



## COURSE SYLLABUS

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NAME OF COURSE: ADVANCED MARINE BIOLOGY

NAME OF TEACHER: GREG MCBRIDE

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ROOM #                      PREPARATION PERIOD: ONE  
D-208

### I      COURSE DESCRIPTION/Outline (*reflects needed skills*)

Advanced Marine Biology meets one year of the UC Lab Science requirements. It is a course for students who have demonstrated interest in and proficiency in the study of Biology. This is a college prep class and students will need to be able to read at a 12th grade level. A prerequisite for entrance into Marine Biology is the recommendation of your biology, chemistry or physics teacher. Completion of a chemistry class is strongly recommended before taking Marine Biology. This is an in depth study of life in the seas, physical oceanography, and the impact of humans on the oceans. Class and independent fieldwork are required. Science communication via readings, writing, projects, labs, oral presentations, and illustrations will be required. Students will have the opportunity to participate in the Ocean Science Bowl and the High School Intertidal Monitoring Project. Outside Learning Experience for this course is required and can be completed by collecting and analyzing plankton, Intertidal Monitoring, pressing marine alga, or by arrangement with the instructor. During the first and second semester each student will read a novel related to marine studies and write a formal book review. Students in Marine Biology are expected to be self-motivated and interested in learning about the oceans.

### II     MATERIALS REQUIRED EVERY DAY

1. A NOTEBOOK- loose leaf or in a spiral notebook
2. 3-RING BINDER that can accommodate all notes, articles, handouts, quizzes etc.
3. #2 PENCIL(S) and a DARK PEN (lime green is NOT dark)
4. Colored Pencils
5. Marine Biology Coloring Book (\$15)
6. Aptos High School Student Planner

### III    GOALS (*knowledge to be acquired, technical skills, etc., ESLRs must be referenced*)

1. Scientific processes are based on observation and evidence, and are open to review and revision to incorporate new information. Students will be able to:
  - a. select and use appropriate technology to perform tests , collect data and analyze relationships
  - b. identify sources of experimental error
  - c. formulate explanations using logic and evidence
  - d. distinguish between hypothesis and theory
  - e. solve scientific problems
  - f. recognize the use and limits of models to describe reality
  - g. investigate a science-based societal issue and communicate their findings.
  - h. explain the cumulative nature of scientific evidence

(ESLR's A,B,C,D,E)

Specific content areas to be investigated include the following from CA. Science Content standards.

(ESLR's A,B,C,D,E are involved in these explorations. Some with a special emphasis are so indicated:

2. Fundamental life processes of plants and animals depend on a variety of chemical reactions that are carried out in specialized areas of the organism's cells.
3. Sexual reproduction and mutation lead to genetic variation in a population.
4. A multicellular organism develops from a single zygote, and its phenotype depends on its genotype, which is established at fertilization.
1. Genes are a set of instructions, encoded in the DNA sequence of each organism that specify the sequence of amino acids in proteins characteristic of that organism.
6. The genetic composition of cells can be altered by the incorporation of biotechnology, and there are many new biomedical and agricultural products from this technology. Humans have been selecting preferred phenotypes for centuries through controlled breeding of livestock and crops.
7. There are bioethical issues that must be considered with the use of any technology.
8. Stability in an ecosystem is a balance between competing effects. Human activity may affect biodiversity and the stability of ecosystems. (ESLR D)
9. The frequency of an allele in a gene pool of a population depends on many factors, and may be stable or unstable over time.
10. Evolution is a result of genetic changes that occur constantly in changing environments.
11. As a result of the coordinated structures and functions of organ systems, the internal environment of the human body remains relatively stable (homeostatic) despite changes in the outside environment. Major body systems are complementary in their activities.
12. Organisms have a wide variety of mechanisms to combat disease. By our choices and behavior we can greatly affect our health and well being. (ESLR E)
13. There is both diversity and unity of pattern in life on Earth. Systems of classification reflect our cumulative knowledge and analysis, and as such, are subject to change. (ESLR C)

#### IV UNITS OF STUDY (*activities*)

1. Principles of Marine Science
2. Life in the Marine Environment
3. Structure and Function of Marine Ecosystems
4. Humans and the Sea
5. Field research and intertidal monitoring
6. Special units on: sharks, elephant seals, otters, cetaceans, cephalopods
7. Science communication: literacy, writing, illustration, photography, and computers.

