SYLLABUS

OCSC 1000 – Exploration of the World Ocean

Instructor

Dr. Annie Mercier

- **Office:** Ocean Sciences Centre, Rm 4022 (Logy Bay)
- **Office hours:** See me after class or book an appointment
- **Phone:** (709) 864-2011
- **Email:** amercier@mun.ca

Please do not use my regular (@mun) email unless it is a real emergency. For all course related communication, please use the online course mail widget (@online.mun.ca). I normally answer within 24-48 h. If you have a pressing question, concern or suggestion, I encourage you to do one of the following:

- Use the Brightspace email to contact me and copy the TAs
- Come see me after class

You may find out more about my work, research interests, and travels by accessing my academic website [http://www.mun.ca/osc/amercier/bio.php](http://www.mun.ca/osc/amercier/bio.php) and the Mercier Lab website [http://www.ucs.mun.ca/~amercier/](http://www.ucs.mun.ca/~amercier/)

Course Description & Goal

This blended course (lectures + online activities) covers the basic disciplines of ocean sciences, including biological, chemical, geological and physical oceanography. There are no prerequisites; topics will be covered at a level sufficient for science majors but accessible to non-majors. The class will take the form of a multi-disciplinary oceanographic expedition that will expose you to techniques of ocean exploration and study, while explaining key concepts of ocean floor features, sediments, seawater chemistry and physics, ocean circulation, causes and effects of currents, waves, and tides, deep-sea and coastal processes, biogeochemical cycles, and marine ecology – the interactions of all of these areas with the biological systems present in or living off the ocean.

The course emphasizes critical thinking and applies learned principles to features of eastern North America, as well as other locations globally. After completing this course, you will have a better understanding of important oceanographic issues that affect the entire globe and feel more of a connection with what is happening in other countries with regards to ocean use, natural disasters, natural resources, sea level changes, and environment stewardship. You will also be able to scientifically analyze the consequences of human infrastructure built in and around coastlines, and understand the important role that the ocean has played and will continue to play in global environmental processes.
**Syllabus – OCSC 1000 – Blended version**

### Learning Outcomes

Upon successful completion of this course, you will be able to:

1. Outline the basic physical, chemical, geological and biological characteristics of the ocean;
2. Compare current methods used in ocean sciences and their limitations;
3. Apply scientific methods to problems involving the marine environment;
4. Critically discuss various issues related to the world ocean (climate, pollution, resources management, etc.); and
5. Conclude that oceanography is global in nature and of special interest to diverse societies, including the population of Atlantic Canada.

### Course Schedule (last updated Sep 2019)

**Classes** will be on **Wednesdays** in room C2004 from 1:00 – 2:20 pm. Weekly **virtual expeditions** will need to be completed online by 11:59 pm on **Tuesdays** before each class.

