

**Syllabus**  
**Biology 319**  
Non-majors upper-division GE category III.A.3  
**Marine Biology**  
Fall, 2009 Schedule # 10651  
MH287: MW 8:30-9:45

**Prof.: Douglas J. Eernisse (Professor of Biology)**

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**Office: MH217C (enter MH207 after calling x3749 outside door)**

**Office Hrs.: Tues. 1:30 – 5:00 p.m.**

**Course Web Home Pages: <http://biology.fullerton.edu/biol319/>**

**(We will also use course Blackboard site accessed through your portal.)**

**Prerequisites:** This course is an upper-division biology course in Natural Sciences and Mathematics and as such it is not appropriate for majors in Biology. The prerequisites are the successful prior completion of either GE category III.A.1. or III.A.2 or permission of the instructor. I encourage you to ask me if you think you have sufficient background equivalent to a lower-division GE biology course.

**Objectives:** To gain appreciation and familiarity with the field biology and natural history of local marine plants and animals. Emphasis will be on understanding and applying scientific approaches for determining the distribution, abundance, and interactions between marine animals, plants, and other organisms in a variety of different marine habitats. A primary goal is to integrate understanding of ocean processes, earth history, and the ecology and evolution of marine life. Also emphasized are the real and potential effects of human activities on marine organisms, as well as understanding their impact and importance to humans. The course objectives are designed to satisfy the CSUF requirements for GE category III.A.3 (see p. 6).

**Required Materials:** The textbook, *Marine Life and the Sea* (David H. Milne) is required. This primary text will be supplemented or occasionally replaced by readings from some other sources, especially *Mapping the Deep* (2000, Robert Kunzig) and *Geological Oceanography* (1977, Francis P. Shepard). These selected readings will be made available in pdf format shortly before their assigned date from “External Links” within the course Blackboard site. *Between Pacific Tides* (Edward F. Ricketts et al., 6<sup>th</sup> or any older edition) is an excellent book and is highly recommended, as is a newly published book, *Encyclopedia of Tidepools and Rocky Shores* (2007; Univ. of Calif. Press), and you might also be required to read some of the short entries from it, also provided in pdf format. Additional reading might also be provided in pdf format or as handouts. This course will also involve frequent use of extensive web links related to the covered text topics have been developed and will be maintained and expanded during this

semester. If you do not have home or wireless access to the web or if you prefer the much faster interface of an on-campus connection, you are encouraged to use computers in the campus Titan Lab: [http://www.fullerton.edu/it/services/Computing\\_Labs/TitanLab/](http://www.fullerton.edu/it/services/Computing_Labs/TitanLab/). See: <http://www.fullerton.edu/it/services/Networks/Wireless/index.asp> for campus Wi-Fi sites or other free local wireless networks, including the free Wi-Fi zone for the entire downtown Fullerton area (see: <http://www.fullertonwireless.com/>) or at various cafes and restaurants, some of which are listed at <http://www.wififreespot.com/ca.html>. Material on our course web site is considered an integral part of this course, not just supplementary material, so expect that I might ask you in lecture to consult particular course web pages or linked web sites, or may post reviews for exams to the web site. In addition to our main course website we might use other web sites, as announced in class. There is more material on the web pages that I set up for this course than I ever expect you to view completely, and this semester I will be exploring the new “blog” options in the newest version of Blackboard (see below). However, I will expect that when I draw your attention to particular material or links on the web during lecture then this material will be considered fair game for quizzes and exams, or as primary research resources useful for preparing various oral presentations you will be assigned during the course of the semester. As summarized above, assigned non-text reading (mostly provided in pdf format) are likewise fair game on quizzes and exams.

In general, expect me to give a brief quiz at the start or at sometime during many or most scheduled class times, so you will **always** need to be ready with a blank sheet of paper for **every** class session.

