

# BIO 139: General Microbiology

## Spring 2014 Syllabus

### Part 1: Course Information

#### Instructor Information

**Instructor:** Enid T. Gonzalez-Orta, Ph.D.

**Office:** 211F Humboldt Hall

**Office Hours:** M/W 4:30-5:30 or by appointment

**Office Telephone:** (916) 278-6438

**E-mail:** : [gonzalezorta@csus.edu](mailto:gonzalezorta@csus.edu); for all class-related questions, please use the Message function on SacCT for all communication. NOTE: E-mails received Saturdays past noon will not be answered until Monday.

#### Course Description

Introduction to microorganisms, particularly bacteria and viruses, their physiology and metabolism. Laboratory work includes aseptic techniques, methods of cultivating and identifying bacteria, and demonstration of microbial properties.

#### Prerequisite

- BIO 10 or both BIO 1 and BIO 2; CHEM 20 or CHEM 24. Proof of pre-requisites is required. An unofficial transcript will be accepted as proof of taking pre-requisites and **MUST** be checked off by instructor during your lab section. Failure to provide proof of pre-requisites will result in removal from BIO 139 lecture & lab. Please, highlight pre-requisite courses on the transcript. No unstapled or non-highlighted transcripts will be accepted. If equivalent classes were taken at a local community college or other university, please visit [assist.org](http://assist.org) and print out the equivalency. If your college is not available on [assist.org](http://assist.org), please bring a copy of the course description.

## **Textbook & Course Materials**

### **Required Text**

- *Brock Biology of Microorganisms*. Madigan. 13<sup>th</sup> Edition **ISBN-10:** 978-0-321-64963-8; **ISBN-13:** 0-321-69463-X

### **Recommended Texts & Other Readings**

- Other readings/handouts will be made available in the course SacCT environment.

## **Course Requirements**

- Internet connection (DSL, LAN, or cable connection desirable)
- Access to SacCT
- 1-Scantron 815E; 4-Scantron 882; 6-Blue/Greenbooks 7"x 8 ½"

## **Course Structure**

This course will be delivered as two 1 hour and fifteen-minute lectures and two 1 hour and fifteen minute laboratory sessions per week—a total of 5 hours will be spent in this class. Lecture will be comprised of PowerPoint Presentation/Prezis and handouts. Laboratory sessions will be comprised of demonstrations, lectures, and handouts.

### **Online Resources**

All course materials presented during lecture will be provided on SacCT. This includes the syllabus, PowerPoint slides, and handouts. Students are responsible for checking if any handouts will be needed for the following class. NOTE: We will be using the new SacCT. <http://www.csus.edu/sacct/index.stm>

## Part 2: Course Objectives

**Objective:** The objective of this course is to provide students with an introduction to the microbial world—a world that cannot be seen with the naked eye. In lecture, students will be introduced to several microorganisms, with a focus on bacteria and viruses. The physiology, diversity/ecology, metabolism, and genetics of bacteria will be discussed. In addition, the interactions between humans, microbes, and the environment will also be covered in lecture.

### Assessments:

Biology & Chemistry Quiz: The bio/chemistry quiz will be used to assess your previous biology and chemistry knowledge. Studying for this quiz will help students refresh previous knowledge and prepare them to build upon basic concepts. The format for this quiz will be multiple choice and short answer.

Exams I, II, III: Lecture exams II, III, and I will cover topics discussed in lecture (book topics will not be tested directly, but will reinforce lecture topics). Each test will build on knowledge from the previous test with special focus on recent lectures. Students will be told which lectures are covered on the exam. Exam format will include multiple choice, matching, true/false and essay. Students will provide their own Scantron-882 sheet for each exam.

Lecture Questions: The lecture questions will be a way for me to assess how well students understand the course concepts. Sometimes I may give a couple of questions and other times I will ask you to write down a couple of questions that you may have. These will be worth up to 3 points each and you will be allowed to drop your lowest one. The questions can fall on either Monday or Wednesday for the class.

Final Exam: The final exam will cover topics discussed in the last two weeks of class. In addition, a portion of the exam (~25-30%) will be cumulative over the entire semester. Students will receive a review sheet for the cumulative topics covered on the exam. The format will be the same as the other lecture exams.

