GEOL 1350 Introduction to Oceanography
Syllabus Fall 2015

This course satisfies the University of Arlington core curriculum requirements in Life and Physical Sciences.

Instructor: Arne Winguth, Associate Professor
Office Number: Rm GS 238

Office Telephone Number: 817-272-2977

Email Address: awinguth@uta.edu
Faculty Profile: https://www.uta.edu/profiles/arne-winguth
Office Hours: Tuesday & Thursday 13:30 -14:00 or after appointment

Teaching Assistant: Nguyen Cao
Email Address: ncao@mavs.uta.edu
Office Hours: Monday & Tuesday 11:00 -12:00 or after appointment

Section Information:
Lecture GEOL1350-001
Lab GEOL1350-011

Time and Place of Class Meetings:
Lecture: Tuesday & Thursday 12:30 – 13:20 Geosciences Room 104
Lab: Tuesday, 14:00 – 15:50, Geosciences Room 246

Description of Course Content: This course is a general introduction into marine sciences including marine geology, biology, chemistry, and physics. Fieldtrips on nearby lakes are included.

Student Learning Outcomes: After completion of this class, students will be familiar with the key terminology pertaining to the oceans and will have a well-rounded understanding of the major geological, biological, chemical, and physical process in oceanography as well as the complex interactions among the various components of the climate system. The student will be able to:
Identify reasons why sustainable practices regarding ocean resources (e.g. fisheries, hydrocarbons) are important and affect, e.g., our lives and the world economy.

Explain the theory of plate tectonics and its relationship to the formation of major features of the seafloor.

Summarize the major physical and chemical properties of seawater and how each affects marine life.

Understand the feedbacks of the ocean’s processes with processes in other components of the Earth’s climate system (atmosphere, terrestrial biosphere, cryosphere, and geosphere).

Analyze the atmospheric and the oceanic circulation system.

Describe the principles involved in the generation of waves and tides and evaluate their effects on coastal processes and marine ecosystems.

Evaluate environmental problems due to oil spills, toxic waste, toxic algae blooms, and invasive species and discuss strategies to reduce these problems.

Explain the relationship between plants and animals in the ocean and how they affect the cycling of carbon among the ocean, atmosphere and sediments.

Identify the consequences of a rise in sea level on the coastal zone and society, and possible mitigation and adaptation strategies.

Identify major factors leading to climate change, and assess future climate projections.

Discuss the societal relevance of marine sciences for global initiatives and political decisions.

This knowledge will enable the students to better understand topics of great societal importance, such as future climate change, marine resources, tsunamis, large-scale pollution, and environmental sustainability.


**Descriptions of major assignments and examinations:** Major course requirements are weekly homework assignments in which students present the results, examinations, and quizzes.

**Attendance:** At The University of Texas at Arlington, taking attendance is not required. As the instructor of this course, attendance at class meetings is not required but strongly encouraged.

**Grading:**

- Lecture Portion: 70% of course
- Lab Portion including signature project: 30% of course
Lab Portion: 20% of course
Signature Assignment 10% of course

Lecture Portion:
  Quizzes (Top 2) 5% of course (2.5% each)
  Exams (3) 45% of course (15% each)
  Final Exam 20% of course

Final grade calculation:
0.20 x lab + 0.10 x signature project + 0.05 x quizzes + 0.45 x exams + 0.20 x final exam
Score will be translated into a grade based on class average. Maximum average grade of each category will be no more than 100%.

Grades will not be released over the phone or by email. Grades must be either obtained in person or from the UTA online database.

Exams will be multiple-choice questions and problem solving questions. There are no early exams.

Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels; see “Student Support Services” below.

Make-up Exams: Make-up exams can be only taken in cases of illness or family emergency. A note from the University disciplinary officer or doctor may be required in these cases. Students who do not take an exam receive zero points as a grade on that exam. Make-up exams are scheduled and set by the instructor.

Quizzes: Lecture quizzes are not announced. The 2 best quizzes out of 4 will be counted towards the total grade. There are no make-up quizzes.

Extra Credits: Participation in lecture tool quizzes will count as max. 3% extra credit towards the final lecture grade. Other extra credit opportunities will be announced during the lecture.