<table>
<thead>
<tr>
<th>Module Dates</th>
<th>Virtual Expedition</th>
<th>Class / Topics</th>
<th>Assignments</th>
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</thead>
</table>
| **Introduction**  
  September 4 |                   | Class time Wednesday, September 4  
  - Welcome  
  - Introduction  
  - Syllabus, course schedule and guidelines  
  - World ocean concept | - Familiarize yourselves with Brightspace (D2L).  
  - Review online materials.  
  - Complete Expedition 1 – Exploring the world ocean. |
| **Module 1: Ocean Exploration**  
  September 5 – 11 | 1. Exploring the world ocean  
  Submit Log Book and Quiz by 11:59 pm on Tuesday September 10 | Class time Wednesday, September 11  
  - Oceanography  
  - Ocean exploration from its origin to present days | - Complete Expedition 2 – The signs and effects of climate change. |
| **Module 2: Secrets of seawater**  
  September 12 – 18 | 2. The signs and effects of climate change  
  Submit Log Book and Quiz by 11:59 pm on September 17 | Class time Wednesday, September 18  
  - Water molecule  
  - Temperature  
  - Salinity  
  - Dissolved gases  
  - Pressure  
  - Nutrients  
  - Light and sound  
  - Assessment 1 | - Complete Expedition 3 – Seafloor observatory. |
- Post to Discussion 1 forum. |
|---------------------------|------------------------|------------------------------------------|-----------------------------------------------|
| September 19 – 25         | Submit Log Book and Quiz by 11:59 pm on September 24 | - Origins of oceans  
- Evolution of oceans (moving plates)  
- Earthquakes and volcanoes  
- Major ocean basins and seas.  
- Guest lecture 1 | |
| Module 4: Ocean in motion | 4. Tracking El Niño | Class time Wednesday, October 2 | - Complete Expedition 5 – Harnessing the ocean’s energy.  
- Post to Discussion 1 forum and submit posts to Assignments folder before next class. |
| September 26 – October 2  | Submit Log Book and Quiz by 11:59 pm on October 1 | - Winds  
- Surface currents  
- Underwater currents  
- Water cycle  
- Climate  
- Hurricanes and typhoons  
- Assessment 2 | |
| Module 5: Marine Rhythms  | 5. Harnessing the ocean’s energy | Class time Wednesday, October 9 | - Complete Expedition 6 – Moving shorelines. |
| October 3 – 9             | Submit Log Book and Quiz by 11:59 pm on October 8 | - Waves  
- Tides  
- Sea surface disturbances  
- Guest lecture 2 | |
|                          | Post to Discussion 1 forum and submit posts to Assignments folder by 11:59 pm on October 8 | | |
|                          | NO class on Wednesday, October 16 (Monday schedule) | | - Ocean Day – optional visit of the OSC (15 October?) |
| October 17 – October 23  | Submit Log Book and Quiz by 11:59 pm on October 22 | - Sea level  
- Erosion and deposition  
- Types of coasts  
- Seascapes worldwide  
- Assessment 3 | |
| Module 7: Shallow seas    | 7. Surveys of coastal habitats | Class time October 30 | - Complete Expedition 8 – Exploring the deep sea and polar environments.  
- Post to Discussion 2 forum. |
| October 24 – 30           | Submit Log Book and Quiz by 11:59 pm on October 29 | - Continental shelves  
- Rocky habitats  
- Sandy habitats  
- Underwater fields and | |
## Course Resources

There are no required textbooks for this course; the course website will provide all of the relevant resources.

*Syllabus – OCSC 1000 – Blended version*
Teaching and Learning Approach

Because of the introductory nature of the course and the wide range of students likely to enrol, I have chosen a course structure that requires outside reading and self-paced preparation, and provides regular lecture sessions for further discussions and for students to receive help from the instructor and ask questions, thus making the classroom experience and self-learning sessions as dynamic as possible. To achieve this focus, I will use self-guided interactive activities (expeditions), bi-weekly assessments, regular lecture sessions as well as in-class and electronic discussions.

Typically, the two weekly periods will be divided as follows:
- Period 1 (1.5h): Expedition (online)
- Period 2 (1.5h): Lecture (face-to-face)

Online/Virtual Expeditions

You are expected to play an active role in your learning through the timely completion of online virtual expeditions. The expeditions, which replace one classroom lecture, are web-based interactive exercises, i.e. self-paced tutorials composed of animations, short audio/video segments, graphics and texts. You should work your way through an expedition by viewing the pages, answering questions and taking notes in a preformatted log book. The answers to questions and the log book serve as the notes from which to study for exams. You are advised to post any questions or thoughts on a particular expedition in the associated “Any Questions” discussion forum in the course shell (questions will be answered and/or topics discussed during the next face-to-face period). You will also be required to participate in electronic discussions, often problem-based and issue-oriented, with other students. All forums can be accessed under the Communication / Discussions tab.