# Spring 2014 Syllabus-- Part 3: Topic Outline/Schedule

| Date      | Topics                                                                   | Associated Reading                                                  |
|-----------|--------------------------------------------------------------------------|---------------------------------------------------------------------|
| 1/27      | Introduction to Microbiology & BIO 139                                   | Ch. 1 Section I and II                                              |
| 1/29      | Microbial Diversity, Evolution, and Origins                              | Ch. 2 Section II, Section III and Ch. 16 Section I                  |
| 2/3       | Structure & Function in <i>Bacteria</i> & <i>Archaea</i>                 | Ch. 3 Sections I, III                                               |
| 2/5       | Structure & Function in <i>Bacteria</i> & <i>Archaea</i>                 | Ch. 3 Sections IV, 3.13, 3.15                                       |
| 2/10      | <b>Bio/Chemistry Quiz!</b> Bacterial Growth                              | <b>Bring Scantron 815E</b> Ch. 4 Section I, Ch. 3 .5Ch. 5 Section I |
| 2/12      | Bacterial Population Growth                                              | Ch. 5 Section II and III; In class exercise                         |
| 2/17      | Abiotic Factors affecting bacterial growth                               | Ch. 5 Sections IV and V                                             |
| 2/19      | <b>Exam I</b>                                                            | <b>Bring Scantron 882 and Bluebook</b>                              |
| 2/24      | Biofilms & Control of Microbial Growth and Antimicrobial Drug Resistance | Microbial Sidebar p. 133 Ch. 26 Section I, II, III, and 26.12       |
| 2/26      | Control of Microbial Growth and Antimicrobial Drug Resistance.           | Ch. 26 Section I, II, III, and 26.12; 32.7                          |
| 3/3       | Molecular Biology of <i>Archaea</i> and <i>Bacteria</i>                  | Ch. 6 Section I and II; 6.12, 6.17; Ch. 7 Section I                 |
| 3/5       | Regulation of Gene Expression in <i>Bacteria</i>                         | Ch. 8 Section I; 8.6-8.9; 8.12                                      |
| 3/10      | Horizontal Gene Transfer in <i>Bacteria</i> and <i>Archaea</i>           | Ch. 10 Section II; Ch. 9 Section I, II, and 9.8                     |
| 3/12      | Biotechnology and Microbiology                                           | Ch. 15 Section IV and V                                             |
| 3/17      | Bacterial Metabolism—An Introduction                                     | Ch. 4 Section II, and III                                           |
| 3/19      | <b>Exam II</b>                                                           | <b>Bring Scantron 882 and Bluebook</b>                              |
| 3/24-3/26 | <b>Spring Break</b>                                                      | <b>No Class</b>                                                     |
| 3/31      | <b>Cesar Chavez Holiday</b>                                              | <b>No Class</b>                                                     |
| 4/2       | Bacterial Metabolism—Chemotrophy                                         | Ch. 4 Section IV, Ch. 13 Section II                                 |
| 4/7       | Bacterial Metabolism--Fermentation                                       | Ch. 14 Section I                                                    |
| 4/9       | Bacterial Metabolism—Anaerobic Respiration                               | Ch. 14 Section II                                                   |
| 4/14      | Bacterial Metabolism-Biosynthesis                                        | Ch. 4 Section V, Ch. 15 Section I and II                            |
| 4/16      | Microbial interactions with Humans and the Environment                   | Ch. 24.1, 24.3 & Ch 27 Section I                                    |
| 4/21      | Microbial Interactions with Humans                                       | Ch. 32 Section I                                                    |
| 4/23      | <b>Exam III</b>                                                          | <b>Bring Scantron 882 and Bluebook</b>                              |
| 4/28      | <b>Microbial Pathogenicity Mechanisms</b>                                | Ch. 27 Section II                                                   |
| 4/30      | Virology and Viral Diseases                                              | Ch. 21.2; 21.9; 33.6-33.8                                           |
| 5/5       | Introduction to the Immune System                                        | Ch. 28.1, 28.2, 28.6,                                               |
| 5/7       | Immunology—Innate Immunity                                               | Ch. 28.2; Ch. 29.1; Ch. 30.1                                        |
| 5/12      | Immunology—Adaptive Immunity                                             | Ch. 28.3, Ch. 28.6-8, Ch. 29. 1, 29.4-29.9, Ch. 30.2-30.4,          |
| 5/14      | <b>Public Health Microbiology and Vaccination</b>                        | Ch. 28.7-28.8; Ch. 32.8-32.10                                       |
| 5/19      | <b>Final Exam</b>                                                        | <b>Bring Scantron 882 and Bluebook</b>                              |

# BIO 139: General Microbiology

## Spring 2014 Syllabus

---

### Part 4: Grading Policy

#### Graded Course Activities

Lecture exams will cover all material presented in lecture. Typical formats encountered on the test are multiple-choice, true/false, matching, and short answer/essay questions. Each lecture exam will be cumulative up to the lecture previous to the exam. This includes all lectures, handouts, and assigned reading materials. The final exam will be partially comprehensive (~30%). The lecture portion of this course will make up 75% of your grade

| EXAM                     | Date    | Points                                 |
|--------------------------|---------|----------------------------------------|
| Biology & Chemistry Quiz | 2/10    | 25                                     |
| Exam I                   | 2/19    | 100                                    |
| Exam II                  | 3/19    | 100                                    |
| Exam III                 | 4/23    | 100                                    |
| Exam IV*                 | 5/19    | 125                                    |
| Lecture Questions        | ongoing | 30 (allowed to drop your lowest score) |
| Total Points             |         | 480                                    |

**\*Exam IV=Final Exam 3:00-5:00 PM in 456 Sequoia Hall**

The laboratory portion of BIO 139 makes up 25% of the combined lecture and lab grade. Your lab instructor, Dr. A. Christin Bendorf, will have a separate syllabus for this portion of the course. Dr. González-Orta will assign all final grades in the course.

