Syllabus for BIOL-2 Microbiology

Course Information

Semester & Year: Fall 2020
Course ID & Section #: BIOL-2-V2232
Instructor's name: Dr. Diqui LaPenta

Course units: 4 (2 units for lecture and 2 units for lab)

Instructor Contact Information

*Online: no physical office location
Office hours: Mondays at 3pm and by appointment via Zoom
Phone number: 707-476-4257
Email address:Contact me through the Canvas email tool (diqui-lapenta@redwoods.edu)

Catalog Description

A study of microorganisms including anatomy, physiology, genetics, and ecological importance. Emphasis will be on the role of microorganisms in disease and the mechanisms of microbe/host interactions. Laboratory work emphasizes the importance of aseptic techniques, methods of microbial control, and procedures for isolating, culturing microbes, and identifying microorganisms.

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

1. Describe the anatomy, physiology and biochemistry of microorganisms and the consequential effects of various environmental factors upon them.
2. Know the causative organism of the more common human diseases and the physiological effect of the drugs most commonly used in the fight against these diseases.
3. Describe the principles and applications of genetic engineering and the role that microorganisms are playing in this process.

Prerequisites/co-requisites/ recommended preparation

Prerequisite: BIOL-1 or BIOL-3 with a minimum grade of "C".
Co-requisite: Concurrent enrollment in (or completion of) either CHEM-1A or CHEM-2.

Required Texts

Lecture text: FREE AND ONLINE at https://openstax.org/details/books/microbiology. Hard copy can be purchased through the CR online bookstore.

Lab Manual: Microbiology Laboratory Theory and Application, Brief 3e. Available through the CR online bookstore. eBook WARNING: you will not be able to download and print pages are REQUIRED for completing the labs. Looseleaf format ISBN 9781617314773.

Lab Notebook: LabArchives Electronic lab notebook. ALL lab work will be turned in using LabArchives. Answers must be written on the data sheets from the lab manual and photos of your work uploaded to LabArchives in addition to answering questions within LabArchives. The notebook is ~$20.

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

Grading, Assignments and Policies: This is a grade only course. Your final grade in this course will be based on lecture and lab discussions, lab reports, tests and assignments in lecture and lab. There will be four lecture exams, and a final essay. Regular lecture exams are not cumulative *per se,* but material will sometimes build on previously presented information. The final lecture essay will involve you telling me how you have met the learning outcomes for the course (a rubric guiding you on format and what must be included will be provided). There will also be *online* lab quizzes due the day before each lab, 16 laboratory reports and 3 lab exams (where you will be tested on lab information and techniques), and an unknown report.

Grades assigned as follows: (94-100%: A, 90-93%: A-; 87-89%:B+; 84-86%: B; 80-83%:B-; 77-79%:C+, 70-76%: C, 60-69%: D, <60%:F). Any evidence of cheating or plagiarism may earn you an "F" in this course. If you have trouble with the material, *please* come see me as soon as possible – I am more than happy to offer you study suggestions or otherwise to help you succeed in this class!

Assessment	How many?	Points/assessment?	Total possible points
Lecture discussion	25	5	125
Lecture Exam	4	100	400
Final Essay	1	75	75

Lab Reports	16	10	160
Lab Discussions	15	3	45
Lab Exams	3	75	225
Descriptive Chart	1	25	25
dichotomous key	1	20	20
Final Unknown Report	1	100	125
Cumulative points possible for the course:			1200

Exams, Lab and Unknown report: Exams may include (but not be not limited to) multiple choice, definitions, matching, true/false, and thought questions. ALL exams will be taken using the Canvas "quiz" tool. The exams are TIMED, so you should study in the same way that you would for an in-class exam in a face-to-face course. For labs, each student will complete lab reports by recording data, drawing pictures and answering questions. Data sheets from the lab manual will be completed and scans of the pages uploaded to an electron lab notebook. If an answer comes directly from the lab manual or other text, then you **must** cite the title, author and page number of the source of your answer.