**Blogs:** The newest version of Blackboard now has various new interfaces with interesting possibilities to enhance student learning. There will be a three-week trial period in which I will assess whether a sufficient number of students find this to be a valuable study aid. Please let me know whether you would like me to assess your weekly blog activity with a small number of points, available to everyone. My tentative plan is to make it easy for you to discuss the assigned review questions with other students or me, and I will also try to post a limited number of selected interesting links, ideas, discoveries, or controversies related to marine biology. If after three weeks there is sufficient activity to justify continued blogging, I will assign 2 to 5 points per week to award active bloggers. To earn the maximum points assigned per week, you should post two to four contributions (depending on their original content). Asking a well-worded question is a perfectly good way to qualify provided that you have already read the assigned reading and you still have a non-trivial question. Another way is to post a follow-up response to the help another student with a question. If someone has already answered a question, you can give another example or respond in another way that is a valuable contribution to the conversation. If you previously asked a question, you can post a follow-up to another student’s answer to demonstrate that you now understand the answer. Even better is if you extend the blog in interesting ways. What I do not want is for students to merely post copied portions of the text section. You should use your own words or alternatively bring in alternative sources besides the text, properly cited. People who copy the text inappropriately, who plagiarize other sources, or who fail to abide by generally accepted

core rules of “netiquette” (<http://www.albion.com/netiquette/corerules.html>) risk being blocked from blogs and will have to forfeit any possibility of earning associated points. **Course Details:** As indicated on the attached schedule, this course will be divided into three units. There will be three exams (100 points each) at the end of Units 1, 2 and 3 (the last during Finals Week). Note that exams comprise only half of the total points that you can earn in this course. Regular in-class or online quizzes will generally be worth 5 points each. Expect that you will be asked to complete a brief quiz at the beginning of each class session (although some sessions will have no quiz). In order to prepare for the exams or quizzes, expect to be asked identical or similar questions to the review questions posted online on the website or questions that I pose at my summary of student-led discussions. Exam questions will also be variations on these questions, including those already asked as quiz questions.

There will be one essay writing assignment (40 point). The latter will be returned with an opportunity a revision to earn up to half of the points missed when first evaluated. A rubric will be used to assess whether the writing is competent and whether it clearly expresses the complex data or ideas in an organized manner. Written assignments must be turned in at the beginning of the lecture on the announced due date, with late papers subject to a deduction starting at 10 percent and increasing with time. Still, it is much better to turn in an assignment late than not at all. A physician’s note may be required in the event that you have missed an exam due to illness. In this case, I will decide whether you are entitled to either take a make-up exam or whether I will pro-rate your other scores to assign a score for the missed exam. There will be no make-up quizzes and it is typical for most students to miss one or two quizzes, but I might pro-rate one or more missed score(s) if you have a valid excused absence.

Expect to complete several in-class activities (5 or 10 points each) related to lecture assignments or activities, probably performed in small groups. Such activities are good opportunities to cooperate with other students to boost your individual percentage of total points earned, and thus improve your individual course grade. You are expected to be a regular participant in discussions. You will also be expected to lead part of one class meeting, generally with one or more other assigned co-leader. This will be for a selected portion of the material covered for a particular class session so the time for your joint presentation will be short, no more than 10-15 minutes maximum including class discussion, which should be encouraged by design of your presentation. Further details will be announced in class.

**Reading and Writing Assignments:** You will be expected to complete reading assignments before class, turn in selected writing assignments on time, and engage in informal discussion activities throughout this course. Students will be asked to lead small portions of many of the class sessions after the first two weeks, for example discussing assigned review questions. You will be asked to do so either informally during the class session, after some allotted time to prepare your response after discussion with your classmates, or a more prepared response in a future class session with some advance warning. In preparation for class sessions, regular quizzes, and exams, you are expected to complete the reading assignments before coming to class, including a modest number

of additional handout articles or book that might be additional or replacing part of the originally assigned text reading. Blogging about assigned review questions or related topics will be encouraged. Most students like knowing that if they do this they will be able to successfully answer quiz and related exam questions, and will do well in the course. If the idea of completing regular reading with written quiz responses or take-home assignments does not appeal to you then PLEASE drop the course now while the process is relatively painless. You will be expected to have read the assigned reading **before** each lecture and have engaged in **active** (not passive) learning. There will not always be a right or wrong answer to an assigned question.

