

# MICR 300 GENERAL MICROBIOLOGY, Spring 2012

Lecture MW 9:50 am – 11:05 pm, BIOS244  
Laboratories MW 11:15 pm – 1:45 pm, ASCL 226 and ASCL 266

## Instructors:

Lecture Section 01 in BIOS244 (Class # 13769) and Laboratory Section 02 in ASCL 226 (Class # 13770)

- **Dr. Hyunsook Park**; Office Hours: (Academic Advisement by appointment through the Department office only) Mon 4:00–5:00 pm, (Class) Mon 3:00– 4:00, Wed 3:00 – 4:00 pm, Office: ASCL 353, Tel: (323) 343-2060, Email: [hpark8@calstatela.edu](mailto:hpark8@calstatela.edu)

Laboratory Section 03 in ASCL 266 (Class # 13771)

- **Dr. Tina Salmassi**; Class office hours: Tuesday 11:00 – 12:00, Office location: ASCL 315, Tel: (323) 343-2065, Email: [tsalmas@exchange.calstatela.edu](mailto:tsalmas@exchange.calstatela.edu)

**Prerequisites:** BIOL 100B and CHEM 102

**Text:** Microbiology: An Evolving Science 2nd edition by Joan Slonczewski and John Foster, W. W. Norton & Company, NY. Available in the University bookstore.

To purchase the ebook or selected chapters visit;

[https://www.wwnorton.com/orders/intellipay/accessPurchase.asp?site=microbio\\_ebook](https://www.wwnorton.com/orders/intellipay/accessPurchase.asp?site=microbio_ebook).

**Laboratory Manual:** Compiled by Microbiology Faculties at CSULA and available at the University bookstore and bookmart.

## Moodle (<https://moodle.calstatela.edu/>)

In order to have access to the course materials, online quizzes, and your grading record, you need to get access to Moodle. You need to log on Moodle using your myCSULA ID and PW. If you do not have a myCSULA userID, you need to see the ITS Help Desk located on first floor of the Library. Your lecture instructor will discuss the procedures that you need to follow to have access to pop quizzes, your course grading record, and course materials during the first week of the quarter. All the lecture slides will be posted on Moodle and all course communications will be done at the discussion board on Moodle. Therefore it is important that you PROPERLY establish your userID and get familiar to the contents to utilize the online resources. Students who are not registered for the course will not have access to Moodle course page. Any Moodle quizzes that are not attempted during the period they are available cannot be accessed later for review. It is in your best interest to attempt all quizzes.

## Course Objectives:

- To understand the structure, growth, nutrition, metabolism, genetics and diversity of microbes
- To introduce the students to environmental, industrial and medical aspects of microbiology and biotechnology

**Attendance:** Lecture and laboratory attendance are **mandatory**. There will be point deduction for missing lab. See the following page for more detail.

## Reading assignments:

The reading assignments are from Microbiology: An Evolving Science. The lecture topics, including chapter sections to read, are listed on the schedule page (page 3). It is highly recommended that you read the material before the lecture in order to have a complete understanding of the topics being presented. Student recourses are available through the following link:

<http://www.wwnorton.com/college/biology/mbio/>.

**Performance evaluation: 850 points total**

## **Lecture: 450 points**

50	Pop-up Quizzes (10 pts each, On Moodle)
100	Midterm Examination 1 (Bring Scantron, including 10 points report)
100	Midterm Examination 2 (Bring Scantron, including 10 points report)
200	Final (comprehensive) Examination (Bring Scantron, including 10 points report)

- Five pop-up quizzes (10 points each) will be given via Moodle. Each quiz will be available for **48 hours** after its announcement during lecture. **No make up will be given for missed quizzes.**

- For each **midterm exam** and the **final exam**, the student are required to submit brief summary report on any recent topics related to microbiology class from newspapers, journals, or online publication sources. The report will take 10 points of exam score. An article from a science journal is not appropriate. You will prepare the report ahead of time and turn it in during the lecture exam. The type-written report will be in the following format: **single spaced, 11 pt, Times New Roman, 1 inch margin, indicate title and authors, the source and date of publication**; a summary of the article in your own words (~ ½ page), and a short discussion of what captured your attention and how your article specifically relates to this class (~1/2page). You must attach a copy/printout of the original source. You can submit electronic drafts to the lecture instructor for pre-review. The reports must be turned in before the exam and **late reports will not be accepted.**
- Active learning exercises will be randomly incorporated into the lecture and will count towards lecture participation.