Late work is not accepted. Deadlines for assignments are the same each week. You must login in and complete each assignment by the due date and time. Assignments will lock 1 minute after the due time, so do not procrastinate.

Admissions deadlines & enrollment policies

Fall 2021 Dates

- *Classes begin: 8/21/21*
- *Last day to add a class: 8/27/21*
- *Last day to drop without a W and receive a refund: 9/03/21*
- *Labor Day Holiday (all campuses closed): 09/06/21*
- *Census date: 9/07/21 or 20% into class duration*
- *Last day to petition to graduate or apply for certificate: 10/28/21*

- *Last day for student-initiated W (no refund): 10/29/21*
- *Last day for faculty-initiated W (no refund): 10/29/21*
- *Veteran's Day (all campuses closed): 11/11/21*
- *Fall Break (no classes): 11/22/21 – 11/26/21*
- *Thanksgiving Holiday (all campuses closed): 11/24/21 – 11/26/21*
- *Final examinations: 12/11/21 – 12/17/21*
- *Last day to petition to file P/NP option: 12/17/21*
- *Semester ends: 12/17/21*
- *Grades available for transcript release: approximately 01/07/22*

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.
1. 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

Tentative Lecture Schedule (Any changes will be posted in announcements, and the updated syllabus will be the only one available). All assigned chapter readings are from the *Microbiology OpenStax* textbook

Week	Dates	Lecture Topics	Readings
1	M Aug 23	Course intro and history of Microbiology	Chapter 1
	W Aug 25	The cell	Chapter 3
2	M Aug 30	Prokaryotic Diversity	Chapter 4
	W Sep 1	Eukaryotic Diversity	Chapter 5
3	M Sep 6	LABOR DAY HOLIDAY	
	W Sep 8	Acellular pathogens: viruses, viroids and prions	Chapter 6
4	M Sep 13	Microbial Biochemistry: Macromolecules	Chapter 7
	W Sep 15	Microbial Metabolism	Chapter 8
5	M Sep 20	**EXAM 1 (through 9/13 material)**	
	W Sep 22	Microbial Growth	Chapter 9
6	M Sep 27	Biochemistry of the Genome	Chapter 10
	W Sep 29	Mechanisms of Microbial Genetics	Chapter 11
7	M Oct 4	Modern Applications of Microbial Genetics	Chapter 12

	W Oct 6	Control of Microbial Growth	Chapter 13
8	**M Oct 11**	**EXAM 2 (through 10/6 material)**	
	W Oct 13	Antimicrobial Drugs	Chapter 14
Week	**Date**	**Lecture Topics**	**Readings**
9	M Oct 18	Microbial Mechanisms of Pathogenicity	Chapter 15
	W Oct 20	Disease and Epidemiology	Chapter 16
10	M Oct 25	Innate Nonspecific Host Defenses	Chapter 17
	W Oct 27	Adaptive Specific Host Defenses	Chapter 18
11	M Nov 1	Diseases of the Immune System	Chapter 19
	W Nov 3	Skin and Eye Infections	Chapter 21
12	M Nov 8	**EXAM 3 (through 11/3 material).**	
	W Nov 10	VETERAN'S DAY HOLIDAY	
13	M Nov 15	Respiratory Infections	Chapter 22
	W Nov 17	Urogenital System Infections	Chapter 23
Monday 11/22-Friday 11/26: THANKSGIVING HOLIDAY			
14	M 11/29	Digestive System Infections	Chapter 24
	W DEC 1	Circulatory and Lymphatic System Infections	Chapter 25
Week	**Date**	**Lecture Topics**	**Readings**

15	M DEC 6	Nervous System Infections	Chapter 26
	W DEC 8	Exam 4 (through 12/6 material)	
16	FINALS WEEK	NO CLASSES, "just" exams	

