

Fish, Humans, and Change

BIOL 101 (4 credit hours)

Syllabus

Instructor: **Dr. Kristy A. Lewis**
kalewis3@smcm.edu
Visiting Assistant Professor, Biology
240-895-2229
Office: SH 214
Office hours: M/W 10:00AM – 12:00PM

TA: Rebecca (Becca) Hammersla
rhammersla@smcm.edu

Details: **LECTURE**, Tuesday/Thursday 10:00AM – 11:50AM
Schaefer Hall 132
LAB, Wednesday 1:20PM – 4:10PM
1 Lab session for every two weeks, alternating student groups unless otherwise noted in syllabus
Schaefer Hall 108

Final Exam: Thursday, May 04, 2017
7:00PM – 9:15PM

Website: All course info will be uploaded to BlackBoard

Textbook: **Trujillo A. & Thurman, H.V. Essentials of Oceanography—Eleventh ed.**

Course Theme: Water covers over 71% of the earth, with most of that water found in our ocean basins. The processes that govern this dominant system on our blue planet are substantially different from the more familiar terrestrial (landbased) environments. This course will introduce students to the importance of aquatic ecosystems, with a particular focus on oceans and coastal systems and how natural and anthropogenic (human-induced) change alters these environments. You will gain a working knowledge of how the physical, geological, chemical and biological aspects of the oceans can impact development and distribution of marine communities and the humans that interact, live and work within these systems. Our actions on land and in the seas can have dramatic impacts on the ocean, which in turn impact our resources, health and climate. Students will close the semester by conducting a mock United Nations Convention on Climate Change: “Conference of the Parties. Through this course, students will also strengthen their presentation and discussion skills, and their ability to interpret scientific literature and think critically.

Student Learning Objectives: Following the completion of BIOL 101, you will be able to:

1. Explain core concepts in biology as they relate to the theme of the course.
 - a. Describe the physical, geological, chemical and biological characteristics of the ocean
 - b. Understand how humans impact the ocean and coastal systems
 - c. Debate the complexities of climate change and discuss ways to internationally mitigate its impacts
2. Demonstrate use of the scientific method
3. Execute writing about scientific topics
4. Execute communication of scientific topics with others
5. Perform internet searches to find reliable sources of scientific information

Course Content and Instructional Methods: The course consists of lectures, student presentations, social media assignments, labs and various other class activities. Below you will find a list of lecture topics by week along with the associated chapters/readings that **you are responsible for reading prior to lecture**. Lectures will consist of PowerPoint or Google Slide presentations that will be posted to our BlackBoard before lecture. Students will also host a class Twitter account, see Blackboard for more details. There will be various small assignments assigned intermittently during the semester and those will be given during lectures and details posted to Blackboard. As briefly mentioned above, the final two weeks of class will be composed of a Mock Conference of Parties (COP), which will simulate the United Nations Convention on Climate Change. Our objective will be to develop a resolution on how to mitigate climate change, with specific emphasis on how climate change will impact oceans and coastal systems. Students will be working in pairs, and each pair will represent one country, which we will determine on 07 March 2017. Please feel free to begin exploration into countries that could be particularly susceptible to changes in their ocean and coastal ecosystems. We will of course discuss the COP in much more detail, but it is always good to get a head start on ideation.

Lab: The lab section of this course will consist of four major labs, a movie screening, and a workshop to prepare for the COP. Students will use the process of scientific inquiry to investigate various questions pertaining to the following topics: global warming, fish population estimates, El Nino and impacts of changing temperature on fish respiration. Students are required to supply their own **lab notebooks**, which needs to be a BOUND notebook of their choosing. The cheapest route is the typical bound, black and white composition notebooks. Spiral notebooks are not allowed. You will be required to use your notebook during the first week of class and please also bring it to every class and lab section. During the first three labs, the instructor will iteratively walk students through the process of using their notebooks and developing official lab reports from the information collected during lab. You may also use the notebook for taking notes in class as well, so all your material is in one place. The class will be divided into two separate lab groups Group 1 and Group 2. Once assigned to your group, students will only need to come to the assigned weekly lab as noted on the schedule below. There will also be weeks when there is no lab at all, or when all students are required in lab together. *Please refer to the schedule and make plans accordingly.*

Grading:

2 Exams	100 pts each
1 Major Quiz	75 pts
Final Exam	150 pts
Current Event Tweet	50 pts
Small Assignments	100 pts
Lab Reports	150 pts (3 @ 25 pts, 1 @ 75 pts)
Lab assignments	100 pts
COP Background Paper	50 pts
COP Background Presentation	50 pts
COP Position Paper	50 pts
COP Resolution	50 pts

A culture of mutual respect: It is the St. Mary’s Way to respect your peers and I have a zero tolerance policy for disrespect, injustice, or any form of oppression in the classroom. With your help I aim to create a safe classroom space for all who inhabit it, where we are free to make mistakes in the pursuit of knowledge and where we can trust each other to be a part of a supportive community. Please do your part!

