Syllabus for BIOL-3 Fundamental Cell Biology

Course Information

Semester & Year: Spring 2022
Course ID & Section #: BIOL-3-V2856
Instructor's name: Dr. Diqui LaPenta
Course units: 4

Instructor Contact Information

Office location or *Online: All aspects of this course are online only
Office hours: By appointment. Doodle poll will go out the first week to determine a regular office hour.
Phone number: 707-476-4257
Email address: use the Canvas email tool ONLY

Catalog Description

A course intended for biology majors covering principles and applications of prokaryotic and eukaryotic cell structure and function, biological molecules, homeostasis, cell reproduction and its controls, classical and molecular genetics, cell metabolism, and cellular communication.

Required Course Materials

The details for technology needs will be distributed in the Online Course Orientation letter. Here are the actual materials that are required

- **Textbook**: **FREE AND OPEN SOURCE!** All of the lecture reading material comes from this text. Our text is a FREE open access text from OpenStax. https://openstax.org/details/books/biology-2e
- **LabArchives electronic lab notebook ($20 paid through LabArchives)**. https://mynotebook.labarchives.com/self_signup/MjU2MzYuMHwwLzE5NzIwL0NvdXJzZS8zNjY1NjAyODEyfDY1MDc2LjA=
    - This is where all the lab "handouts" with procedures, my demo videos, virtual labs and ALL of your analysis will take place for labs
- **Lab Kit ($116 through Carolina Biologicals): Order your kit ASAP.** Order your kit ASAP. The first 5 weeks do not require the lab kit, but you will need it by the middle of the semester. Please follow this link for instructions for ordering your kit:
- https://www.carolina.com/catalog/detail.jsp?prodId=583013&orgid=1900228&cid=2

Course Student Learning Outcomes

1. Identify and describe biological molecules and cell structures, and explain their functions.
2. Compare and contrast cellular processes and interactions between prokaryotes and eukaryotes (including metabolism, reproduction, communication, and genetics).
3. Explain how DNA replicates and transmits genetic information within organisms.
4. Apply the processes of scientific inquiry and experimental design to the study of biological concepts.

Prerequisites/co-requisites/ recommended preparation

Prerequisite: CHEM-1A or CHEM-2 with a minimum grade of “C".
Recommended preparation: ENGL-1A and MMAP placement at transfer-level Mathematics

Accessibility

College of the Redwoods is committed to making reasonable accommodations for qualified students with disabilities. If you have a disability or believe you might benefit from disability-related services and accommodations, please contact your instructor or Disability Services and Programs for Students (DSPS). Students may make requests for alternative media by contacting DSPS based on their campus location:

- Eureka: 707-476-4280, student services building, 1st floor
- Del Norte: 707-465-2324, main building near library
- Klamath-Trinity: 530-625-4821 Ext 103

If you are taking online classes DSPS will email approved accommodations for distance education classes to your instructor. In the case of face-to-face instruction, please present your written accommodation request to your instructor at least one week before the needed accommodation so that necessary arrangements can be made. Last minute arrangements or post-test adjustments usually cannot be accommodated.

Student Support

Good information and clear communication about your needs will help you be successful. Please let your instructor know about any specific challenges or technology limitations that might affect your participation in class. College of the Redwoods wants every student to be successful.

Evaluation & Grading Policy

Assignments and Grading:

Assignment	number	Points per assignment	Total points possible
Lecture discussions	25	5	125
Lecture exams	3	100	300
Final lecture essay	1	100	100
Lab discussions	10	2.5	25
Lab Reports	11	15	150 (lowest score dropped)
Lab quizzes	4	25	100
Lab Final	1	100	100
Total possible points			**900**

Letter grades:

Letter grade	%	#points	Letter grade	%	#points
A	94-100	842-900	**C+**	77-79	689-715
A-	90-93	806-841	**C**	70-76	626-688
B+	87-89	779-805	**D**	60-69	536-625
B	83-86	743-778	**F**	<60	<536
B-	80-82	716-742			

Lab and the Lab Notebook:

The purpose of the lab experiments is to demonstrate the way in which biological information is gained. This requires the use of scientific equipment and experimental techniques, many of which have been perfected only in the last 20-30 years. Remember that above all, a scientist is an observer of facts and not merely of expectations. While I feel very strongly that the best science lab experience is in a face-to-face classroom, we do not have that option this semester. We will be using the LabArchives electronic lab notebook ($20 fee to use, but all your labs with graded feedback remains yours to keep). There will be some "wet labs," for which you will need to buy a lab kit. Your discussion should be accompanied by conclusions drawn from your data as well as informed speculations. Graphs: tables and graphs to organize the data. All tables and graphs should be labeled so that a reader could understand the contents **without clicking back and forth to the procedures or data pages**.

Each graph must include:

- Title of the graph
- Labels, including units, on each axis
- Legend if there is more than one line or bar
- Separate lines/bars must be easily distinguishable

Analysis: Discussion and conclusions put into context as described above. The lab report grades will be based on the quality of the data presentation, formatting according to instructions, logic, and quality of the analysis. The analytical quality is the most important aspect.

