

BIOLOGY 3: FUNDAMENTALS OF BIOLOGY

Summer 2017

Section 1081

M-Th, 12:45-5:05, Science 225

Prof. Jim Bland, PhD

Bland_jim@smc.edu

Office Hours: Tuesday and Wednesday, 5:05-5:35

Course Objectives and Exit Skills:

Upon completion of the course, students will be able to:

- 1) Demonstrate a general understanding of basic biological concepts.
- 2) Recognize and use the scientific method including experimentation and logical reasoning.
- 3) Discuss the capabilities and limitations of the scientific process.
- 4) Know the difference between science and pseudoscience through the development of critical thinking skills.
- 5) Discuss the role of human life in the larger framework of global ecology and the evolutionary history of life on earth.
- 6) Describe the elements of biological literacy necessary for making informed decisions about issues with biological relevance, such as general health, medicine, nutrition, and environmental concerns.
- 7) Model the collaborative process of scientific inquiry through working in teams in the laboratory.
- 8) Use computers and the Internet to research biological topics.

Student Learning Outcomes:

- 1) After careful observations of an organism or situation, pose appropriate questions and generate hypotheses; design and perform a test; gather, analyze, and interpret data; evaluate and reformulate hypotheses.
- 2) Given a biological report from the mass media, evaluate and critique the findings based on knowledge of the scientific method, the strength of the evidence, and independent research on the topic.

Course requirements:

Lecture quizzes: Multiple-choice lecture quizzes are scheduled for weeks when there is no exam (see schedule below). They will cover lecture topics covered since the previous exam. Each will be given at the beginning of class on the scheduled day. Scantron forms 815-E are required.

Lab worksheets: lab worksheets will be handed in at the end of each lab. Usually, four-person lab groups will hand in a single worksheet with all group members' names on it. All members of the lab group will receive the same score. The late penalty for worksheets

is 10% of the grade for each day late. Students may not access the internet while working on lab worksheets.

Exams: There will be three exams of equal point value. They will cover material from lectures and lab exercises. Question formats will include multiple choice, true/false, and short essay. Possible topics for essay questions will be provided on-line one week prior to each exam.

Reading: Assigned readings are generally supplemental to Powerpoint lectures. There will be no exam questions on topics covered in the text but not in lectures.

Internet connectivity: students are expected to regularly check Canvas and their SMC email inbox for course-related announcements. The internet may not be accessed during lab exercises.

Field trip: a mandatory field trip is scheduled at the end of the course, during regular class hours. Transportation will be by car pool in personal cars. Only Bio 3 students may attend: no spouses, friends, or offspring. Check on-line for directions and additional requirements.

Texts and materials:

Phelan, J. 2015. *What is Life?*, 3rd edition. Freeman and Co.

Biology 3 Laboratory Manual. Santa Monica College. Download from the SMC intranet (\\Newton\data\Biology3\Bio 3 Version 12 Lab Manual) or purchase from the SMC bookstore.

3 Scantron 882-E (green) test forms for exams.

1 pack of 10 Scantron Quizzstrips 815-E (green)

Lecture outlines. Available weekly for download. Key terms and phrases are redacted from regular Powerpoint lectures, whereas “lab lectures” are provided in full. Many students choose to print the outlines in advance and bring them to class. You may also edit these on your computer during lecture as a means of taking notes.

Course policies:

Tardiness: Parking can be a problem at SMC, so plan to arrive on campus well ahead of class, especially when the weather is bad. Suggestion: plan to study on campus prior to class.

Drop policy and attendance: During the first week of class, attendance will be noted at the beginning of each meeting, and any student who misses any 2 days will be dropped from the class. Thereafter, any student who misses two consecutive meetings, an exam, or has missed any three days total will be dropped from the class. Attendance is defined as being present for roll-call during the first week, and handing in a lab worksheet thereafter.

Disruptive behavior: Students that disrupt the instructor or classmates by carrying on conversations during lectures may be required to sit in assigned seats. Repeated disruptions will result in expulsion from the classroom.

Cheating: The Academic Honesty Policy of Santa Monica College will be strictly enforced. Anyone found cheating on an assignment will receive a grade of zero and will have a letter describing the incident placed on file with the Dean of Students.