### **Laboratory: 400 points**

120	Post Lab Quizzes (8 times, variable points, dates shown on the schedule and on Moodle)
100	Laboratory Midterm
30	Formal Laboratory Report
100	Comprehensive Final Examination
20	16s rRNA exercise
30	Laboratory Notebook + participation

### **Read Lab manual before you come to the class.**

Laboratory attendance is a course requirement. If you are late for lab, 5 points will be deducted. If you are absent from lab without satisfactorily justified and documented reason, 10 points will be deducted. Repeated failure to follow laboratory rules (including house keeping and safety rules) will result in point deductions.

Post lab quizzes will be available for **48 hrs** after the lab exercises are completed. **There will be no make up for missed quizzes.**

Formal reports and 16s rRNA exercise will be turned in electronically on Moodle (as a PDF file). Make sure you learn how to submit your assignments electronically on Moodle. The instructors will not accept assignments submitted as hard copy or via email. **Late work will also not be accepted.**

### **Grades:**

Based on the % points achieved out of the total achievable points (850 Points) the students can earn:

	B+: ≥ 86% (731 pts)	C+: ≥ 76% (646 pts)	D+: ≥ 66% (561pts)
A : ≥ 93% (790 pts)	B : ≥ 83% (705 pts)	C : ≥ 73% (620 pts)	D : ≥ 63% (535 pts)
A- : ≥ 90% (765 pts)	B- : ≥ 80% (680 pts)	C- : ≥ 70% (595 pts)	D- : ≥ 60% (510 pts)

In borderline cases (passing/non-passing or grade levels), participation in lecture and laboratory will be considered for the final grade.

### **General Information and Policies:**

There will be **No make-up examination/test/quiz/report.** Missed events will be recorded as “0 points” unless satisfactorily justified (e.g. doctors slip). There will be **No make-up laboratory sessions.** Lecture and Laboratory absence needs to be satisfactorily justified (such as doctor’s appointment), and students are responsible for any missed material and content. You must provide your own **laboratory coat, safety glasses, sharpie, pencil and colored markers.** For some experiments gloves will be provided. Please notify the instructor ASAP if you have a latex allergy. The Drop/Incomplete and Academic/Honesty policies explained in the University General Catalogue will be strictly followed. Only the lecture instructor can issue Drops and Incompletes. Students are expected to read and abide by the **University’s Academic Honesty Policy**, which is available at <http://www.calstatela.edu/academic/senate/handbook/ch5a.htm>. Students who violate this policy will be subject to disciplinary action, and may receive a failing grade in the course for a single violation. **You are responsible for the prerequisites** for this course and are encouraged to discuss any questions regarding the policies and prerequisites with the lecture instructor. Reasonable accommodation will be provided to any student with a disability who is registered with the **Office of Students with Disabilities** and requests needed accommodation.

**Students are required to get an NIS account to communicate with the instructors. The instructors will only respond to CSU e-mail.**

