

BIOL-6A:

Biological Form & Function

<p>“E-Greensheet”: Detailed course syllabus, schedule, lecture slides, and lab materials on the course website: http://www.deanza.edu/faculty/heyerbruce/bio6a.html</p>		
<ul style="list-style-type: none"> ▪ Required Text: Campbell Biology, 12th ed., Urry, L.A., <i>et al</i>; Pearson Education, 2021. ▪ Required Mastering Biology supplemental instruction-homework-quiz website: <ul style="list-style-type: none"> — Purchase access code with text, or from Pearson Education through the class <i>Canvas</i> ▪ Required Lab Manual: Biology 6A Lab Manual, McCauley, B. & B. Heyer; De Anza College, 2025. <ul style="list-style-type: none"> — Download and/or print from the class website. ▪ Required Lab Simulations: eMind Simulation Suite, Expandable Mind Software, 2024. <ul style="list-style-type: none"> — available to enrolled students. ▪ 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) 		
<p>Instructor: Bruce Heyer</p>	<p>Email: heyerbruce@deanza.edu</p>	
	<p>Office: via Zoom Office Hours: Tue/Thu — 12:10–2:00PM</p>	<p>Phone: (408) 864-8933</p>

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 Linnaean, 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

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Winter 2025

BIOLOGY-006A: Lecture		asynchronous	On Canvas
BIOLOGY-006A-01Y: CRN #00218 Lab		Mon/Wed 10:30-1:20	SC-2108
BIOLOGY-006A-02Y: CRN #36233 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 — 12:10-2:00	Phone: (408) 864-8933

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Winter 2025 Schedule

Week	Date	Day	Lab Topic	Lecture Topic	Chapter
1	Jan 06	Mon	01: Scientific Method	Life & Science	1
	Jan 08	Wed	02: Microbes & Microscopy	Classification Systems	26
2	Jan 13	Mon	03: Systematics	Life Cycles	12.1; 13.1-2; 28.2-6
	Jan 15	Wed	04: Plants I	Plant Development & Tissues	35
3	Jan 20	Mon	∅ [holiday]	Plant Vasculature & Transport	36
	Jan 22	Wed	05: Plants II	Gas Exchange in Animals	42
4	Jan 27	Mon	06: Plants III	SE-1: Gas Exchange	"
	Jan 29	Wed	Lecture Exam 1	Circulation	"
5	Feb 03	Mon	07: Plants IV	Animal Development & Tissues	47
	Feb 05	Wed	08: Fungi	Homeostasis & Thermoregulation	40
6	Feb 10	Mon	Plants & Fungi Review	Feeding & Digestion	41
	Feb 12	Wed	09: Animals I	Nutrition	"
7	Feb 17	Mon	∅ [holiday]	Osmoregulation	44
	Feb 19	Wed	10: Animals II	Excretion	"
8	Feb 24	Mon	11: Animals III	SE-2: Osmoreg & Excretion	"
	Feb 26	Wed	Lecture Exam 2	Coordinating Body Functions	45; 48
9	Mar 03	Mon	12: Animals IV	Animal Senses	50
	Mar 05	Wed	13: Animals V	"	"
10	Mar 10	Mon	Animal Review	Locomotion & Motor Systems	"
	Mar 12	Wed	14: Fish Anatomy	SE-3: Sensory-Motor	48; 50
11	Mar 17	Mon	15: Mammalian Anatomy	Animal Reproduction	46
	Mar 19	Wed	16: Skeletons		
12	Mar 24	Mon	1:45 - Lecture Exam 3 - Sec 02Y		
	Mar 26	Wed	9:15 - Lecture Exam 3 - Sec 01Y		