Exams: Students will remain seated during exams, and raise their hand if they have a

question. Exam forms must be returned to the instructor along with the answer sheet. **FAILURE TO RETURN THE TEST FORM WILL RESULT IN A ZERO GRADE ON THE EXAM.** No one will leave an examination room until they have handed in their test. Restrooms should be visited before the exam. Any student who leaves the room during an exam, or responds to a call on a cellular phone, will not be allowed to continue his or her exam. When using scantron forms, erasures must be very clean. If your form becomes smudged, you must also write your chosen response (e.g., “B”) directly on the form, just to the right of the printed choices.

Makeups: Missed quizzes, exams, laboratory exercises and field trips can not be made up. Under extraordinary circumstances, the instructor might assign your average quiz or lab score to a missed quiz and or lab, if he has been notified at least two days in advance, or if documentation such as a physician’s excuse, court summons or obituary is provided.

Disabilities: Students with disabilities should discuss their needs with the instructor during the first week of class, as should students with special medical needs or concerns.

Food and clothing: Do not bring food or drinks, other than water, into the laboratory or lecture rooms. Shoes must be worn in the laboratory and on field trips. Air temperature of the laboratory is erratic and beyond the instructor’s control, so plan to wear, or have available, adequate clothing. Do not leave valuables unattended in the laboratory.

Dictionaries and electronic devises: No dictionaries or electronic devices (e.g., smart phones) will be permitted during tests or quizzes. Feel free to ask the instructor to clarify any exam question you do not understand.

Cellular phones and beepers: All mobile phones, beepers, etc. must be turned off prior to any lecture.

Use of the internet during class: Access to the internet with any device is strictly prohibited while conducting laboratory exercises (unless instructed otherwise).

Extra credit: none available.

Grading:

Final letter grades will be assigned according to the percentage of total points accumulated: 89.5-100% = A, 79.5-89.5% = B, 64.5 - 79.5% = C, 49.5-64.5% = D, below 49.5% = F. Students with serious attendance problems will be dropped or assigned a W grade according to campus policy.

Tentative grade breakdown:

Item	Points
Exams (3 @ 200 points each)	600 (62 %)
Lecture quizzes (3 @ 30 points each)	90 (10 %)
Lab worksheets (13 @ 20 points each, drop worst 1; 10% daily deduction for late hand-ins)	240 (24 %)
Field trip (1@40 points; based partly on quiz, not just attendance)	40 (4 %)
Total points	970 (100%)

Tentative course schedule:

Week	Date	Lecture Quiz	Lab Activity	Lecture Topic	Pages in Phelan
1	6/19		Snail races (worksheet 1)	Introduction	1-37
	6/20		pH & Water (worksheet 2)	Chemistry basics	40-54
	6/21			Organic molecules	55-74
	6/22		Microscopic life (worksheet 3)	Cell organization	86-101, 112-127
2	6/26	1		Cell transport	102-111
	6/27		Enzymes (worksheet 4)	Cell chemistry	136-142
				Cellular respiration	157-170
	6/28		Metabolism (worksheet 5)	Photosynthesis	143-156
6/29		Mitosis & DNA		75-77, 178-186	
3	7/03	Exam 1 (through Mitosis & DNA)		Meiosis	250-259
	7/04	Holiday - no class			
	7/05		Human inheritance (worksheet 6)	Gene expression	186-196
	7/06			Inheritance	197-203, 260-270, 278-308
	4	7/10	2	DNA fingerprint (worksheet 7)	Genetic engineering
7/11			Natural selection (worksheet 8)	Evolution	316-337, 348-358
7/12				Speciation	416-431
7/13			Animal diversity (worksheet 9)	Earth history	406-416
				Bacteria & Protists	432-438, 534-556

Week	Date	Lecture Quiz	Lab Activity	Lecture Topic	Pages in Phelan
5	7/17	Exam 2 (Meiosis through History)		Algae & Fungi	518-526
				Plant form & function . . .	494-517, 688-756
	7/18		Bones (worksheet 10)	Invertebrate animals	446-469
	7/19		Flowers (worksheet 11)	Vertebrate animals	470-486
	7/20	Heart (worksheet 12)	Nutrition and digestion . .	873-910	
			Immune Systems	849-851, 1046-1074, 557-564	
6	7/24	3	Seeds (worksheet 13)	Ecology	609-642
	7/25			Global Environment	649-680
	7/26	Field Trip - Malibu Lagoon			
	7/27	Exam 3 (Bacteria through Global Environment)			

Drop Deadlines

Last day to drop with refund	June 22nd
Last day to drop and avoid "W" grade	June 25th
Last day to drop with "W" rather than A-F grade	July 19th