UNIVERSITY OF ALBERTA
BIOL 361 – MARINE SCIENCE SYLLABUS

Instructor: Dr. Brad Magor (Biological Sciences, University of Alberta)

Field Coordinator: Katie Reeve-Arnold, MSc (Coordinator of Marine Research All Out Africa)

Teaching Assistants - Spencer Balay; Dr. Audrey Reid & Dr. Kathy Magor
Office: AOA Marine Research and Community Projects Office, Tofo, Mozambique
Where: Tofu, Mozambique
When: June 5 to 30th, 2017

Course Description: *3 (fi 6) (second term, 3-0-0). Marine Science. An introduction to marine science and marine biology including history of marine exploration, essential features of the physical marine environment, a survey of major marine communities and adaptations of the organisms that live in each, overviews of selected groups of marine organisms (e.g., marine mammals), and human impact on the oceans. Recommended as preparation for courses offered through the Bamfield Marine Station (see courses listed under MA SC). Prerequisite: ZOOL 250 or BIOL 208.

Textbook: None - lecture powerpoint files

Course Objective and Expected Learning Outcomes:

• Be able to look at, and interpret the changing ocean environment in the same way that locals who depend on the ocean for their livelihood do.
• Identify and describe the physical and chemical processes the shape the oceans as they exist over time - from plate tectonics to atmospheric and gravitational influences.
• Identify and describe the distinct faunal zones and the constraints on the types and diversity of organisms living there.
• Identify and describe faunal community structure and interactions with emphasis on sub-tropical coral reef communities.
• Identify and understand how human activities influence marine ecosystems.
• Demonstrate how field observations can reinforce or challenge principles taught in the classroom.

Group Project and Community Service Learning

In collaboration with the University of Alberta Community Service Learning (www.csl.ualberta.ca), and with partner organizations in Mozambique, students will develop a
report, reflection assignments and give presentations to stakeholders, on topics such as, human impacts on fisheries and resources, human impacts on pollution & environmental impacts, seafood safety, storage and transport, poverty and conservation, and tourism and conservation. Students submit a written report and give presentations (20%), as well as CSL reflection written assignments (2) and group discussions reflection presentation (3 % - fail, pass or full marks).

**Directed Field Observations** - These are specific observations that I'll ask you (in written form) to make and record in note form to be handed in on assigned dates. Some are long term and some are one-off observations. You can do this in groups but each observation must be made by each individual. Exams will include questions relating to these observations or other things you would have noted had you made the observation.

**Self-directed Field Observation Reports** - Observations made in the field frequently reinforce (or sometimes challenge) concepts covered in lectures. Every 2 lectures students will be assigned a new field observation report. Each report is to include 2 observations relating to each lecture (usually 4 per report), due 2 days after assignment.

For each observation you should include:

1) The concept that the observation relates to; 2) A descriptive observation; 3) How the observation relates to the concept. An example:

"The concept discussed in lecture was that 'in order to fly birds must flap their wings'; I made two observations about this, the first of which was a seagull taking off from resting on the ocean surface which involved rapid upward and downward movement of the wings; The second observation was a crow jumping from a perch on a power line. The crow didn't flap it's wings but instead just glided down to the ground. Because the seagull had to gain elevation to fly it needed to flap it's wings, however the crow demonstrated that some flight could be achieved simply by gliding. Thus wing flapping is only needed to sustain or initiate flight in instances when the bird needs to gain elevation"

**Grading & Grade Evaluation:**

Assessment and Grading Policy available at: [https://policiesonline.ualberta.ca/PoliciesProcedures/Policies/Assessment-and-Grading-Policy.pdf](https://policiesonline.ualberta.ca/PoliciesProcedures/Policies/Assessment-and-Grading-Policy.pdf)

Grades are unofficial until approved by the Department and/or Faculty offering the course.