Class schedule BIOL3 Fundamental Cell Biology Tentative Lecture Schedule

Readings are from the Open Stax textbook, Biology, 2e. Any revisions to this schedule will be posted in announcements and only the most current syllabus will be available on Canvas.

Date	Topic	Reading
M Jan 17	Martin Luther King, Jr Holiday	
W Jan 19	Intro to course; Themes and Concepts	Ch. 1
M Jan 24	Chemistry Review: atoms, molecules, and importance of water and carbon	Ch. 2
W Jan 26	Biological Macromolecules	Ch. 3
M Jan 31	Biological Macromolecules, continued	Ch. 3
W Feb 2	Cell Structure	Ch. 4
M Feb 7	Membranes	Ch. 5
W Feb 9	Energy, Metabolism and Enzymes	Ch. 6
M Feb 14	President's Day Holiday	
W Feb 16	**EXAM I (through 2/9 material)**	
M Feb 21	Energy in Living Systems & Glycolysis; Citric Acid Cycle; Electron Transport	Ch. 7

W Feb 23	Anaerobic metabolism & lipid and protein metabolism; Regulation of metabolism	Ch. 7
M Feb 28	Photosynthesis	Ch. 8
W Mar 2	Cell communication: signals, receptors & signal propagation	Ch. 9
Date	**Topic**	**Reading**
M Mar 7	Mitosis and the Cell Cycle	Ch. 10, pp279-288
W Mar 9	Cell Cycle control, cancer and binary fission	Ch. 10 pp289-306
MARCH 14-19: SPRING BREAK!		
M Mar 21	Meiosis and sexual reproduction	Ch. 11
W Mar 23	**EXAM II (through 3/9 material)**	
M Mar 28	Mendelian inheritance	Ch. 12
W Mar 30	Modern genetics	Ch. 13
M Apr 4	Genetics Practice Problems	Posted to Canvas
W Apr 6	DNA Structure and function	Ch. 14
M Apr 11	Genes and proteins	Ch. 15

W Apr 13	Genes and proteins continued	Ch. 15
M Apr 18	Gene expression through epigenetics	Ch. 16 pp429-438
W Apr 20	Gene expression continued	Ch. 16 pp439-452
Date	**Topic**	**Reading**
M Apr 25	Biotechnology and genomics	Ch. 17 pp455-467
W Apr 27	**EXAM III (through 4/20 material)**	
M May 2	Biotechnology and genomics, continued	Ch. 17 pp468-484
W May 4	Review for Final Lecture Essay requirements	

May 9-13: FINALS WEEK

BIOL3 Fundamental Cell Biology Tentative Lab Schedule

Week:	**Exercise:**
1	Care and Use of the Microscope/Cell Structure
2	Physical Processes
3	Paper Chromatography
4	Spectroscopy/Beer's Law (Lab Quiz 1)
5	Enzymes: Lactase Activity
6	Metabolism: Photosynthesis and Respiration
7	Mitosis
8	Meiosis
9	Genetics (lab quiz 2)
10	LAB KIT experiment 1: DNA isolation
11	LAB KIT experiment 2: Introduction to Biotechnology LAB KIT experiment 1
12	LAB KIT experiment 3: Blood typing (lab quiz 3)
13	LAB KIT experiment 4: Enzyme-linked Immunosorbent Assay (ELISA)
14	LAB EXAM
15	Discussion of Final Lecture Learning Outcomes Essay

Admissions deadlines & enrollment policies

Spring 2022 Dates

- *Classes begin: 01/15/22*
- *Last day to add a class: 01/21/22*
- *Martin Luther King, Jr's Birthday (all campuses closed: 01/17/22*
- *Last day to drop without a W and receive a refund: 01/28/22*
- *Census date (or 20% into class duration): 01/31/22*
- *Last Day to file P/NP (only courses where this is an option) 02/11/22*
- *Lincoln's Birthday (all campuses closed): 02/18/22*
- *Presidents Day (all campuses closed): 02/21/22*
- *Last day to petition to graduate or apply for certificate: 03/03/22*
- *Spring Break (no classes): 03/14/22-03/19/22*
- *Last day for student-initiated W (no refund): 04/01/22*
- *Last day for faculty-initiated W (no refund): 04/01/22*
- *Final examinations: 05/07/22-05/13/22*
- *Semester ends: 05/13/22*
- *Grades available for transcript release: approximately 05/30/22*

Academic dishonesty

In the academic community, the high value placed on truth implies a corresponding intolerance of scholastic dishonesty. In cases involving academic dishonesty, determination of the grade and of the student's status in the course is left primarily to the discretion of the faculty member. In such cases, where the instructor determines that a student has demonstrated academic dishonesty, the student may receive a failing grade for the assignment and/or exam and may be reported to the Chief Student Services Officer or designee. The Student Code of Conduct (AP 5500) is available on the College of the Redwoods website. Additional information about the rights and responsibilities of students, Board policies, and administrative procedures is located in the College Catalog and on the College of the Redwoods website.