Questions and Review Module

A "Student Questions" discussion forum is available in the course shell where you can ask each other questions related to course material and online expeditions. A Review module will also become available towards the end of the semester. It will include copies of lecture presentations, flip cards, a study guide and mock quizzes. The intention is that students use this module to help succeed in the class, by reviewing material and studying for the final exam. Prepare ahead by reviewing your notes (including in-class assessments, online quizzes and log books), and identifying the specific areas in which you need help, practice, or review.

Assessment of Learning

Evaluation Scheme

<table>
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<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Virtual Expeditions</td>
<td>30% (3% x 10)</td>
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<tr>
<td>Assessments</td>
<td>20% (4% x 5)</td>
</tr>
<tr>
<td>Discussions</td>
<td>10% (5% x 2)</td>
</tr>
<tr>
<td>Final Exam</td>
<td>40%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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<tr>
<td><strong>Optional extra Credits</strong></td>
<td><strong>up to 10%</strong></td>
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**Assessment Guidelines**

**Virtual Expeditions**

Each student will take on the role of research scientist in a series of 11 virtual oceanographic research activities (online). Each expedition will be worth 3% (30 pts). Your top 10 marks will comprise your grade.

New expeditions will be posted on Wednesday of each week at 12:01 am and are to be completed by the following Tuesday at 11:59 pm. At some point, expeditions may become available two-three weeks ahead of the deadline to help students pace their work. For each expedition, students must answer 5 simple/basic questions through the Quiz tool and fill out a weekly Expedition Log Book for submission to the Assignments folder*. Please submit only doc/docx, rtf or pdf files and ensure that you include your name and student number on your submission. Completing the expedition and submitting a fully filled log book is worth 15 points and each of the 5 correctly answered questions is worth 3 points. The log books also provide a medium for taking notes on the materials; you will use them to prepare for bi-weekly assessments and for the final exam.

<table>
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<tr>
<th>Log books</th>
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<td>Completing the expedition log book may seem time consuming relative to being worth only 1.5% — but it is essentially there to identify important contents (rather than being an assignment meant to earn you marks). The that fact log books do get marked is a bonus (like getting marks for taking class notes).</td>
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<th>Expedition quizzes</th>
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<tr>
<td>Online quizzes are not designed to test your knowledge but rather to make sure you go over all the expedition material provided. Therefore some of the questions are simplistic/trivial (rather than learning oriented). Essentially the quiz marks are a bonus for completing the expedition.</td>
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*Important Note: It is your responsibility to make sure log books and other assignments are submitted to the Assignments folder on time. You should ensure that you received proper confirmation of all submissions (if in doubt, check your Submission History). See Help [https://blog.citl.mun.ca/resourcesforstudents/](https://blog.citl.mun.ca/resourcesforstudents/)

**Assessments**

Every second week, students will take an in-class assessment (5 quizzes x 4%). These quizzes are learning oriented, and intended to help students keep up with the material covered during the face-to-face lectures and virtual expeditions. Each assessment will cover the two modules immediately preceding it, starting with Modules 1 and 2 for the first assessment. Students will have 15 minutes to complete the questions/assignments. These are closed-book assessments. Review of class notes and expedition log books and quizzes is highly recommended. These in-class assessments cannot be re-scheduled, but students may use extra credit reports to make up (see below).
Discussions

At the end of expeditions 4 and 7, students will participate in a required discussion in the online discussion forum. Each student will make an initial posting, approximately 300 words long and reply to another student with a posting of approximately 100 words. The original posting and subsequent reply to at least one other student must be separate postings*. You will have a minimum of two weeks to complete each discussion. Personal insight and accurate knowledge, gained from the modules and associated material, and the quality of writing for communicating this knowledge to other students in the class are the important grading criteria for these discussions. Discussions are worth 5% each, with 4% assessed for content knowledge (pertinence, accuracy), and 1% for writing quality (logical flow, grammar, spelling).