Assignment of Grades: The University of Alberta uses a letter grading system with a four-point scale of numerical equivalents for calculating grade point averages. The final grades in this course will be determined from the total raw score (from both lecture and lab) of all the students in this lecture section. This will be done after the final total raw scores are graded as percentages throughout term. Letter grades will NOT be calculated for individual course requirements/assignments.
Format of Exams:

Exams are a combination of short answer and long answer questions. Students will be given examples of questions and quizzes in class that represent the examinations.

Missed Term Exams and Assignments:

For an excused absence where the cause is religious belief, a student must contact the instructor(s) within two weeks of the start of Fall or Winter classes or within three days of the start of Spring or Summer classes, to request accommodation for the term (including the final exam, where relevant). Instructors may request adequate documentation to substantiate the student request.

A student who cannot write a term exam, quiz or complete a term assignment due to incapacitating illness, severe domestic affliction or other compelling reasons can apply for: deferral of the weight of the missed term work/exam to other term work or term exam, or an extension of time to complete an assignment, or a make-up assignment. In all cases, instructors may request adequate documentation to substantiate the reason for the absence at their discretion. Deferral of term work is a privilege and not a right; there is no guarantee that a deferral will be granted. Misrepresentation of Facts to gain a deferral is a serious breach of the Code of Student Behaviour.

Deferred Final Examination:

A student who cannot write the final examination due to incapacitating illness, severe domestic affliction or other compelling reasons can apply for a deferred final examination. Such an application must be made to the student’s Faculty office within two working days of the missed examination and must be supported by a Statutory Declaration or other appropriate documentation (Calendar section 23.5.6).
Note: Deferred exams for SAFS will be scheduled between, August 27-31, 2015, in Edmonton. Because you are away from campus during your course, you must email or phone your faculty office. For Faculty of Science contact: Dr. Brenda Leskiw, Associate Dean, Undergraduate, Faculty of Science (Email: brenda.leskiw@ualberta.ca; Tel.: (780) 492-4758)

Deferred examinations are a privilege and not a right; there is no guarantee that a deferred examination will be granted. Misrepresentation of facts to gain a deferred examination is a serious breach of the Code of Student Behaviour. Students who failed at the start of term to request exam accommodations for religious beliefs are expected to follow the normal deferred final examination process.

Student grievances:

Given that we are not on campus, if you have any grievances (i.e., grading or other academic issues, or any inappropriate misconduct) that you feel cannot be discussed with your instructors, TA or Manager of SAFS, please contact the Associate Chair of Undergraduate Students, Department of Biological Sciences, Dr. Jocelyn Hall (Email: jocelyn.hall@ualberta.ca; Phone: 780-492-8611).

Student Responsibilities:

ACADEMIC INTEGRITY:

"The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (online at www.governance.ualberta.ca) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University."

All forms of dishonesty are unacceptable at the University. Any offence will be reported to the Associate Dean of Science who will determine the disciplinary action to be taken. Cheating, plagiarism and misrepresentation of facts are serious offences. Anyone who engages in these practices will receive at minimum a grade of zero for the exam or paper in question and no opportunity will be given to replace the grade or redistribute the weights. As well, in the Faculty of Science the sanction for cheating on any examination will include a disciplinary failing grade (NO EXCEPTIONS) and senior students should expect a period of suspension or expulsion from the University of Alberta.

Some assignments are in groups and collaboration is encouraged, however students must be aware of the acceptable level of collaboration. Please review the Appropriate Collaboration link on the Office of Student Judicial Affairs website (http://www.osja.ualberta.ca/Students/AppropriateCollaboration.aspx)

CODE OF CONDUCT:
As students of the University of Alberta, you are expected to conform to the guidelines in the Code of Student Behaviour. The Code of Student Behaviour, as set out in the General Faculties Council (GFC) Policy Manual, is available online at www.governance.ualberta.ca. Outside of the classroom, students are also responsible for their actions and must abide by the Code of Student Behaviour. The Director has the authority to enforce the Code of Student Behaviour and in consultation with the Associate Dean, Undergraduate of the Faculty of Science deals with any infractions. **Dismissal from SAFS is an option.**