Fieldtrip (recommended): Fieldtrip is recommended for the signature project. Participation will result in one extra lab.

Homework: Nine homework assignments as part of the lab section will be given throughout the semester. Maximum average grade of all labs will be no more than 100%. Late homework will lead to point deductions (10% per day).
Teamwork: Teamwork is encouraged to stimulate scientific discussion in lecture and lab. Teamwork is allowed in the lab and for the signature project. Maximum team size is 3 students.

Oceanography Research Project (signature project): A signature research assignment in the area of oceanography is part of the core curriculum assessment and is designed to stimulate critical thinking skills, teamwork skills, communication skills, and empirical and quantitative skills. Physical and biogeochemical measurements (e.g. temperature, salinity, oxygen, nutrients) from the lake fieldtrip will be analyzed as part of the project. Total report length for each team will be 5 pages including at least 3 written pages, figures and references, letter size, 1.5-spaced, 12 pt. times new roman font. Each team will present the project in a 10-minute presentation. Each team member will individually present his/ her project part. Total length of team presentation will be a 10-minute presentation. Identical copy of a term paper from web or other sources (plagiarized papers or web pages) will result in an F.

Expectations for Out-of-Class Study: A general rule of thumb is this: for every credit hour earned, a student should spend 3 hours per week working outside of class. Hence, a 3-credit course might have a minimum expectation of 9 hours of reading, study, homework, etc.

Grade Grievances: Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog: http://catalog.uta.edu/academicregulations/grades/#undergraduatetext for graduate courses, see http://catalog.uta.edu/academicregulations/grades/#graduatetext.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. Students will not be automatically dropped for non-attendance. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/ao/aoa/).

Americans with Disabilities Act: UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA), and Section 504 of the Rehabilitation Act. All
instructors at UT Arlington are required by law to provide “reasonable accommodations” to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the **Office for Students with Disabilities (OSD)**. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:  
**The Office for Students with Disabilities, (OSD)** [www.uta.edu/disability](http://www.uta.edu/disability) or calling 817-272-3364.  
**Counseling and Psychological Services, (CAPS)** [www.uta.edu/caps/](http://www.uta.edu/caps/) or calling 817-272-3671.

**Title IX:** The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit [uta.edu/eos](http://uta.edu/eos). For information regarding Title IX, visit [www.uta.edu/titleIX](http://www.uta.edu/titleIX).

**Academic Integrity:** Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

> I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.  
> I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents’ Rule* 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University.

**Lab Safety Training (required):** Students registered for this course must complete all required lab safety training prior to entering the lab and undertaking any activities. Once completed, Lab Safety Training is valid for the remainder of the same academic year (i.e., through the following August) and must be completed anew in subsequent years. There are no exceptions to this University policy. Failure to complete the required training will preclude participation in any lab activities, including those for which a grade is assigned.
**Electronic Communication:** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at [http://www.uta.edu/oit/cs/email/mavmail.php](http://www.uta.edu/oit/cs/email/mavmail.php).

**Student Feedback Survey:** At the end of each term, students enrolled in classes categorized as “lecture,” “seminar,” or “laboratory” shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit [http://www.uta.edu/sfs](http://www.uta.edu/sfs).

**Final Review Week:** A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabus. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Emergency Exit Procedures:** Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities. More details: UT Arlington Procedure 7-6: Emergency/Fire Evacuation Procedures ([https://www.uta.edu/policy/procedure/7-6](https://www.uta.edu/policy/procedure/7-6)].

**Student Support Services:** UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their
courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

The English Writing Center (411LIBR): Hours are 9 am to 8 pm Mondays-Thursdays, 9 am to 3 pm Fridays and Noon to 5 pm Saturdays and Sundays. Walk In Quick Hits sessions during all open hours Mon-Thurs. Register and make appointments online at http://uta.mywconline.com. Classroom visits, workshops, and advanced services for graduate students and faculty are also available. Please see www.uta.edu/owl for detailed information.

Emergency Phone Numbers  In case of an on-campus emergency, call the UT Arlington Police Department at 817-272-3003 (non-campus phone), 2-3003 (campus phone). You may also dial 911.