**Please Be Original:** I do not want to read exactly what is in your reading. I want you to use your own words and there should be original discussion of the reading material. For those times that I might assign take-home writing assignments, if I find that you have essentially copied portions of the book with minimal rearrangements then you will receive a low score. This is a non-science majors' course and I encourage you to use your non-science talents and experience to good advantage, while still understanding that a primary goal of this course is for you to explore science as a way of knowing. You should learn to recognize whether there is accumulated scientific evidence for or against claims made related to the oceans around us, but there is plenty of opportunity to express yourself creatively as well. The use of word processors for completing writing assignments is strongly encouraged. Hand-written papers that are difficult to read will be noted as such and it will be exceedingly difficult to receive an excellent score on them, especially after I have warned you once that I am finding your homework difficult to read. The use of spell-checkers is encouraged. Likewise, please do your very best to make the writing in your regular quizzes and exam essay responses as legible as possible. Please understand that it could take up to a couple of weeks to return a written essay assignment, due to the amount of time devoted to each essay's grading. You will be given an opportunity to earn back subtracted points by rewriting portions of at least one essay, in accordance with campus General Education writing goals (see below). Your proofreading and rewriting efforts will consequently reap just rewards in essay points assigned. Please always feel free to discuss your questions on comments I write on your essays or other exam/quiz questions, especially if you do not understand the concepts behind the question. I encourage you to email questions to me at any time during the semester, and I will generally answer your email within two non-furlough work days.

**Outside-of-Class Activity Assignment:** A modest number of points will be awarded for the successful completion of an outside-of-class activity write-up, based on any one of the activities posted at: <http://biology.fullerton.edu/biol319/ft/extra.html> You must complete any one the outside-of-class activity listed here to earn any of these points. You may also propose others, but I prefer to approve them in advance, if feasible. The purpose of these assignments is for you to gain first-hand experience with, and a better appreciation of, specific marine habitats and organisms. For each, you will record observations of living marine organisms, usually in their natural habitat, and write a brief report of the trip. Further instructions for your activity write-up will be provided in class. The reports are due on the last day of the semester but can be handed in any time. I

encourage you not to wait until the end of the semester to go on a field trip, and to complete the reports soon after you go on a given trip.

**Grades:** The following summarizes approximate points you can earn towards your final grade (estimates for the number of quizzes and assignments are tentative):

3 Exams (100 pts. each; the exam in Finals Week is not comprehensive)	300
Quizzes (5 pts. each)	80
Take home essay assignment with opportunities for revision	40
In-class activities	10-30
Web assignments or Blackboard blog activity (see above)	30-80
Outside-of-Class Activity assignment (see above)	40
Regular attendance (estimated from quizzes or roll taking)	30
Regular participation in discussions (estimated by instructor)	50
<b>Total Points</b>	<b>up to 650</b>

The following +/- grading scale will be used in this course (% of total available points):

<b>A</b>	<b>92-100</b>	<b>C</b>	<b>69-71</b>
<b>A-</b>	<b>88-91</b>	<b>C-</b>	<b>66-68</b>
<b>B+</b>	<b>85-87</b>	<b>D+</b>	<b>60-65</b>
<b>B</b>	<b>80-85</b>	<b>D</b>	<b>55-59</b>
<b>B-</b>	<b>77-79</b>	<b>F</b>	<b>0-54</b>
<b>C+</b>	<b>72-76</b>		

These cut-off levels are based on my experience in how students perform in all of my classes, and will never be raised but they might be lowered in your favor. Lowering the cut-off scores on the point distributions in the class would depend on my own assessment of how the final scores reflect the overall performance of students in the class. In general, I prefer to adjust individual exams instead of the final cut-off scores if I find that the exam was more difficult than intended.

