

Course Syllabus: **Marine Conservation Biology**
University of Oregon | Oregon Institute of Marine Biology
Winter 2017 | BI 457/557, (5 Credits)

Instructor: Aaron Galloway (agallow3@uoregon.edu); 541-888-2581 ext 303

GTF: TBD

Time/place: Tuesdays, ~8:30-5:00, **Exact times and classroom TBD**

Summary:

Marine Conservation Biology is the applied science behind the maintenance of biodiversity and the management of marine resources. We will examine prevailing dogma from diverse user groups through close examination of applied conservation case studies. Using readings, seminars, “topic teams”, writing, and field trips we will think critically and communicate effectively about the consequences of diversity loss at the levels of ‘stocks’, species, ecosystems, and genetics. We will assess threats to biodiversity (e.g. invasions, diseases, fishing, mineral extraction), and mechanisms for dealing with these risks, with an emphasis on marine reserves.

Learning Outcomes:

- 1) Students will gain an understanding of the key terminology, core issues, and science of marine conservation biology via reading, discussion, lectures and activities. [knowledge]
- 2) Comprehension of the topics will be demonstrated through active participation in group activities, ‘topic teams’, and a collaborative term paper, which will be *peer-reviewed and ‘published’ in an internal course e-journal*. [synthesis, application, evaluation]
- 3) Conservation of marine biodiversity requires an ability to think collectively in broad and creative ways. An emphasis throughout the course will be building skills in collaboration and teamwork, with groups of varying sizes. [collaboration, synthesis]

Term Paper

Every student will write a term paper, which will go through the whole science ‘publication’ process, including anonymous peer review, revisions, and replies to reviewers/editors. Top ranked papers will be published in the course “e-journal” [see below]. The papers will be a literature review or synthesis of a particular topic relevant to marine conservation biology. Papers may also conduct novel analyses on existing data relevant to the topic. The paper will be prepared according to the class journal guidelines (attached in the full syllabus). Each student will also work as a ‘named collaborator’ on a different students’ paper. These named collaborators will function as friendly, non-anonymous reviewers during early drafts of the paper.

Term paper topics will be announced by **[insert date]** (wk 3), and class time will be devoted at this time to to find named collaborators with similar interests for each paper. Papers will be submitted for consideration in the course journal Oregon Marine Conservation Biology Letters (OMCBL). As a result of the peer review process, the top ranked ~1/3 of the submitted and revised papers will be ‘published’ in OMCBL in the OIMB library, and made available to future classes at OIMB. Particularly promising papers may even form the basis for future research or submission to a real peer-reviewed journal.

Topic-Teams

Several topics covered in the class are fraught with disagreement between and within scientists, managers, and stakeholder groups. A useful approach for deeply understanding such topics is science-based topic team discussions (like a debate, but a little less formal). *We will conduct three topic teams, in weeks [~3, 6, and 8; exact dates & weeks TBD]*. Students will be

randomly assigned to teams for each topic. There will be in-class time in weeks [~2, 4, and 7] for research and strategy development prior to the discussion on that topic in the following week.

Each topic team will collaboratively prepare a summary document of their key (e.g., 5-10) arguments, with references to published literature supporting those arguments. Valid resources must be peer-reviewed and be available on the web or as pdfs (posted to the class Canvas shared space), or available as hard copies in the library. Citations of these references must be consistent and conform to the guidelines of Conservation Biology (the guidelines in the OMCBL e-journal).

On the Topic Team day, each group's summary document must be shared with the instructor and the opposing team prior to the start of class. Each team will have prep time to review the opposing team's core summary document and the resources within prior to the start of the ~1 hour duration discussion. Each team will have 10 initial minutes to present an opening statement (may include visual aids e.g., in a PowerPoint). Then each team will take turns discussing the evidence in an orderly fashion with the help of moderators (instructor and TA). Importantly, the science-based topic team approach requires that all points made in discussion be supported by peer-reviewed primary research or synthesis.

Lectures

Each week we will have at least one or two lectures (e.g., 30-60 min), presented by the Instructor, and / or guest speakers, on a core topic in marine conservation biology (biodiversity, genetic diversity, biological invasions, mineral extraction, high latitude climate change, Allee effects, marine protected areas, etc.). These lectures and topics will be designed to augment the topic teams and ongoing research on the term papers. Each week's lecture will also have an associated assigned reading from the course textbook and/or from peer reviewed literature. (Schedule/table will be in the full syllabus). Course readings will not be graded, but comprehension of the readings will show up in work that is graded.

Field trips

In weeks [~1, 3, 5, and 9; exact dates TBD], we will make local field trips related to our studies. The trips **may** include visits to the North Spit (Snowy Plover habitat), intertidal area of a local low rocky intertidal area, the OIMB forest, Port Orford, and to Newport to visit the Oregon Coast Aquarium and meet with staff from the Oregon Marine Reserves Program.

Course Text(s):

The primary text for this course is: **Marine Conservation Biology: The Science of Maintaining the Sea's Biodiversity** (Ed. Norse and Crowder), Island Press, 2005 (referred to as MCB in the schedule). The University of Oregon Library system has an e-book subscription to the content of this book, which means that students do not have to buy this as a hard-copy book. For example, students can download and save individual chapters as PDFs. It is not an expensive book, and for those that prefer a hard-copy, it is available online and used for as little as ~\$25.

We will also use parts of a general conservation biology text (i.e., not specific to marine issues) that is also *TOTALLY FREE* as an e-book (thanks to the Society for Conservation Biology). **Conservation Biology for All** (Eds. Sodhi and Ehrlich), Oxford University Press, 2010 (referred to as CBFA in the schedule). It is available for download here:

[https://conbio.org/images/content_publications/ConservationBiologyforAll_reducedsize.pdf]

I strongly recommend signing up for Conservation magazine (newsletter, weekly articles) for well researched news updates and info (<http://conservationmagazine.org/about/>).

Supplies:

Students should have footwear they are comfortable with for visiting the low intertidal, where it is wet, muddy, and slippery (e.g., rain boots) and rain gear.