Syllabus for BIOL-3 Fundamental Cell Biology

Course Information

Semester & Year: Fall 2020
Course ID & Section #: BIOL-3 E9869
Instructor's name: Dr. Diqui LaPenta

Course units: 4

Instructor Contact Information

*Online: no physical office
Office hours: by Zoom appointment
Phone number: 707-476-4257
Email address: Contact me through Canvas email (diqui-lapenta@redwoods.edu)

Catalog Description

A course in tended 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.

Course Student Learning Outcomes *(from course outline of record)*

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

Students will have access to online course materials that comply with the Americans with Disabilities Act of 1990 (ADA), Section 508 of the Rehabilitation Act of 1973, and College of the Redwoods policies. Students who discover access issues with this class should contact the instructor.

College of the Redwoods is also 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

During COVID19, approved accommodations for distance education classes will be emailed to the instructor by DSPS. In the case of face to face instruction, please present your written accommodation request to your instructor at least one week before the first test so that necessary arrangements can be made. Last-minute arrangements or post-test adjustments cannot usually be accommodated.

Support for online learners during COVID-19

In response to COVID-19, College of the Redwoods moved the majority of its courses online to protect health and safety. As the faculty and students adjust to this change, clear communication about student needs will help everyone be successful. Please let me know about any specific challenges or technology limitations that might affect your participation in class. I want every student to thrive.

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	50	50
Lab discussions	10	5	50
Lab Reports	11	15	150 (lowest score dropped)
Lab quizzes	4	25-40	125
Lab Final	1	100	100
Total possible points			**900**

Letter grades:

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

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. Wendy Riggs has taught the non-majors General Biology online for many semesters and students have given very positive feedback on LabArchives (the electronic lab notebook we will be using). There will be no "wet labs," although you'll need some grocery items for a few labs to model chromosomes and genetic traits (Details provided in those labs, and you'll receive the grocery list a week ahead of time). 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 flipping back and forth to the procedures or data pages**.

Each graph must include:

- v Title of the graph
- v Labels, including units, on each axis
- v Legend if there is more than one line or bar
- v 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.

Admissions deadlines & enrollment policies

Fall 2020 Dates

- *Classes begin: 8/22/20*
- *Last day to add a class: 8/28/20*
- *Last day to drop without a W and receive a refund: 9/4/20*
- *Labor Day (all-college holiday): 9/7/20*
- *Census date: 9/8/20 or 20% into class duration*
- *Last day to petition to file P/NP option: 9/18/20*
- *Last day to petition to graduate or apply for certificate: 10/29/20*
- *Last day for student-initiated W (no refund): 10/30/20*
- *Last day for faculty initiated W (no refund): 10/30/20*
- *Veteran's Day (all-college holiday): 11/11/20*
- *Fall break (no classes): 11/23/20-11/28/20*
- *Thanksgiving (all-college holiday): 11/25/20-11/27/20*
- *Final examinations: 12/12/20-12/18/20*
- *Semester ends: 12/18/20*
- *Grades available for transcript release: approximately 1/8/21*
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Students who have experienced extenuating circumstances can complete & submit the ***Excused Withdrawal Petition*** to request an Excused Withdrawal (EW) grade instead of the current Withdrawal (W) or non-passing (D, F & NP) grades. The EW Petition is available from the Admissions and Records Forms Webpage. Supporting documentation is required.

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. It does not change your legal name in our records. See the Student Information Update form.

Canvas Information

If using Canvas, include navigation instructions, tech support information, what Canvas is used for, and your expectation for how regularly students should check Canvas for your class.
Log into Canvas at https://redwoods.instructure.com
Password is your 8 digit birth date
For tech help, email its@redwoods.edu or call 707-476-4160
Canvas Help for students: https://www.redwoods.edu/online/Help-Student
Canvas online orientation workshop: https://www.redwoods.edu/online/Home/Student-Resources/Canvas-Resources

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.

Del Norte Campus Emergency Procedures

Please review the Crescent City campus emergency map for campus evacuation sites, including the closest site to this classroom (posted by the exit of each room). For more information see the Redwoods Public Safety Page.

Eureka Campus Emergency Procedures

Please review the campus emergency map for evacuation sites, including the closest site to this classroom (posted by the exit of each room). For more information on Public Safety go to the Redwoods Public Safety Page It is the responsibility of College of the Redwoods to protect life and property from the effects of emergency situations within its own jurisdiction.

In the event of an emergency:

1. Evaluate the impact the emergency has on your activity/operation and take appropriate action.
2. Dial 911, to notify local agency support such as law enforcement or fire services.

3. Notify Public Safety 707-476-4111 and inform them of the situation, with as much relevant information as possible.

4. Public Safety shall relay threat information, warnings, and alerts through the Everbridge emergency alert system, Public address system, and when possible, updates on the college website, to ensure the school community is notified.

