Fall 2022

BIOL-6A:

Biological Form & Function

"E-Greensheet": Detailed course syllabus, schedule, lecture slides, and lab materials on the course website:
http://www.deanza.edu/faculty/heyerbruce/bio6a.html

- Required Text: ***Campbell Biology***, 12th ed., Urry, L.A., *et al*; Pearson Education, 2021.
- Required ***Mastering Biology*** supplemental instruction-homework-quiz website:
  — **http://www.pearsonmastering.com/**
- Required Lab Manual: ***Biology 6A Lab Manual***, McCauley, B. & B. Heyer; DeAnza College, 2021.
  — download and print from the class website.
- Recommended Lab Supplement: ***Van De Graaff's Photographic Atlas for the Biology Laboratory***, 8th ed., Adams, B. & J. Crawley; Morton Publishers, 2018. (Older editions OK)

Instructor: Bruce Heyer

Email: heyerbruce @ deanza.edu

Office: via Zoom
Office Hours: Tue/Thu — 11:00–12:50

Phone: (408) 864-8933

COURSE DESCRIPTION

Biology-6A is the first of three courses for serious enthusiasts of the biological sciences to present the foundations of life's processes and the methods for scientific investigation. In this first course we shall elaborate on organismal biology - the comparative structure (form) and physiology (function) of the diverse range of living inhabitants of our planet relevant to the basic universal necessities of being alive. Central themes include producing and maintaining a stable internal body environment while exchanging energy, nutrients, water, gases, and wastes with the outside world; sensing and responding to stimuli; and transporting materials and coordinating actions in a multicellular organism.

The class lectures examine specific biological phenomena across a wide variety of organisms, but the laboratory portion focuses on the overall structure of specific groups of multicellular organisms. Thus, while the concepts presented in lectures are applied to this survey of the major plant, fungus, and animal body plans, the lab exercises do not directly parallel the lectures and much of the content is presented only in lab. Therefore, it is mandatory to fully participate in both the lecture and laboratory components to pass the class.

STUDENT LEARNING OUTCOMES

(1) Analyze and compare the process of homeostasis as applied to common physiological processes across higher taxonomy.
(2) Develop observational skills in the context of scientific methodologies.
(3) Contrast the Linnaen, traditional phylogenetic and cladistic processes of taxonomy.

GRADING

- **Lab Exercises & Quizzes:** ~12 exercises and/or quizzes. Average of all % scores = 200 points.
- **On-line Homework & Problem sets:** ~20 sets. % Total score out of all problem sets = 100 points.
- **Lecture Exams:** There are three non-cumulative exams based upon material covered in lecture. (The final exam is Exam 3.) Each exam counts 100 points. (3 x 100 = 300 points)

- The final class grade will be determined as a percentage of the maximum total 600 points:

| 92-100%= A | 89-91%= A– | 86-88%= B+ | 80-85%= B | 77-79%= B– |
| 74-76%= C+ | 65-73%= C | 53-64%= D | <53%= F

BIOL-6A: Biological Form & Function

Fall 2022

BIOLOGY–006A: **Lecture**	asynchronous	Zoom recording
BIOLOGY–006A–03Y: CRN #00239 **Lab**	Mon/Wed 10:30–1:20	SC-2108
BIOLOGY–006A–04Y: CRN #00240 **Lab**	Mon/Wed 1:30–4:20	SC-2108

Instructor: **Bruce Heyer**

Email: **heyerbruce @ deanza.edu**

Office: SC 1212

Office Hours via Zoom:
Tue/Thu — 11:00–12:50

Phone: (408) 864-8933

BIOL-6A: Biological Form & Function **Fall 2022 Schedule**

Week	Date	Day	Lab Topic	Lecture Topic	Chapter
1	Sep 26	Mon	01: Scientific Method	Life & Science	1
	Sep 28	Wed	02: Microbes & Microscopy	Classification Systems	26
2	Oct 03	Mon	03: Systematics	Life Cycles	12.1; 13.1-2; 28.2-6
	Oct 05	Wed	04: Plants I	Plant Development & Tissues	35
3	Oct 10	Mon	05: Plants II	Plant Vasculature & Transport	36
	Oct 12	Wed	06: Plants III	Gas Exchange in Animals	42
4	Oct 17	Mon	07: Plants IV	SE-1: Gas Exchange	"
	Oct 19	Wed	Lecture Exam 1	Circulation	"
5	Oct 24	Mon	08: Fungi	Animal Development & Tissues	47
	Oct 26	Wed	Plants & Fungi Review	Homeostasis & Thermoregulation	40
6	Oct 31	Mon	09: Animals I	Feeding & Digestion	41
	Nov 02	Wed	10: Animals II	Nutrition	"
7	Nov 07	Mon	11: Animals III	Osmoregulation	44
	Nov 09	Wed	12: Animals IV	Excretion	"
8	Nov 14	Mon	Invertebrate Animal Review	SE-2: Osmoreg & Excretion	
	Nov 16	Wed	Lecture Exam 2	Coordinating Body Functions	45; 48
9	Nov 21	Mon	13: Animals V	Animal Senses	50
	Nov 23	Wed	14: Fish Anatomy	"	
10	Nov 28	Mon	15: Mammalian Anatomy	Locomotion & Motor Systems	"
	Nov 30	Wed	16A: Skeletons	"	"
11	Dec 05	Mon	16B: Skeletons	Animal Reproduction	
	Dec 07	Wed	Vertebrate Review	SE-3: Sensory-Motor	
12	Dec 12	Mon	1:45 - Lecture Exam 3 - Sec 04Y		
	Dec 14	Wed	9:15 - Lecture Exam 3 - Sec 03Y		