Accommodations: It is college policy to provide reasonable accommodations to students who have disabilities as well as being in compliance with The Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973. If you have a disability for which a Letter of Accommodations has been developed with the Coordinator of Disability Support Services please make an appointment with me as early as possible (Add your Office Number and Building, phone number, office hours) in order to discuss those accommodations. If you have a documented disability and have not met with the Coordinator of Disability Support Services you are encouraged to contact the Office of Academic Services, Glendening Hall, Suite 230, (240) 895-3153 as early as possible for a confidential review of supporting documentation.

Student Code of Conduct:

Students are expected to abide to the policies on academic honesty as stated in the College Catalog and the Code of Student Rights and Responsibilities.

In all assignments and communications, **plagiarism** will not be tolerated. This policy applies equally to oral and written communications in the context of any evaluated (graded) course assignments. Work submitted for credit in a different class cannot be resubmitted for credit in this class. In presenting quotes, paraphrasing statements or logical arguments from others in any medium (on-line, oral or written), students should properly cite their source. Any public usage of original material from this course (e.g., presentations, images, etc.) without explicit permission of its creator shall be construed as stealing. As stated in the Student Code of Conduct, infractions may result in invalidated credit for dishonorable work and lowered grade, including failure from the class, suspension or dismissal. Inquiries for clarification from the professor are welcome. Thank you in advance for your conscious attention to these issues.

Absenteeism Policy: Please **inform your instructor via email** in advance if you will be absent from class due to sickness or other reasons.

SCHEDULE

**BB: informs student that a pdf will be provided on BlackBoard*

Week	Topic	Readings
01/17	Course syllabus, Scientific Inquiry	slides only
01/18	Lab 1: Scientific Method: Group 1	
01/19	Scientific writing and communication	slides only
01/24	What are systems and how do they respond to change	Miller, Sec. 2.4, BB*
01/25	Lab 1: Scientific Method: Group 2	
01/26	Ecosystems	Miller, Ch. 3, BB*
01/31	Populations and the environment	Miller, Sec. 5.2, 5.3, BB*
02/01	Lab 2: Population Study Lab: Group 1	
02/02	Human/Environment scientific paper jigsaw	BB*
02/07	TEST	--
02/08	Lab 2: Population Study Lab: Group 2	
02/09	Air-Sea Interactions Student Pres prep	Trujillo, Ch. 5
02/14	Air-Sea Interactions Student Presentations	Trujillo, Ch. 5
02/15	Lab 3: El Nino Lab: Group 1	
02/16	Ocean chemistry	slides only
02/21	Ocean acidification	slides only
02/22	Lab 3: El Nino Lab: Group 2	
02/23	Ocean acidification published paper jigsaw	
02/28	Ocean productivity and macroalgae	Trujillo, Ch. 13
03/01	Lab 4: Ocean Acidification Lab: (ALL STUDENTS)	
03/02	Plankton, fish and marine resources	Trujillo, Ch. 13

Week	Topic	Readings
03/07	The coastal ocean, habitat loss, pollution; Dry shells	slides only
03/08	Lab 4: Ocean Acidification Lab: (ALL STUDENTS)	
03/09	TEST ; COP country picks	
03/14	SPRING BREAK – No class	
03/15	SPRING BREAK – No lab	
03/16	SPRING BREAK – No class	
03/21	Climate change	Trujillo Ch. 16.1 – 16.4
03/22	Ocean Acidification Lab: Analysis (ALL STUDENTS)	
03/23	The oceans and climate change	Trujillo, Ch. 16.1 – 16.4
03/28	No class	
03/29	No lab	
03/30	Climate change impacts on humans	slides only
04/04	Guest lecture: Peter Jacobs, GMU - Paleoclimate	slides only
04/05	Inconvenient Truth: movie screening - (ALL STUDENTS)	
04/06	Solutions to change	Trujillo Ch. 16.5
04/11	MAJOR QUIZ	
04/12	COP Workshop – (ALL STUDENTS)	
04/13	Background: Conference of the Parties: SMCM	slides only
04/18	Day One: COP: SMCM	
04/19	No lab, due to COP	
04/20	Day Two: COP: SMCM	
04/25	Day Three: COP: SMCM	
04/26	No lab, due to COP	
04/27	Day Four: COP: SMCM	
Final Exam:	Thursday, May 04, 2017 7:00PM – 9:15PM	