*Important Notes: You are required to submit both an initial posting and at least one response to another student’s posting to the discussion forum and you must submit a copy of these postings to your instructor, via the Assignments folder, by 11:59 pm on the due date (see Schedule for exact dates). Only the submissions to the Assignments folder will be marked. Please submit only doc/docx, rtf or pdf files and ensure that you include the context of your postings (e.g. post to which you are replying). Indicate your name and student number on your submission to the Assignments folder.

Final Exam

Because exams emphasize material covered both during the virtual expeditions and in class, it is very important that you attend lectures and take notes. Taking good notes during class, re-writing notes after class and reviewing them on a regular basis is the best way to absorb the material presented. In addition, the expedition log books and the periodic assessments/quizzes should be helpful when studying.

Prior to the final exam, a Review module (including flip cards, a study guide and mock quizzes) will become available online in the course shell; it is recommended that you make good use of it.

To request a Deferred Final Exam, please consult the relevant guidelines in the MUN Calendar. More information can also be found on the website of the Department of Ocean Sciences (Deferring a Final Exam).

Extra credits

Two “extra credit” seminar/activity reports, worth 5% each, will be made available. In other words, there are 110% available in the class but grades will be calculated as if there were only 100% available. The extra credits are basically free points. Students are encouraged to take these extra credits to either boost their grades or to make up for missed assessments or expeditions. This way, students do not have to plead (illness, appointment, family problem, computer glitch, etc.). If they miss an assignment/assessment, extra credit reports can be used to make up. It is also a great opportunity for highly motivated students to boost their grades.

Start attending seminars/conferences early in the semester to gather material for the extra credit reports; don’t wait until it is too late! Presentations on topics in ocean sciences or in other science fields (biology, geology, chemistry, physics, etc.) are eligible. Note that guest lectures
presented as part of the course are NOT eligible for extra credit reports. You need to attend an external event, conference or seminar.

Seminar reports must be 1.5 to 2 pages (single-spaced). They will include: (1) a full description and clear overview of the event/seminar attended, (2) a clear outline of the major activities/findings, (3) a critical assessment of their strengths and limitations. In that last segment, you must state what you thought of both (3a) the contents and (3b) the delivery. There will be deductions for grammar and spelling errors. Extra credit reports may be submitted at any time to the Assignments folder. A maximum of two extra credit reports can be submitted during the semester. Submissions will be accepted until 11:59 pm on the last day of class.

Please submit only doc/docx, rtf or pdf files and include your name and student number on your submission.

**Deadlines and Late Submissions Policies**

The due date for each assignment (completed expedition log book, discussion post, etc.) is provided in the course Syllabus under Course Schedule. It is the responsibility of each student to follow the course schedule, including any adjustment made due to weather or following a cancellation. It is also the student’s responsibility to make sure the assignment has effectively been submitted to the Assignments folder before the deadline.

Be careful not to submit the wrong file (e.g. blank logbook) and make sure to submit your discussion posts to the Assignments folder (posts on the forum will NOT be marked). If in doubt, please double check (all submissions are listed in your Submission History). It is not possible for an assignment that is properly submitted to not be delivered to the instructor. For this reason and because extra “make up” credits can be obtained, late submissions will not be accepted (and students will not be notified that their submission has not been received).

Late submissions justified by exceptional circumstances (with appropriate written justification may be granted but deductions may still apply.

**Technical issues and broken links**

- For general issues with the Brightspace portal, use the Help tab (Student Resource or Support Centre).
- Technical issues will not be a valid excuse for missing assignment deadlines so give yourself some latitude and avoid last-minute completion (e.g. do not submit an assignment only minutes before the deadline).
- If you encounter a broken link in a module, please notify the instructor and the TAs immediately.
- There will of course be no penalty related to inaccessible content unless the situation is resolved (check the news widget regularly and make sure to activate notifications).