**Extra Credit Seminars:** A modest number of extra credit points will be awarded for attending relevant seminars or other presentation events related to topics we cover. These will include any seminars in the Biology Seminar Series (W at 4 p.m., MH-513; see <http://biology.fullerton.edu/events/>) and I will announce other special seminars that qualify. I would call particular attention to seminars offered on Sept. 9 (Dr. Lisa Crummett) and October 7 (Nerida Wilson) because both of these guest speakers have done very interesting marine biological research in the past. I generally am flexible in the sorts of presentation events that I will accept but only rarely will approve a “article report” or a report based on watching a DVD or video. You will also need to turn in a seminar write-up to document your attendance. The seminar write-ups will be worth up to 10 possible points for up to a maximum of two seminars that you attend (20 points total). In case you cannot attend either the regular or special seminars, due to schedule conflicts, you are encouraged to seek out other relevant seminars to attend. See the bulletin board outside MH287 for many posted seminars that will likely be permitted as substitutes. I will distribute two write-up forms early in the semester but you can also complete these

on your own paper or submit them by email. A suggested approach for your write-up is to answer the following questions (although I am quite flexible): 1) What is the basic take-home message? 2) What question(s) would (or did) you ask the speaker? and 3) How can you suggest that this research might be extended? Word processor output is highly preferred over hand-written notes taken during the seminar itself. Take notes but then organize and synthesize in your write-up. Remember, your write-ups need to have thoughtful responses to the above questions or a comparable set of questions of your choosing in order to get the maximum extra credit points possible.

**Furlough Issues:** As you are probably aware, CSUF's budget for this year has been significantly reduced affecting all areas of the campus. Faculty and staff are required to take furlough days without pay meaning that instruction and usual services will be disrupted at various times during the year. Please note that students have no furlough dates. You will be expected to complete assigned work even if the class is not meeting formally. This semester, the Biology Department Office will be closed on designated staff furlough days, which are posted outside MH282. Further, classes will not meet formally on those days where I have scheduled an instructor furlough day. The specific days when a class will not meet will vary from course to course and instructor to instructor. These days have been identified in the course syllabus and alternative work assignments will be announced in class, as these dates approach. This includes at one scheduled midterm exam date that will either be administered by a guest exam proctor or else administered online through Blackboard's new Respondus exam management tool. This is a very difficult time for all of us. We are working to provide the best education possible given the resources available to us.

**Rules About Withdrawing from Courses:** CSUF has a policy (UPS 300.016) regarding withdrawal from classes. After the first census date, students may be granted withdrawal (i.e., to receive a "W" grade) only by presentation of documentation outlining a physical, medical or emotional condition that prevents completion of the course. Poor academic performance is not evidence of a serious reason for withdrawal. Students unable to produce official documentation will be required to take the grade they have earned in the class.

**Special Needs:** If you are a student with documented special needs, you have the right to get assistance via the Disabled Student Services Offices, UH 101, (714) 278-3117 or as documented at <http://www.fullerton.edu/disabledservices/>.

**Classroom Behavior:** You are expected to participate in classroom activities. Late entering or early exiting class during the class period is disruptive and should be minimized. Likewise, the use of electronic devices (cell phones, pagers, etc) during class is not permitted and you should turn them off or to silent. You can use laptops, hand-held computers for class use but not for other purposes, including texting, checking email, and other internet-enabled communication or web surfing. If during small-group discussion you want to look something up on the web, please ask permission first. Inappropriate use of cell phones, laptops, or other internet-enabled devices may result in a deduction of 5% from your final course grade for each offense.

**Academic Integrity:** I assume that by remaining enrolled in this class your intentions are HONORABLE, and that you accept responsibility for dutiful attendance, earnest effort toward understanding the subject and pledge that you will not cheat on exams.

- Plagiarism is the unacknowledged use of another's words or ideas as your own. Use your own words when writing. Use quotation marks and cite the source of any phrase that you "use". Changing one or two words in a sentence is still plagiarism. Just because you referenced a source does not give you the right to insert segments, verbatim, into papers you write. You must put the information into your own words. I may rely on a course account with TurnItIn.com (<http://turnitin.com>) in order to check that you have not plagiarized your essays or other required written assignments.

- Cheating is the use of another's work as your own. Copying another student's homework, looking at another student's exam, and using information from another student to enhance your performance on a task are all examples of cheating.