#### V METHODS OF ASSESSMENT (*may include tests, portfolios, projects, essays, etc.*)

1. Lecture (note taking and use essential)
  2. Homework (primarily reading, reading notation, completion of written class work)
  3. Labs with documentation: illustrations, graphs, conclusions
  4. Frequent quizzes both announced and unannounced (mostly review and preview of reading homework)
  5. Class discussions
  6. Internet information research, use of computer models, CD-ROM's, satellite and other remote information
  7. Guest speakers
  8. Field work: MBA labs, shark study, intertidal survey, elephant seal breeding beach, fossil search, Long Marine Lab, MBA oceanography lab
- FIELD WORK IS A CRUCIAL PART OF MARINE BIOLOGY; FIELD TRIPS ARE REQUIRED**
9. Unit tests, essays, posters, multimedia, reports, projects, portfolio of work
  10. Semester exams (1/5 of semester grade)
  11. Maintain cold water marine aquaria and organisms
  12. Read one novel each semester.
  13. Extracurricular activities / community service: National Ocean Science Bowl, Coastal Clean up, plankton collection for the California Department of Health, Science Fair, Intertidal Monitoring,

Sustainable Seas Expedition. (minimum of one service or activity per semester)

## VI GRADING POLICY

GRADING: POINTS - most common values are:

Labs 25-50 pts.

Quizzes 5-15 pts.

Homework 5-25 pts.

Tests 25-50 pts.

Unit Exams 100 pts.

Projects 10-100 pts.

Participation 0-50 pts.

Semester Final not more than 20%

LETTER GRADES: a percentage of total points

90% A-

80% B-

70% C-

60% D-

## VII CLASS PROCEDURES (*missed assignments, make up work assignment format*)

ATTENDANCE:

Work missed due to EXCUSED absences must be made up within four tutorial periods. Work should be made up for unexcused absences after meeting with the instructor. NOTE that **some activities such as labs with live animals or guest speakers are impossible to make up**. Class discussions are impossible to make up, and may result in lost points. Late work, if it is accepted at all, will result in lost points. So get your work done and turned in on time! Excessive tardiness or absences, excused or not, may result in a lower grade.

EXTRA CREDIT:

1. may be done ONLY if all work and make-up work is complete
2. may replace an activity which is impossible to make up, or it may be extra
3. must be an activity or project that YOU find or invent
4. can not change your quarter grade more than one grade

## VIII BEHAVIORAL EXPECTATIONS (*and consequences*)

**Rule number one is do not waste time.**

Rule number two is to respect yourself.

Showing disrespect to others almost always breaks rule number two.

Use of disrespectful language will result in one warning. Subsequent disrespectful language will result in a referral.

Use of a music device or phone in class will not be allowed. This syllabus is your first and only warning concerning this rule.

We will be engaged in a variety of activities that will require varying levels of individual discussion, attentiveness and care. At times following directions will be essential for the sake of safety. Each day you will be expected to be in your assigned seat, with the materials you need to begin class when the final bell begins to ring. All AHS rules and regulations apply within the classroom AND in the field. If you are ever in doubt about what you should do refer to rule number one.

I am looking forward to studying life in the oceans with you this year. We live in an area that is immensely rich in marine habitats, marine labs, marine aquaria and museums, marine artists, writers and researchers and students. I do not have a monopoly on information about life in the Oceans, or local natural resources, or local human sources of learning. Throughout this course, please feel free to add your own contribution to our class. We can all benefit from what each of us brings.

If you are ever in doubt about whether you should do something refer to rule number one.

I HAVE READ & UNDERSTAND THE "COURSE SYLLABUS" FOR...

**MARINE BIOLOGY**

PARENT/GUARDIAN SIGNATURE.....

STUDENT SIGNATURE.....