**Evaluative Criteria**

The University regulations for grading can be located at: http://www.mun.ca/regoff/calendar/sectionNo=REGS-0661

**Academic Integrity**

Academic integrity is a foundational component of academia. The Center for Academic Integrity (CAI) defines academic integrity as "a commitment, even in the face of adversity, to five
fundamental values: honesty, trust, fairness, respect, and responsibility. From these values flow principles of behavior that enable academic communities to translate ideals to action” (CAI, Fundamental Values Project, 1999). To ensure that learning and scholarship continue to thrive as described, academic communities cannot condone acts of academic dishonesty, such as cheating, misrepresentations, or plagiarism.

To prevent such offenses, you as a student attending Memorial are responsible to familiarize yourself with the Memorial University of Newfoundland's General Academic Regulations on Academic Misconduct (Section 5.11), specifically noting the list of Academic Offences outlined in (Section 5.11.4).

Please Note: Submitted works will be monitored for academic offenses.

**Course and Institutional Policies**

**Basic skills requirements**

Students enrolling in a science class at Memorial are expected to do university-level work. It is assumed that you are proficient in English (reading and writing at the university level) and that you are familiar with basic mathematics. If you do not have these basic skills, it is recommended that you obtain them before you enroll in this course. Furthermore, all students are required to use a computer and the Internet in this course. If you do not have computer access and Internet skills, then it is highly recommended that you obtain them before you attempt this course.

**University-level expectations**

Students fresh out of high school may be a little shocked and initially confused by what is expected of them and what is not provided to them in their first semester at university. Be reminded that you are entirely responsible for knowing what is expected of you in a course, including course requirements, course materials, assignment schedule, study hours needed, and so on. I assume that you have determined exactly how much time you have in your life and work schedule to devote to this and other classes. When in doubt, you are expected to ask questions, seek answers, get help, find the right people to guide and assist you, and, generally, to be in charge. There are numerous resources at Memorial that you can tap into for assistance (see below), including your instructor. But it is ultimately up to you to acknowledge that you need help and to get help if you need it.

**Drop policy**

It is the sole responsibility of the student to drop the course. Do not rely on the instructor. Failure to drop a course before the prescribed deadline may result in a failing grade (F) for the semester which may affect your program.

**Study requirements**

Students are expected to dedicate at least six (6) hours per week for this course, excluding review/study. As a general guideline, you can expect to devote about 120 hours or more to this course over the semester (14 weeks), including class time, online time and study time. I assume that you are spending the appropriate amount of time towards your studies. Failure to properly budget your time may severely hamper your success in this course. Make sure you consider your time constraints when signing up for this course and any others.
Inclusion, Equity and Caveats

Students with Disabilities

Memorial University is committed to supporting inclusive education based on the principles of equity, accessibility and collaboration. Accommodations are provided within the scope of the University Policies for the Accommodations for Students with Disabilities. Memorial works in collaboration with the Glen Roy Blunden Center, to support students with disabilities. I encourage any class participant(s) who may require physical or academic accommodations to notify me privately.

Equity

We welcome all learners from various disciplines and differing ethnic and cultural backgrounds from within the University, as this provides opportunity for the sharing of a diversity of experiences, world-views, values, problem-solving approaches, and enlightening and enriching course perspectives. It is an expectation that course discourse be collegial and respectful across disciplinary, ethnic, cultural, and personal boundaries.

Support Services

Support Services offered to students at Memorial University include:

- Aboriginal Resource Office https://www.mun.ca/aro/
- The Blundon Center https://www.mun.ca/student/about/Blundon-Centre.php
- The Internationalization Office http://www.mun.ca/isa/main/
- Student Affairs and Services http://www.mun.ca/student/
- Student Wellness and Counselling Center http://www.mun.ca/counselling/home/
- The Writing Center http://www.mun.ca/writingcentre/

Copyright

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Additional Information

Online student support: http://www.delts.mun.ca/students/
Library services: http://www.library.mun.ca/
Welcome to Memorial: http://www.mun.ca/become/undergrad/explore/index.php