For non-emergencies, contact the UTA PD at 817-272-3381

Librarian to Contact: Antoinette Nelson (nelsona@uta.edu)

Other important library information

Library Home Page .............................. http://www.uta.edu/library
Subject Guides ................................. http://libguides.uta.edu
Subject Librarians ............................... http://www.uta.edu/library/help/subject-librarians.php
Database List ................................. http://www.uta.edu/library/databases/index.php
Course Reserves ............................... http://pulse.uta.edu/vwebv/enterCourseReserve.do
Library Tutorials ............................... http://www.uta.edu/library/help/tutorials.php
Connecting from Off-Campus ........... http://libguides.uta.edu/offcampus
Ask A Librarian ............................... http://ask.uta.edu
Course Schedule Version 08/10/15

“As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.” – Arne M.E. Winguth

<table>
<thead>
<tr>
<th>Week</th>
<th>Days</th>
<th>Topics and Readings</th>
<th>Reading Chapter</th>
<th>Lab Section¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aug. 27</td>
<td>Historical Review of Oceanography</td>
<td>Prologue</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Sept. 1</td>
<td>Physiography of the Sea</td>
<td>1</td>
<td>Introduction</td>
</tr>
<tr>
<td></td>
<td>Sept. 3</td>
<td>Plate Tectonics and Volcanism</td>
<td>2</td>
<td>#1 Bathymetry</td>
</tr>
<tr>
<td>1. Exam</td>
<td>Sept. 15</td>
<td>Chapter 1-3</td>
<td>#2 Plate Tectonics</td>
<td></td>
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<tr>
<td>4</td>
<td>Sept. 17</td>
<td>Sea Floor and Sediments</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Sept. 22, 24</td>
<td>Physical Properties of Seawater</td>
<td>4</td>
<td>#3 Sedimentation</td>
</tr>
<tr>
<td>6, 7/8</td>
<td>Sept. 29, Oct. 1</td>
<td>Marine Chemistry</td>
<td>5</td>
<td>#4 Properties of Seawater</td>
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<tr>
<td></td>
<td>Oct. 6, 8, 15</td>
<td>Atmospheric Circulation &amp; Climate Change</td>
<td>6</td>
<td>#5 Marine Chemistry</td>
</tr>
<tr>
<td>2. Exam</td>
<td>Oct. 13</td>
<td>Chapter 4-6</td>
<td>Project Q&amp;A</td>
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<tr>
<td>9</td>
<td>Oct. 20, 22</td>
<td>Wind-driven Surface Circulation</td>
<td>7</td>
<td>#6 Weather &amp; Climate lab</td>
</tr>
<tr>
<td>10</td>
<td>Oct. 27</td>
<td>Deep Sea Circulation - Flywheel of the Climate</td>
<td>7</td>
<td>#7 Ocean currents</td>
</tr>
<tr>
<td>10/11</td>
<td>Oct. 29, Nov. 3</td>
<td>Waves and Tsunamis</td>
<td>8</td>
<td>#8 Wave tanks</td>
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<tr>
<td>11</td>
<td>Nov. 5</td>
<td>Tides &amp; Energy</td>
<td>9</td>
<td></td>
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<tr>
<td>3. Exam</td>
<td>Nov. 10</td>
<td>Chapter 7-9</td>
<td>#9 Oilspill lab</td>
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<tr>
<td>12</td>
<td>Nov. 12</td>
<td>Coasts, Beaches, and Estuaries</td>
<td>10</td>
<td></td>
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<tr>
<td>13</td>
<td>Nov. 17, 19</td>
<td>Plankton, Productivity, and Food Webs</td>
<td>12,13,14</td>
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<tr>
<td>Nov. 17</td>
<td></td>
<td>Signature Presentations</td>
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<tr>
<td>14</td>
<td>Nov. 24, Dec. 1</td>
<td>Environmental Problems Gulf of Mexico Oil Spill</td>
<td>15</td>
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<td>15</td>
<td>Dec. 3, 8</td>
<td>Review</td>
<td>1-15</td>
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<tr>
<td>FINAL</td>
<td>Th. Dec. 17</td>
<td>Chapter 1 to 15</td>
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</tbody>
</table>

¹ Lab assignments are due in lab one week later as listed in this syllabus