Requests for re-grades for exams or quizzes will be accepted for up to ONE WEEK AFTER the exam is graded and handed back to the student. It typically takes two weeks for tests, quizzes, reports, etc. to be turned back to students.

All tests and assignments for this class, if not picked up by the student, will be held in my office until the end of the first week of the following semester. All items will be discarded at that time.

#### Viewing Grades in SacCT

Points you receive for graded activities will be posted to the SacCT Grade Center. Click on the My Grades link (if available) on the left navigation to view your points.

## Letter Grade Assignment

The lecture portion of this course is worth 75% of your final grade, while the laboratory portion of makes up 25% of the combined lecture and lab grade. Your lab instructor, Dr. A. Christin Bendorf, will have a separate syllabus for this portion of the course. Dr. González-Orta will assign all final grades in the course.

| Letter Grade | Percentage | Performance           |
|--------------|------------|-----------------------|
| A            | 91-100%    | Excellent Work        |
| A-           | 90%        | Nearly Excellent Work |
| B+           | 89%        | Very Good Work        |
| B            | 81-88%     | Good Work             |
| B-           | 80%        | Mostly Good Work      |
| +            | 79%        | Above Average Work    |
| C            | 71-78%     | Average Work          |
| C-           | 70%        | Mostly Average Work   |
| D+           | 69%        | Below Average Work    |
| D            | 60-68%     | Poor Work             |
| F            | 0-59%      | Failing Work          |

**Important note:** For more information about grading at Sac State, visit the academic policies and grading section of the university catalog.

## Part 5: Course Policies

### Attend Class

Students are expected to attend all class sessions as listed on the course calendar.

- Enter specific points regarding attendance policy here.

### Participate

If you monitor, track, and/or score student participation, explain how you will keep track and how often students should be accessing the course. If appropriate, mention that you will be using the SacCT evaluation tools, discussions, chat sessions, and group work, to monitor their participation in the course.

### Build Rapport

If you find that you have any trouble keeping up with assignments or other aspects of the course, make sure you let your instructor know as early as possible. As you will find, building rapport and effective relationships are key to becoming an effective professional. Make sure that you are proactive in informing your instructor when difficulties arise during the semester so that they can help you find a solution.

### Complete Assignments

**All assignments for this course will be submitted electronically through SacCT unless otherwise instructed.** Assignments must be submitted by the given deadline or special permission must be requested from instructor *before the due date*. Extensions will not be given beyond the next assignment except under extreme circumstances.

All discussion assignments must be completed by the assignment due date and time. Late or missing discussion assignments will affect the student's grade.

### Understand When You May Drop This Course

It is the student's responsibility to understand when they need to consider disenrolling from a course. Refer to the Sac State Course Schedule for dates and deadlines for registration. After this period, a serious and compelling reason is required to drop from the course. Serious and compelling reasons includes: (1) documented and significant change in work hours, leaving student unable to attend class, or (2) documented and severe physical/mental illness/injury to the student or student's family.

#### Incomplete Policy

Under emergency/special circumstances, students may petition for an incomplete grade. An incomplete will only be assigned under emergency circumstances outlined in University Policy. All incomplete course assignments must be completed within one year.

---

## Inform Your Instructor of Any Accommodations Needed

If you have a documented disability and verification from the [Office of Services to Students with Disabilities](#) (SSWD), and wish to discuss academic accommodations, please contact your instructor as soon as possible. It is the student's responsibility to provide documentation of disability to SSWD and meet with a SSWD counselor to request special accommodation *before* classes start.

SSWD is located in Lassen Hall 1008 and can be contacted by phone at (916) 278-6955 (Voice) (916) 278-7239 (TDD only) or via email at [sswd@csus.edu](mailto:sswd@csus.edu).

## Commit to Integrity

As a student in this course (and at this university) you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this class and also integrity in your behavior in and out of the classroom.

### Sac State's Academic Honesty Policy & Procedures

"The principles of truth and honesty are recognized as fundamental to a community of scholars and teachers. California State University, Sacramento expects that both faculty and students will honor these principles, and in so doing, will protect the integrity of academic work and student grades."

Read more about Sac State's [Academic Honesty Policy & Procedures](#)

### Definitions

At Sac State, "**cheating** is the act of obtaining or attempting to obtain credit for academic work through the use of any dishonest, deceptive, or fraudulent means."

"**Plagiarism** is a form of cheating. At Sac State, "plagiarism is the use of distinctive ideas or works belonging to another person without providing adequate acknowledgement of that person's contribution."

**Source:** Sacramento State University Library

**Important Note:** Any form of academic dishonesty, including cheating and plagiarism, may be reported to the office of student affairs.

**Course policies are subject to change.** It is the student's responsibility to check SacCT for corrections or updates to the syllabus. Any changes will be posted in SacCT.