday, September 9  
Test 1, OCSB 142  
6:30 – 8:30 pm | Lab 2 (Rocks A) |
| Week 5  | M W F | 16. Groundwater  
17. The Cryosphere  
18. Coasts I  
19. Coasts II  
20. Coastal & Acidification  
21. Life in the Sea  
22. Primary Producers | Chap 9 T&T  
Chap 10, Plummer | Q3 | | Review |
| Week 6  | M W F | 23. Primary Producers  
24. Zooplankton | Chap 8 & 9 Townsend | | Wednesday, September 30  
Test 2, OCSB 142  
6:30 – 8:30 pm | Lab 4 Abstract Analysis |
| Week 7  | M W F | 25. Marine Invertebrates  
26. Concepts of Time | Chap 10 & 11 Townsend | Q4 | | Lab 5 Coastal systems |
| Week 8  | M W F | 27. Climate Change I  
28. Climate Change II  
29. Climate Change III | Chap 21 Plummer | | Wednesday, October 21  
Test 3, OCSB 142  
6:30 – 8:30 pm | Lab 6 Upwelling & Productivity |
| Week 9  | M W F | 30. Climate Change IV  
31. Reading Day (no class)  
32. Thanksgiving Holiday | | | | |
34. Reps., Birds, Mams. | Chap 13 Townsend | | | Lab 8 Island Project |
| Week 11 | M W F | 35. Marine Invertebrates  
36. Fish & Fisheries I  
37. Fish & Fisheries II | Chap 10 & 11 Townsend | Q5 | | Lab 8 Island Project |
| Week 12 | M W F | 38. Reps., Birds, Mams.  
39. Concepts of Time | Chap 13 Townsend | | | Lab 8 Island Project |
| Week 13 | M W F | 40. Climate Change I  
41. Climate Change II  
42. Climate Change III | Chap 21 Plummer | Q6 | | Lab 8 Island Project |
| Week 14 | M W F | 43. Climate Change IV  
44. Reading Day (no class)  
45. Thanksgiving Holiday | | | | |
| Week 15 | M W F | 46. Exam Review  
47. Re-defined Day | | | | |

**FINAL Exam**  
Tuesday, 8 December 2020, 11:00 am to 1:30 am
University Policies

Attendance Policy
The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments. Please refer to Student Rule 7 in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy
Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student’s grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor. Please refer to Student Rule 7 in its entirety for information about makeup work, including definitions, and related documentation and timelines. Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor” (Student Rule 7, Section 7.4.1). “The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence” (Student Rule 7, Section 7.4.2). Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See Student Rule 24.)

Academic Integrity Statement and Policy
“An Aggie does not lie, cheat or steal, or tolerate those who do.” “Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one’s work, should the instructor request it, is sufficient grounds to initiate an academic dishonesty case” (Section 20.1.2.3, Student Rule 20). You can learn more about the Honor Council Rules and Procedures as well as your rights and responsibilities at tamug.edu/HonorSystem.

Americans with Disabilities Act (ADA) Policy
Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources in the Student Services Building or at (409) 740-4587 or visit tamug.edu/counsel/Disabilities. Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Title IX and Statement on Limits to Confidentiality
Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see University Rule 08.01.01.M1):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, you will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University’s goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.
Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with the
Counseling Office in the Seibel Student Center, or call (409)740-4587. For additional information, visit
tamug.edu/counsel.
Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX
investigation and resolution process on the Galveston Campus’ Title IX webpage.

Statement on Mental Health and Wellness
Texas A&M University recognizes that mental health and wellness are critical factors that influence a student’s
academic success and overall wellbeing. Students are encouraged to engage in proper self-care by utilizing the
resources and services available from the Counseling Center. Students who need someone to talk to can call
(409) 740-4736 from 8:00 a.m. to 5:00 p.m. weekdays or visit tamug.edu/counsel for more information. For 24-
hour emergency assistance during nights and weekends, contact the TAMUG Police Dept at (409) 740-4545.

Galveston Campus Policies
Classroom Access and Inclusion Statement
Texas A&M University is committed to engaged student participation in all of its programs and courses and
provides an accessible academic environment for all students. This means that our classrooms, our virtual
spaces, our practices and our interactions are as inclusive as possible and we work to provide a welcoming
instructional climate and equal learning opportunities for everyone. If you have an instructional need, please
notify me as soon as possible.
The Aggie Core values of respect, excellence, leadership, loyalty, integrity and selfless service in addition to
civility, and the ability to listen and to observe others are the foundation of a welcoming instructional climate.
Active, thoughtful and respectful participation in all aspects of the course supports a more inclusive classroom
environment as well as our mutual responsibilities to the campus community.

Statement on the Family Educational Rights and Privacy Act (FERPA)
FERPA is a federal law designed to protect the privacy of educational records by limiting access to these
records, to establish the right of students to inspect and review their educational records and to provide
guidelines for the correction of inaccurate and misleading data through informal and formal hearings.
Currently enrolled students wishing to withhold any or all directory information items may do so by going to
howdy.tamu.edu and clicking on the "Directory Hold Information” link in the Student Records channel on the
MyRecord tab. The complete FERPA Notice to Students and the student records policy is available on the
Office of the Registrar webpage.
Items that can never be identified as public information are a student’s social security number, citizenship,
gender, grades, GPR or class schedule. All efforts will be made in this class to protect your privacy and to
ensure confidential treatment of information associated with or generated by your participation in the class.
Directory items include name, UIN, local address, permanent address, email address, local telephone number,
permanent telephone number, dates of attendance, program of study (college, major, campus), classification,
previous institutions attended, degrees honors and awards received, participation in officially recognized
activities and sports, medical residence location and medical residence specialization.

Statement on Course Evaluations
Texas A&M will use an online course evaluation tool through AEFIS (Assessment, Evaluation, Feedback &
Intervention System). We highly encourage you to complete an evaluation for each course on your schedule.
Student input is a critical component used to improve curriculum and teaching. Each faculty member values
your input to improve his/her methodology. Your comments can also significantly impact the mix and
membership of faculty. The course evaluations will be available through TAMU.AEFIS.NET and you will
receive an email notification with a direct link to the system when the course evaluation becomes available.