Southern African Field School has a partnership with All Out Africa, our on the ground support team. All students are expected to adhere to All Out Africa’s code of conduct - All participants joining an All Out Africa Experience are expected to behave in a civil and responsible manner being considerate to fellow participants, staff, local community members and the environment. Any participant, who misbehaves, is disruptive or threatens the safety of any other participants or All Out Africa Staff may be found guilty of misconduct and as such will be subject to disciplinary action. This includes behaviour such as serious rowdiness or drunkenness, failure to turn up to experience activities without notice, violating the laws or regulations of the particular location.

Every reasonable effort will be made to resolve any disciplinary matter before it becomes serious, however, we reserve the right to take appropriate action in the event of misconduct including issuing verbal and written warnings. In cases of very serious or repeated misconduct, we reserve the right to expel the perpetrator from the experience without a refund. If a diversion in the experience is necessitated by the misconduct of a participant, that participant will be liable for costs incurred by All Out Africa.

**CELL PHONES:** Cell phones are to be turned off during lectures, labs and seminars. Cell phones are not to be brought to exams.

**STUDENTS ELIGIBLE FOR ACCESSIBILITY-RELATED ACCOMMODATIONS (students registered with Specialized Support & Disability Services - SSDS):** Eligible students have both rights and responsibilities with regard to accessibility-related accommodations. Consequently, scheduling exam accommodations in accordance with SSDS deadlines and procedures is essential. Please note adherence to procedures and deadlines is required for U of A to provide accommodations. Contact SSDS (www.ssds.ualberta.ca) for further information.

**RECORDING AND/OR DISTRIBUTION OF COURSE MATERIALS:** Audio or video recording, digital or otherwise, of lectures, labs, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructor or as a part of an approved accommodation plan. Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the content author(s).

**Disclaimer:** Any typographical errors in this Course Outline are subject to change and will be announced in class. The date of the final examination is set by the Registrar and takes precedence over the final examination date reported in this syllabus.
The following is a draft schedule of class dates, assigned readings, and quizzes - please note the class dates/subjects are subject to change, based on the speed at which we cover topics, and other field logistics, such as when students are needed on field exercises for BIOL 208/495.

**Lecture Schedule (subject to change):**

The following is a draft schedule of class dates, assigned readings, and quizzes - please note the class dates/subjects are subject to change, based on the speed at which we cover topics, and other field logistics, such as when students are needed on field exercises for BIOL 495.

**Lecture Topics:**

<table>
<thead>
<tr>
<th>Topic #</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to course and to field observations</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Ocean exploration &amp; monitoring;</td>
</tr>
<tr>
<td>2</td>
<td>Physical Oceanography</td>
</tr>
<tr>
<td>3</td>
<td>Fluid Dynamics</td>
</tr>
<tr>
<td>4</td>
<td>Benthos - Part I - soft sediments</td>
</tr>
<tr>
<td></td>
<td>- Part II - coral reefs</td>
</tr>
<tr>
<td></td>
<td>- Part III - primary producers</td>
</tr>
<tr>
<td>5</td>
<td>Larval Dispersion</td>
</tr>
<tr>
<td>6</td>
<td>Plankton</td>
</tr>
<tr>
<td>7</td>
<td>Nekton</td>
</tr>
<tr>
<td>8</td>
<td>Food Webs &amp; Productivity</td>
</tr>
<tr>
<td>9</td>
<td>Littoral zone - including mangels</td>
</tr>
<tr>
<td>10</td>
<td>Subtidal - Part I - Seagrasses</td>
</tr>
<tr>
<td></td>
<td>- Part II - temperate kelp forests</td>
</tr>
<tr>
<td>11</td>
<td>Deep Benthos</td>
</tr>
<tr>
<td>12</td>
<td>Polar oceans</td>
</tr>
<tr>
<td>13</td>
<td>Human interactions and impacts</td>
</tr>
</tbody>
</table>