Tentative Syllabus for online BIOL2 Lab Fall 2021. Exercises are from the lab manual "Laboratory Theory and Application, Brief 3e by Leboffe and Pierce

Week	Date	Experiments
1	TU Aug 24	Getting to know your digital lab notebook Media preparation (exercise 1-3) Virtual Microscope (exercise 3-1)
	TH Aug 26	Aseptic technique (Exercise 1-4) Ubiquity of microbes (Exercise 2-1)
2	TU Aug 31	Colony morphology (Exercise 2-2) Growth on agar slant (Exercise 2-3) Growth in broth (exercise 2-4)
	TH Sep 2	Streak plate method for isolated colonies (Exercise 1-5) Simple stain (Exercise 3-4)
3	TU Sep 7	Gram stain (Exercise 3-6) Capsule stain (Exercise 3-8) Endospore stain (exercise 3-9)
	TH Sep 9	View staining results for unknown culture
4	TU Sep 14	Fluid thioglycollate (Exercise 2-6) Anaerobe jar (exercise 2-7) Effect of Temperature on Growth (Exercise 2-8) Effect of pH on Growth (Exercise 2-9)

	TH Sep 16	Selective media: Phenylethyl Alcohol (Exercise 4-1) Mannitol Salt Agar (Exercise 4-3) MacConkey Agar (Exercise 4-4) Eosin Methylene Blue Agar (Exercise 4-5)
	Date	**Experiments**
5	TU Sep 21	Start differential media: Phenol Red broth (Exercise 5-2) Methyl Red and Voges-Proskauer (Exercise 5-3)
	TH Sep 23	Catalase test (Exercise 5-4) Oxidase test (Exercise 5-5) Nitrate Reduction test ((Exercise 5-6)
6	TU Sep 28	Decarboxylase Test (Exercise 5-8) Phenylalanine Deaminase test (Exercise 5-9) Esculin hydrolysis test (Exercise 5-16)
	TH Sep 30	Gram stain (Exercise 3-6) Capsule stain (Exercise 3-8) Endospore stain (exercise 3-9)
7	**TU Oct 5**	**Lab Exam 1 available. DUE FRIDAY 10/15 (2 attempts)**
	TH Oct 7	Starch hydrolysis test (Exercise 5-10) Casein hydrolysis test (Exercise 5-13) Gelatin hydrolysis test (Exercise 5-14)
8	TU Oct 12	DNase test (exercise 5-11) Lipase test (Exercise 5-12) Urea hydrolysis test (Exercise 5-15) SIM media (Exercise 5-18)

	TH Oct 14	Kligler Iron agar test (Exercise 5-19) Blood agar test (Exercise 5-21) Coagulase test (Exercise 5-23) Motility test (Exercise 5-24)
9	TU Oct 19	Complete the dichotomous key and provide tentative ID of your unknown
	TH Oct 21	**Turn in Completed Descriptive Chart**
	Date	**Experiments**
10	TU Oct 26	Turn in 1st draft (may be VERY rough) of Unknown Report
	TH Oct 28	microbes and disease video
11	**TU Nov 2**	***Lab Exam 2***
	TH Nov 4	Kirby Bauer Antibiotic Susceptibility Test (Exercise 7-2)
12	TU Nov 9	Viable Plate Count (Exercise 6-2)
	TH Nov 11	**VETERANS DAY HOLIDAY**
13	TU Nov 16	Morbidity and Mortality Weekly Report (Exercise 7-3)
	TH Nov 18	Coronavirus Lab Archives exercise
	TU Nov 23	**THANKSGIVING HOLIDAY**
	TH Nov 25	

14	TU Nov 30	Making yogurt! (Exercise 7-8)
	TH Dec 2	Work on Unknown report
15	TU Dec 7	***Lab Exam 3***
	TH **Dec 9**	**<u>unknown reports due by11:59pm.</u>** 15 points off/day any time after 12:00am on Dec 10th
	Dec 11-17	**Finals week. Lab does not meet**