**Students are strongly encouraged to work with the instructors throughout the course.**

## MICR 300 CLASS SCHEDULE, Spring 2012

Date	Lecture Topic (Reading Assignment)	Laboratory Experiments	Post lab Quiz
<b>Week 1</b> M 4.2.12	1. Introduction, History (Chapter 1)	Laboratory Safety Ex.1. Microscopy, Discussion of measurements, Demo slides: Blood smear, bacteria (Staphylococci, Streptococci, mixed shapes), Fungi ( <i>S. cerevisiae</i> , <i>Candida</i> )	
W 4.4.12	2. Microscopy (Chapter 2)	Ex.2. Smear preparation, Simple Stain, Gram Stain, Demo slides gram positive and gram negative bacteria Ex.4. Transfer and isolation of microorganisms (1 <sup>st</sup> period)	Q1 :BioSafety (15pts)
<b>Week 2</b> M 4.9.12	3. Structure and Function of Bacteria (Chapter 3) <b>Q1</b>	Ex.3. Special staining: acid fast, spore stain, capsular stain Ex.4. Transfer and isolation of microorganisms (2 <sup>nd</sup> period) Ex.6. Introduction lecture	
W 4.11.12	4. Bacterial Culture, Growth, and Development (Chapter 4)	Ex.4. Transfer and isolation of microorganism (3 <sup>rd</sup> period) Ex.6. Bacterial growth curve (1 <sup>st</sup> period)	Q2 : Ex1-4 (20pts)
<b>Week 3</b> M 4.16.12	5. Environmental Influences and Control of Microbial Growth (Chapter 5)	Ex.6. Bacterial growth curve (2 <sup>nd</sup> period) Ex. 7 Bacterial physiology: atm, temp, pH, and osmolarity (1 <sup>st</sup> )	
W 4.18.12	6. Energetics and Catabolism; Respiration, Lithotrophy, and Photolysis (Chapters13, 14)	Ex.7. Bacterial physiology: atm, temp, pH, and osmolarity (2 <sup>nd</sup> period) Ex.8. Differential and selective media (1 <sup>st</sup> period)	Q3 : Ex 6-8 (15pts)
<b>Week 4</b> M 4.23.12	<b>MIDTERM 1</b>	Ex.8. Differential and selective media (2 <sup>nd</sup> period) Ex.9. Mycology (SAB, Chromagar, mycomount, demo) (1 <sup>st</sup> )	
W 4.25.12	7. Biosynthesis: CO <sub>2</sub> and Nitrogen fixation; Molecular Regulation (Chapters 15, 10) <b>Q2</b>	Ex.8. Differential and selective media (3 <sup>rd</sup> period) Ex.9. Mycology (2 <sup>nd</sup> period) Ex.10. Pipetting techniques	
<b>Week 5</b> M 4.30.12	8. Origins and Evolution (Chapter 17)	<b>LAB MIDTERM (100 Points)</b> Ex.8. Differential and selective media (4 <sup>th</sup> period)	Ex1 - 9
W 5.2.12	9. Bacterial Diversity: Bacteria (Chapter 18)	Ex.11. Plaque assay (1 <sup>st</sup> period) <b>16S rRNA Computer exercise starts</b>	<b>Q4 : Ex 10-11 (15pts)</b>
<b>Week 6</b> M 5.47.12	10. Microbial Diversity: Archaea and Fungi (Chapters 19, 20) <b>Q3</b>	Ex.11. Plaque assay (2 <sup>nd</sup> period) Ex.14. Miniprep, restriction digest, minigel – 1st	
W 5.9.12	11. Microbial Diversity: Viruses (Chapters 6, 11)	Ex.14. Miniprep, restriction digest, minigel – 2 <sup>nd</sup> Ex.15. Soil culture (1 <sup>st</sup> period) Ex.18 Blood leukocyte differentiation	Q5 : EX 14 (10pts)
<b>Week 7</b> M 5.14.12	12. Microbial Genetics: Genomes and Chromosomes; Transcription, Translation; Gene Transfer, Mutations (Chapters 7,8, 9 ) <b>Q4</b>	Ex.17. <i>C. difficile</i> cytotoxicity (1 <sup>st</sup> period) Ex.20. Radial immunodiffusion (1 <sup>st</sup> period)	
W 5.16.12	<b>MIDTERM 2</b>	Ex.17. <i>C. difficile</i> cytotoxicity (discuss results) Ex.15. Soil culture (2 <sup>nd</sup> period) Ex.20. Radial immunodiffusion (2 <sup>nd</sup> period)	Q6 : EX 17-18 (15pts)
<b>Week 8</b> M 5.21.12	13. Biotechnology and Bioinformatics (Chapters 8, 12)	Ex.19. Lysoplate (1 <sup>st</sup> period) <u>READ NEXT DAY</u> Ex.21. Antiseptics and Antimicrobics (1 <sup>st</sup> period)	
W 5.23.12	14. Environmental Microbiology: Microbial Ecology, Microbes and the Global Environment (Chapter 21, 22)	Ex.15. Soil culture (3 <sup>rd</sup> period) Ex.19. Lysoplate (discuss results) Ex.21. Antiseptics and Antimicrobics (2 <sup>nd</sup> period)	<b>Q7 : EX 19,21 (15pts)</b>
<b>Week 9</b> M 5.28.11	<b>Holiday: Memorial Day, NO CLASS (Extra Credit Activity on 18. Immunizations and Vaccinations, Antimicrobial Chemotherapy (Chapter 26, 27), Detailed information will be discussed in the class</b>		
W 5.30.11	15. Microbial Pathogenesis (Chapter 25) <b>Q5</b>	Ex.15. Soil culture (4 <sup>th</sup> period), Clean up <b>16S rRNA Computer exercise Due</b>	
<b>Week 10</b> M 6.4.11	<b>Field Trip</b> to Hyperion Wastewater treatment plant 9:50 am sharp, return at 1:45 pm.		<b>Q8 : Field trip (15pts)</b>
W 6.6.11	16. Overview of Host Defenses: Human Microbiota, Innate Immunity, and Adaptive Immunity (Chapter 23, 24)	<b>LAB FINAL</b> (100 points) Notebook due (30 points)	<b>CUMULATIVE Emphasis on Ex 10-21</b>

**Lecture Final Exam: Wed, June 13, 8:30 am – 10:30 am**