

Basic Course Information

Semester	Spring 2016	Instructor Name	Samuel David
Course Title & #	BIOL 220; General Microbiology	Email	sam.david@imperial.edu
CRN #	20046 & 20048	Webpage (optional)	
Room	2712	Office	2772
Class Dates	2/16/2015- 6/10/2015	Office Hours	Mon: 0730-0830; Tue:5:00-6:00 Wed: 0730-0830; Thur:5:00-6:00
Class Days	MTWR	Office Phone #	(760) 355-6298
Class Times	0800-0925; 0935-1245 1120-1245;0200-0510	Office contact if student will be out or emergency	Department Secretary (760) 355-6155
Units	5		

Course Description

Provides students with fundamental concepts of the structure and physiology of non-disease and disease producing microorganisms with particular attention to bacteria. Basic techniques for culturing, staining, counting and identifying microorganisms. Designed to meet the requirement to enter one of the medical fields as well as general education. (CSU, UC)

Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. accurately explain the basic principles of microbiology, which include but are not limited to: structure and functions of prokaryotic and eukaryotic cells, microbial metabolism, bacterial/molecular genetics, pathogenesis, virology, and immunology. (ILO1, ILO2)
2. devise a dichotomous key to aid in the identification of disease-causing bacteria in the lab, and accurately identify disease-causing bacteria by using the key and experimental techniques. (ILO1, ILO2)
3. perform experimental techniques in microbiology correctly to test hypotheses, determine characteristics of microbes and perform diagnostics. (ILO2)
4. apply lecture and laboratory concepts with critical thinking to explain experimental data and scenarios in microbiology not addresses directly in class/laboratory. (ILO1, ILO2)
5. fully participate in classroom and laboratory activities. (ILO3)

Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. The student will list and describe the major historical events in the field of microbiology and the people and experiments involved. The student will also describe different schemes of classification and utilize them to classify and identify microorganisms.

2. The student will describe different types of microscopy, their usage, advantages, and explain the general physical laws governing their operation.
3. The student will describe the general morphology of microorganisms and explain their associated cellular physiology.
4. The student will recognize and apply various techniques and factors necessary for optimum growth of different microorganisms.
5. The student will describe different modes of reproduction among microorganisms and calculate reproduction rates and population size of microorganisms. Student will differentiate among methods of producing pure cultures and describe cultural characteristics of microorganisms.
6. The student will describe enzyme structure and explain enzyme function, regulation, and measurement of activity.
7. The student will describe and explain the various biochemical reactions and pathways of metabolism.
8. The student will describe the various means of inheritance and recombination in microorganisms and explain the results of various genetic situations. The student will describe technique of recombinant DNA.
9. The student will describe death and death-rate determination in microorganisms and explain the effects of various physical and chemical agents on microorganisms.
10. The student will describe chemotherapeutics including antibiotics and will explain the action of antibiotics in microorganisms including measurement of activity.
11. The student will describe the normal microbial flora of the human and explain the infection process and the host's defensive response.
12. The student will explain the theory of common diagnostic techniques and describe their usage.
13. The student will describe the epidemiology and the various modes of transmission of infectious diseases.
14. The student will list and describe the bacterial cause, symptoms, prognosis, and treatment of selected human diseases.
15. The student will list and describe the viral prion cause, symptoms, prognosis, and treatment of selected human diseases.
16. The student will list and describe the fungal or protozoan cause, symptoms, prognosis, and treatment of selected human diseases.
17. The student will list and describe the viral or bacterial cause, symptoms, prognosis, and treatment of selected plant diseases.

Textbooks & Other Resources

Required Texts

1. **Microbiology, An Introduction. By Tolora, Funke and Case; (12th Edition)**
Pearson -Cummings
ISBN # 13: 978-0-321-92915-0
2. **Lab Manual: Microbiology, Laboratory Theory and Application (Brief Edition)**
2nd Edition Morton Publishing. ISBN# 089582947-9

Course Requirements and Instructional Methods

This course includes both lecture and lab component. In order to pass the class you need to participate in both portions of the class which includes regular attendance and participation in both lecture and lab. In addition to all the exams you must take the final exam to receive a passing grade.

Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement.

Course Grading Based on Course Objectives

Your grade is based on the cumulative points you get in both lecture and lab exams. You are expected to keep track of your progress during the course.