Students who violate university standards of academic integrity are subject to disciplinary sanctions, including failure in the course and suspension from the university. University policies are strictly enforced in this course. Please familiarize yourself with the academic integrity guidelines found in the current student handbook.

**General Education Goals for Student Learning:**

The following are the overall GE goals for courses in Natural Sciences, based on University Policy Statement 411.201:

[http://www.fullerton.edu/catalogprevious/catalog2005-07/academic\\_programs/generaledu.asp](http://www.fullerton.edu/catalogprevious/catalog2005-07/academic_programs/generaledu.asp)

- To understand how different themes of science make connections within and between the different scientific disciplines.
- To apply scientific methodology through active experimental methods and experiences (laboratory/activity).
- To evaluate the validity and limitations of theories and scientific claims in interpreting experimental results.
- To understand the dynamic and evolving nature of the sciences.
- To recognize the importance of scientific paradigms and methods in understanding scientific concepts.
- To solve theoretical or experimental problems that require knowledge of science concepts and scientific reasoning.
- To understand the issues raised by science for contemporary society and to appreciate the relevance and application of science in everyday life.
- To understand that there is synergism between science and technology – advances in science drive new technologies and new technologies make possible new advances in science. The principles of science provide the underpinnings of technology and, consequently, technology should be taught in conjunction with content directly linked to the scientific disciplines.

This course satisfies category IIIA3, Implications and Explorations in Mathematics and Natural Sciences. Courses in this category draw upon, integrate, apply and extend

knowledge and skills previously acquired in Category III.A. Disciplinary Learning: Mathematics and Natural Sciences. These courses have a substantial scientific and/or mathematical content and require completion of appropriate courses in Categories III.A.1 and III.A.2 as prerequisites to enrollment. In addition, courses in III.A.3. Implications and Explorations in Mathematics and Natural Sciences include the following goals for student learning:

- To understand broad, unifying themes in mathematics and/or science from cross-disciplinary perspectives.
- To solve complex problems that require mathematical and/or scientific reasoning.
- To relate mathematics and/or science to significant social problems or to other related disciplines.
- When deemed appropriate, to apply disciplinary concepts from mathematics and the natural sciences in a variety of settings, such as community-based learning sites and activities.

### **Classroom Safety Briefing:**

- In the event of an emergency such as earthquake or fire:
  - Take all your personal belongings and leave the classroom. Make your way to the nearest available stairway.
  - Do not use the elevator. They may not be working once the alarm sounds.
  - Go to the lawn area towards Nutwood Avenue. Stay with class members for further instruction.
  - For additional information on exits, fire alarms and telephones, **Building Evacuation Maps** are located near each elevator.
  - Anyone who may have difficulty evacuating the building, please see me after class.
- Dial 911 on any campus phone, pay phone, or blue emergency phones to connect directly to University Police. Dialing 911 on your cell phone will connect with the Highway Patrol. Tell CHP dispatcher that CSUF Police is the responding agency. Stay on the line until asked to hang up.
- There is no smoking within 20 feet of every campus building.

### **Schedule:**

The remaining pages in this syllabus were downloaded from our course web site at the beginning of the semester. This is a provisional schedule subject to announced changes. Please depend on the current online version, not on this provisional schedule, throughout the semester: <http://biology.fullerton.edu/biol319/schedule.html>

The schedule for each week is subject to change up until Thursday at 5 p.m. of the prior week, although I will generally try to keep the schedule stable. It is also important to make a bookmark to this page because this is how you will access assigned online review questions, on which quiz and exam questions will be based. Please click on the particular week's links in order to view questions. An alternative way to access these review questions might be through Blackboard's blog tool (see above).