5. Follow established procedures for the specific emergency as outlined in the College of the Redwoods Emergency Procedure Booklet, (evacuation to a safe zone, shelter in place, lockdown, assist others if possible, cooperate with First Responders, etc.).

6. If safe to do so, notify key administrators, departments, and personnel.

7. Do not leave campus, unless it is necessary to preserve life and/or has been deemed safe by the person in command.

Klamath Trinity Campus Emergency Procedures

Please review the responsibilities of, and procedures used by, the College of the Redwoods, Klamath-Trinity Instructional Site (KTIS) to communicate to faculty, staff, students and the general public during an emergency. It is the responsibility of College of the Redwoods, Klamath-Trinity Instructional Site (KTIS) to protect life and property from the effects of emergency situations within its own jurisdiction.

1. In the event of an emergency, communication shall be the responsibility of the district employees on scene.
    a. Dial 911, to notify local agency support such as law enforcement or fire services.
    b. If safe to do so, notify key administrators, departments, and personnel.
    c. If safe to do so, personnel shall relay threat information, warnings, to ensure the school community is notified.
    d. Contact Jolene Gates 530-625-4821 to notify of situation.
    e. Contact Hoopa Tribal Education Administration office 530-625-4413
    f. Notify Public Safety 707-476-4111.
2. In the event of an emergency, the responsible district employee on scene will:
    a. Follow established procedures for the specific emergency as outlined in the College of the Redwoods Emergency Procedure Booklet.
    b. Lock all doors and turn off lights if in lockdown due to an active shooter or similar emergency.
    c. Close all window curtains.
    d. Get all inside to safe location Kitchen area is best internal location.
    e. If a police officer or higher official arrives, they will assume command.
    f. Wait until notice of all is clear before unlocking doors.
    g. If safe to do so, move to the nearest evacuation point outside building (Pooky's Park), directly behind the Hoopa Tribal Education Building.
    h. 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 financial assistance, support and encouragement for eligible income disadvantaged students at all CR locations.
- 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

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 Aug 24	Intro to course; Themes and Concepts	Ch. 1
W Aug 26	Chemistry Review: atoms, molecules, and importance of water and carbon	Ch. 2
M Aug 31	Biological Macromolecules	Ch. 3
W Sep 2	Biological Macromolecules	Ch. 3
M Sep 7	Labor Day Holiday	
W Sep 9	Cell Structure	Ch. 4
M Sep 14	Membranes	Ch. 5
W Sep 16	Energy, Metabolism and Enzymes	Ch. 6
M Sep 21	Energy in Living Systems & Glycolysis; Citric Acid Cycle; Electron Transport	Ch. 7
W Sep 23	**EXAM I (through 9/16 material)**	
M Sep 28	Anaerobic metabolism & lipid and protein metabolism; Regulation of metabolism	Ch. 7
W Sep 30	Photosynthesis	Ch. 8
M Oct 5	Cell communication: signals, receptors & signal propagation	Ch. 9
W Oct 7	Cell communication: response & signals in single-celled organisms	Ch. 9

Date	Topic	Reading
M Oct 12	Mitosis and the Cell Cycle	Ch. 10, pp279-288
W Oct 14	Cell Cycle control, cancer and binary fission	Ch. 10 pp289-306
M Oct 19	Meiosis and sexual reproduction	Ch. 11
W Oct 21	**EXAM II (through 10/14 material)**	
M Oct 26	Mendelian inheritance	Ch. 12
W Oct 28	Modern genetics	Ch. 13
M Nov 2	DNA Structure and function	Ch. 14
W Nov 4	Genes and proteins	Ch. 15
M Nov 9	Genes and proteins continued	Ch. 15
W Nov 11	Veteran's Day Holiday	
M Nov 16	Gene expression through epigenetics	Ch. 16 pp429-438
W Nov 18	Gene expression continued	Ch. 16 pp439-452
Monday November 23-Friday November 27: Thanksgiving Holiday		

Date	Topic	Reading
M Nov 30	Biotechnology and genomics	Ch. 17 pp455-467
W Dec 2	**EXAM III (through 11/18 material)**	
M Dec 7	Biotechnology and genomics, continued	Ch. 17 pp468-484
W Dec 9	Review for Final Lecture Essay requirements	

BIOL3 Fundamental Cell Biology Tentative Lab Schedule

Week:	**Exercise:**
1	Care and Use of the Microscope/Cell Structure
2	Physical Processes
3	Chromatography
4	Spectroscopy (Lab Quiz 1)
5	Enzymes
6	Metabolism
7	Mitosis
8	Meiosis
9	Genetics (lab quiz 2)
10	DNA isolation
11	Agarose gel electrophoresis
12	Analyze mitochondrial DNA sequences (lab quiz 3)
13	Continue DNA sequence analysis
14	LAB EXAM
15	Discussion of Final Lecture Learning Outcomes Essay