A= 90-100%

B=89-80%

C=79-70%

D=69-60%

F= Below 60%

Exams (500Points)

Final Exam(100 Points)

Gram Stan Test (20 Points)

Minor Unknown Identification (50 Points)

Major Unknown Identification (100 Points)

Attendance

Required language

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See General Catalog for details.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

Classroom Etiquette

Required Information --Discretionary language

- Electronic Devices: Cell phones and electronic devices must be turned off and put away during class, unless otherwise directed by the instructor. **Consider:** specifics for your class/program
- Food and Drink are prohibited in all classrooms. Water bottles with lids/caps are the only exception. Additional restrictions will apply in labs. Please comply as directed.
- Disruptive Students: Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the General Catalog.

- Children in the classroom: Due to college rules and state laws, no one who is not enrolled in the class may attend, including children.

Academic Honesty

Required Language

- Plagiarism is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to 'cite a source' correctly, you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.

Anyone caught cheating or will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the General School Catalog for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

Additional Help – Discretionary Section and Language

- Blackboard support center:
<http://bbcrm.edusupportcenter.com/ics/support/default.asp?deptID=8543>
- Learning Labs: There are several 'labs' on campus to assist you through the use of computers, tutors, or a combination. Please consult your college map for the Math Lab, Reading & Writing Lab, and Study Skills Center (library). Please speak to the instructor about labs unique to your specific program.
- Library Services: There is more to our library than just books. You have access to tutors in the Study Skills Center, study rooms for small groups, and online access to a wealth of resources.

Disabled Student Programs and Services (DSPS)

Required Language: Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313, if you feel you need to be evaluated for educational accommodations.

Student Counseling and Health Services

Required Language: Students have counseling and health services available, provided by the pre-paid Student Health Fee. We now also have a fulltime mental health counselor. For information see <http://www.imperial.edu/students/student-health-center/>. The IVC Student Health Center is located in the Health Science building in Room 2109, telephone 760-355-6310.

Student Rights and Responsibilities

Required Language: Students have the right to experience a positive learning environment and due process. For further information regarding student rights and responsibilities, please refer to the IVC General Catalog available online at http://www.imperial.edu/index.php?option=com_docman&task=doc_download&gid=4516&Itemid=762

Information Literacy

Required Language: Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. Students can access tutorials at <http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/library-department/info-lit-tutorials/>

Anticipated Class Schedule / Calendar

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Imperial Valley College
Spring 2016

Biology 220 (CRN# 20046;20048) **General Microbiology**

Course Description: A comprehensive one semester General Microbiology course that provides students with fundamental concepts of structure and physiology of disease- and non-disease producing microorganisms with particular emphasis on bacteria. Includes basic techniques for culturing, staining and identifying microorganisms. The course meets the requirements for general education, nursing and other higher level biology courses.

Lecture : MW: 8:00-0925
TTh: 1120-1245
Lab: MW; 0935-1245
TTh: 0200-0510
Room : 2712

Add/Drop/Withdrawal dates: Students are responsible for meeting these deadlines.

Attendance and Tardy policy: Class attendance and tardy policy follows the regulations as in the IVC catalog. It is appreciated if advance notice of absence can be given. Please make every effort to be on time for the lecture and the lab. If you have more than THREE absences/tardies you may be asked to drop the class at the Instructor's discretion.

Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DPS & S) office as soon as possible.

PLEASE NO FOOD OR DRINKS IN THE CLASSROOM AND THE LAB.

PLEASE TURN OFF YOUR CELLPHONES/iPhones IN CLASS AS A COURTESY TO YOUR CLASSMATES AND THE INSTRUCTOR. (If you are on call please notify me).

Grading Scale: **A=90-100%**
 B= 89-80%
 C= 79-70%
 D= 69-60%
 F= Below 60%

Grading Policy:

Exams (500Points):

There will be FIVE exams during the course, each worth 100 points. There will be NO MAKE-UP EXAMS.

Final Exam (100 Points): The final exam must be taken as scheduled to receive a passing grade. In case of illness or other valid excuse for which there is a written documentation, please notify me as soon as possible so that I can make suitable arrangements.

Quizzes will be given on any day/anytime the class meets.