Disruptive behavior

Student behavior or speech that disrupts the instructional setting will not be tolerated. Disruptive conduct may include, but is not limited to: unwarranted interruptions; failure to adhere to instructor's directions; vulgar or obscene language; slurs or other forms of intimidation; and physically or verbally abusive behavior. In such cases where the instructor determines that a student has disrupted the educational process, a disruptive student may be temporarily removed from class. In addition, the student may be reported to the Chief Student Services Officer or designee. The Student Code of Conduct (AP 5500) is available on the College of the Redwoods website. Additional information about the rights

and responsibilities of students, Board policies, and administrative procedures is located in the College Catalog and on the College of the Redwoods website.

Inclusive Language in the Classroom

College of the Redwoods aspires to create a learning environment in which all people feel comfortable in contributing their perspectives to classroom discussions. It therefore encourages instructors and students to use language that is inclusive and respectful.

Setting Your Preferred Name in Canvas

Students have the ability to have an alternate first name and pronouns to appear in Canvas. Contact Admissions & Records to request a change to your preferred first name and pronoun. Your Preferred Name will only be listed in Canvas. This does not change your legal name in our records. See the Student Information Update form.

Canvas Information

This course is delivered asynchronously and entirely through Canvas. You will have assignments due AT LEAST 4 times per week: Lecture discussions (2X/week), Lab (1X/week), and lab discussions (1X/week), so you should be checking Canvas EVERY DAY.

Log into Canvas at https://redwoods.instructure.com
Password is your 8 digit birth date (or your previously used Canvas password)
For tech help, email its@redwoods.edu or call 707-476-4160
Canvas Help for students: https://webapps.redwoods.edu/tutorial/
Canvas online orientation workshop: Canvas Student Orientation Course (instructure.com)

Community College Student Health and Wellness

Resources, tools, and trainings regarding health, mental health, wellness, basic needs and more designed for California community college students, faculty and staff are available on the California Community Colleges Health & Wellness website.

Wellness Central is a free online health and wellness resource that is available 24/7 in your space at your pace.

Students seeking to request a counseling appointment for academic advising or general counseling can email counseling@redwoods.edu.

Emergency procedures / Everbridge

College of the Redwoods has implemented an emergency alert system called Everbridge. In the event of an emergency on campus you will receive an alert through your personal email and/or phones. Registration is not necessary in order to receive emergency alerts. Check to make sure your contact information is up-to-date by logging into WebAdvisor https://webadvisor.redwoods.edu and selecting 'Students' then 'Academic Profile' then 'Current Information Update.'

Please contact Public Safety at 707-476-4112 or security@redwoods.edu if you have any questions. For more information see the Redwoods Public Safety Page.

In an emergency that requires an evacuation of the building anywhere in the District:

- Be aware of all marked exits from your area and building
- Once outside, move to the nearest evacuation point outside your building
- Keep streets and walkways clear for emergency vehicles and personnel

Do not leave campus, unless it has been deemed safe by the campus authorities.

a. Lock all doors and turn off lights if in lockdown due to an active shooter or similar emergency.
b. Close all window curtains.
c. Get all inside to safe location Kitchen area is best internal location.
d. If a police officer or higher official arrives, they will assume command.
e. Wait until notice of all is clear before unlocking doors.
f. If safe to do so, move to the nearest evacuation point outside building (Pooky's Park), directly behind the Hoopa Tribal Education Building.
g. Do not leave site, unless it has been deemed safe by the person in command. Student Support Services (required for online classes)

Student Support Services

The following online resources are available to support your success as a student:

- CR-Online (Comprehensive information for online students)
- Library Articles & Databases
- Canvas help and tutorials
- Online Student Handbook

Counseling offers assistance to students in need of professional counseling services such as crisis counseling.

Learning Resource Center includes the following resources for students

- Academic Support Center for instructional support, tutoring, learning resources, and proctored exams. Includes the Math Lab & Drop-in Writing Center
- Library Services to promote information literacy and provide organized information resources.
- Multicultural & Diversity Center

Special programs are also available for eligible students include

- Extended Opportunity Programs & Services (EOPS) provides services to eligible income disadvantaged students including: textbook award, career academic and personal counseling, school supplies, transportation assistance, tutoring, laptop, calculator and textbook loans, priority registration, graduation cap and gown, workshops, and more!
- The TRiO Student Success Program provides eligible students with a variety of services including trips to 4-year universities, career assessments, and peer mentoring. Students can apply for the program in Eureka or in Del Norte
- The Veteran's Resource Center supports and facilitates academic success for Active Duty Military, Veterans and Dependents attending CR through relational advising, mentorship, transitional assistance, and coordination of military and Veteran-specific resources.
- Klamath-Trinity students can contact the CR KT Office for specific information about student support services at 530-625-4821