**Marine Biology**  
**Biol. 319 - Prof. Eernisse**  
**California State University, Fullerton**  
**Fall, 2009**

Class Times: MW 8:30-9:45 in MH287

Schedule # 10651

Office Hours: Tues. 1:30-5

Office: MH217C (enter MH207 after calling x3749 outside door)

**Provisional Discussion and Readings Outline**

Note: Selected additional required readings not yet listed

Pages refer to [Marine Life and the Sea](#) (MLATS) by Milne or [Mapping the Deep](#) (MTD) by Kunzig

WEEK	DATE	LECTURE TOPIC	ASSIGNMENT
1	Aug 24 Aug 26	<a href="#">Course Intro</a> /Oceans of Planet Earth Ocean floor/Tilt and temperature	— pp. 1-21 <a href="#">Ch. 1</a> (MTD: Chs. 2&3)
2	Aug 31 Sep 2	Ocean gyres, currents & upwelling The tides and impact on organisms	pp. 22-39 <a href="#">Ch. 2</a> (MTD: Chs. 4&5) pp. 40-50 <a href="#">Ch. 2</a>
3	Sep 7 Sep 9	<b>Labor Day</b> Water, salt, temperature, & gases	— pp. 51-79 <a href="#">Ch. 3</a> (MTD: Ch. 1)
4	Sep 14 Sep 16	How organisms use sunlight & sound Density, viscosity, pressure & depth	pp. 80-105 <a href="#">Ch. 4</a> pp. 106-125 <a href="#">Ch. 5</a>
5	Sep 21 Sep 23	<b>Exam 1 (Chapters 1-5)</b> Small organisms and plants in the sea	<b>pp. 1-125 + MTD Chs. 1-5</b> pp. 126-152 <a href="#">Ch. 6</a>
6	Sep 28 Sep 30	Animals without backbones - 1 Animals without backbones - 2	pp. 153-169 <a href="#">Ch. 7</a> pp. 170-184 <a href="#">Ch. 7</a>
7	Oct 5 Oct 7	Fishes: hagfish, sharks Fishes: herring, salmon, etc.	pp. 185-193 <a href="#">Ch. 8</a> pp. 193-207 <a href="#">Ch. 8</a>
8	Oct 12 Oct 14	Marine birds Marine mammals and turtles	pp. 208-215 <a href="#">Ch. 9</a> pp. 216-238 <a href="#">Ch. 9</a>
9	Oct 19 Oct 21	Review (Furlough Day* - No Class Meeting) <b>Exam 2 (Chapters 6-10)*</b>	— <b>pp. 126-238 + other as assigned</b>
10	Oct 26 Oct 28	Populations, communities Communities, ecosystems	pp. 240-248 <a href="#">Ch. 10</a> pp. 248-261 <a href="#">Ch. 10</a>
11	Nov 2 Nov 4	Offshore communities & deep sea- <a href="#">review notes</a> Rocky shores, kelp forests - <a href="#">review notes</a>	pp. 293-312 <a href="#">Ch. 13</a> pp. 313-329 <a href="#">Ch. 14</a>
12	Nov 9 Nov 11	Mudflats, mangroves & reefs <b>Veterans Day</b>	pp. 331-346 <a href="#">Ch. 14</a> —
13	Nov 16 Nov 18	Rocky shores, kelp forests - <a href="#">review notes</a> Community/population dynamics - <a href="#">review notes</a>	pp. 347-371 <a href="#">Ch. 15</a> pp. 373-389 <a href="#">Ch. 16</a>
14	Nov 23→	<b>Fall Break!</b>	—
15	Nov 30 - Dec 2	Long term community change - <a href="#">review notes</a> (Nov. 30 is Furlough Day* - No Class Meeting) Impacts of harvesting marine life	pp. 399-417 <a href="#">Ch. 17</a> - pp. 419-435 <a href="#">Ch. 18</a>
16	Dec 7 Dec 9	Global warming and ozone depletion Student Project Presentations	pp. 436-458 <a href="#">Ch. 19</a> —
Finals	Dec 16	<b>Exam 3 (Text pp. 248-261, 293-458 only + other as assigned)</b> Final Date: Turn in Reports	9:30-11:20 PM - MH287

\* Furlough Days on Oct. 19 and Nov. 30 will have no class meeting, but please note that an Exam is scheduled for Oct. 21. Professor Eernisse will also be unavailable on the following furlough dates, subject to change by announcement: Sept. 17 (Th), Sept. 25 (Fr), Oct. 20 (Tu), Oct. 22 (Th), Nov. 5 (Th), Dec. 14 (Mo).

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