Points you earn in the exams, quizzes, class/lab assignments graded by the Instructor will contribute towards your overall grade in the class for the semester. **STUDENTS ARE ABSOLUTELY RESPONSIBLE FOR KEEPING TRACK OF THEIR ACADEMIC PROGRESS DURING THE COURSE.**

Attendance is required. Roll will be taken at the beginning/ end of the class. Students are expected to be in the class until the class is dismissed by the Instructor. If you have been marked absent, your assignment for that day will not be graded.

Student Learning Outcomes:

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Accurately explain the basic principles of microbiology, which include but are not limited to: structure and functions of prokaryotic and eukaryotic cells, microbial metabolism, bacterial/molecular genetics, pathogenesis, virology and immunology. (ILO1; ILO2)
2. Devise a dichotomous key to aid in the identification of disease-causing bacteria and accurately identify disease-causing bacteria by using the key and experimental techniques. (ILO1; ILO2)
3. Perform experimental techniques in microbiology correctly to test hypothesis, determine characteristics of microbes and perform diagnostics. (ILO2)
4. Apply lecture and laboratory concepts with critical thinking to explain experimental data and scenarios in microbiology not addressed directly in class/laboratory. (ILO1; ILO2)
5. Fully participate in classroom and laboratory activities. (ILO3)

Imperial Valley College Course Syllabus – Course Title and number

WK	DAY	DATE	LECTURE	LABORATORY	MATERIALS
1	Mon/Tue	2/16	Intro; Chapter 1		
	Wed/Thr	2/17;18	Chapter 2		
				Ex.1-4;1-5;2-1;3-1;3-4	
2	Mon/Tue	2/22;23	Chapter 2		
	Wed/Thr	2/24;25	Chapter 3		
				Ex. 3-6;3-8	
3	Mon/Tue	2/29;3/1	Exam 1		
	Wed/Thr	3/2;3	Chapter 4		
				Ex.3-7;3-8	
4	Mon/Tue	3/7;8	Chapter 4		
	Wed/Thr	3/9;10	Chapter 5		
5	Mon/Tue	3/14;15	HOLIDAY		
	Wed/Thr	3/16;17	Chapter 6		Gram Stain Test
				Ex.4-3;4-5	
6	Mon/Tue	3/21;22	Exam 2		MINOR UNKNOWN
	Wed/Thr	3/23;24	Chapter 7		
				Ex.4-4;5-2;5-3;5-4	
7	Mon/Tue	3/28;29	Chapter 8		
	Wed/Thr	3/30;31	Chapter 9		
				Ex.5-5; 5-5	
8	Mon/Tue	4/4;5	HOLIDAY		
	Wed/Thr	4/6;7	HOLIDAY		
				Ex.5-8;5-9	
9	Mon/Tue	4/11;12	Chapter 11		
	Wed/Thr	4/13;14	Chapter 12		MINOR UNKNOWN
10	Mon/Tue	4/18;19	Exam 3		MAJOR UNKNOWN
	Wed/Thr	4/20;21	Chapter 14		
				Ex.5-12;5-18;5-19;5-23	
11	Mon/Tue	4/25;26	Chapter 15		
	Wed/Thr	4/27;28	Chapter 16	EXAM 4	
12	Mon/Tue	5/2;3	Chapter 17		
	Wed/Thr	5/4;5	Chapter 18		
13	Mon/Tue	5/9;10	Exam 5		
	Wed/Thr	5/11;12	Chapter 21	Chapter 21	

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14	Mon/Tue	5/16;17			
	Wed/Thr	5/18;19			
15	Mon/Tue	5/23;24	Chapter 22	Chapter 22	
	Wed/Thr	5/25;26	Chapter 23	Chapter 23	
16	Mon/Tue	5/30;31	Chapter 24	Chapter 24	
	Wed/Thr	6/1;2	Chapter 25	Chapter 25	MAJOR UNKNOWN REPO
17	Mon/Tue	6/6;7			
	Wed/Thr	6/8;9			

**Required Text: Microbiology, An Introduction; Tortora. Funke and Case (12th Edition)
ISBN # 13-978-0-321-92915-0**

**Lab Manual: Microbiology, Laboratory, Theory and Application; Michael Laboeffe and Burton Pierce
(Brief Edition)**