Winter 2019

BIOL-6B: Cell & Molecular Biology

BIOLOGY–006B-05 & -06: Lecture	**Tue & Thu 12:30–2:20**	**SC 1102**
BIOLOGY–006B–05: Lab CRN: 00224	**Mon/Wed 9:30–12:20**	**SC 2118**
BIOLOGY–006B–06: Lab CRN: 00225	**Mon/Wed 1:30–4:20**	**SC 2118**

Course Syllabus, schedule, lecture slides, and lab supplements available from the course website:
http://www.deanza.edu/faculty/heyerbruce/bio6bsyllabus.html

- Required Text: ***Campbell Biology***, 11th ed., Urry, L.A., *et al*; Pearson Education, 2017.
- Required tutorial-homework-quiz website: ***Mastering Biology***
  - ☞ Purchase access code with text, or from: **http://www.pearsonmastering.com/**
- Required Lab Manual: ***Biology 6B Laboratory Manual, 2018***, Heyer, B., DeAnza College
  - ☞ download and print from the class website.

Instructor: Bruce Heyer	**Email: heyerbruce @ deanza.edu**	
	Office: SC 1212 Office Hours: Tue/Thu 10:30–12:20	**Phone: (408) 864–8933**

This course is designed to introduce you, the student, to the study and understanding of the structure, genetics, biochemistry, and physiology of cells. The cell is the basic fundamental unit of life. All the processes of life, including harnessing energy, reproduction, inheritance of characteristics, and responding to the environment, can only be fully appreciated with an understanding of their cellular bases. Biol-6B will emphasize processes and structures common to most cells, and prepare you for more extensive, specialized upper-division work. The development of the field of cell biology and the focus of current innovative research in molecular biology will also be discussed. You will become more independent by learning to read, interpret, and evaluate original scientific papers.

The laboratory portion of the course provides hands-on experience using the modern instruments and methods of molecular biology. These elegant techniques provide practical experience for those pursuing careers in biological research.

Student Learning Outcome Statement

- Demonstrate the ability to use appropriate molecular biology techniques to answer research questions and to interpret and explain the results.

GRADING

- **Lab Project Reports:** Five reports; each report counts 20 points. (5 x 20 = 100 points)
- **Online Homework & Quizzes:** Cumulative score of all exercises and quizzes counts 100 points.
  * Exercises and quizzes are on the *Mastering Biology* website.
- **Lab Exam:** One exam; counts 100 points.
  * The lab exam requires a **BB-8** (large) **Examination Blue Book**.
- **Lecture Exams:** Three exams. Each exam counts 100 points. (3 x 100 = 300 points)
  * Each lecture exam requires an **882-E** (green) **Scantron®** form.

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 6B: Cell & Molecular Biology

2019 Winter Quarter — sections 5 & 6 — Class Schedule

Week	Date	Day	Lecture Topic	Chapter	Lab Topic
1	Jan 07	Mon			S1/A1/A2i: Micropipeting; Solutions & dilutions
	Jan 08	Tue	Introduction / Chemistry Review	2–3	
	Jan 09	Wed			Protein electrophoresis 1
	Jan 10	Thu	Organic & Biological Chemistry	4–5	
2	Jan 14	Mon			Protein electrophoresis 2 Cutting DNA 1: digest/ligate
	Jan 15	Tue	Enzymes & Metabolism	8	
	Jan 16	Wed			Cutting DNA 2: DNA gel electrophoresis
	Jan 17	Thu	Molecular Inheritance	16	
3	Jan 21	Mon	HOLIDAY		No Monday Lab
	Jan 22	Tue	Gene Expression	17	
	Jan 23	Wed			Conjugation 1: Conjugate & culture S2: Restriction mapping
	Jan 24	Thu	Viral & Bacterial Genetics	19, 27.2	
4	Jan 28	Mon			Conjugation 2: Plate data & plasmid extraction
	Jan 29	Tue	Regulation of Gene Expression	18	
	Jan 30	Wed			Conjugation 3: DNA gels pGLO 1: Transformation
	Jan 31	Thu	Exam 1		
5	Feb 04	Mon			pGLO 2: Start cultures
	Feb 05	Tue	Biotechnology	20	
	Feb 06	Wed			pGLO 3: Chromatography
	Feb 07	Thu	Into the Cell	6	
6	Feb 11	Mon			pGLO 4: Protein gel
	Feb 12	Tue	Cell Membranes	7	
	Feb 13	Wed			pGLO 5+6: Purify & restriction digest plasmids
	Feb 14	Thu	Cell Communication	11	
7	Feb 18	Mon	HOLIDAY		No Monday Lab
	Feb 19	Tue	Cell Cycle	12	
	Feb 20	Wed			pGLO 7: Plasmid gel S3: Cell membrane permeability
	Feb 21	Thu	Cancer Biology	18.5	
8	Feb 25	Mon			PV92 1: PCR Reactions
	Feb 26	Tue	Exam 2		
	Feb 27	Wed			PV92 2: PCR Gel S4: Population genetics
	Feb 28	Thu	Meiosis & Sexual Reproduction	13	
9	Mar 04	Mon			Phage 1: Transfect
	Mar 05	Tue	Patterns of Inheritance	14	
	Mar 06	Wed			Phage 2: Re-transfect S5: Inheritance of cat coat color
	Mar 07	Thu	Chromosomes & Genes	15	
10	Mar 11	Mon			Phage 3: PCR
	Mar 12	Tue	Bioenergetics	8	
	Mar 13	Wed			Phage 4: PCR gel
	Mar 14	Thu	Cellular Respiration	9	
11	Mar 18	Mon			Conclusions & review
	Mar 19	Tue	Photosynthesis	10	
	Mar 20	Wed			Lab Exam
	Mar 21	Thu	Catch-up & Wrap-up		
12					
	Mar 28	Thu	Exam 3 (11:30–1:30)		