MICRO5: Microbiology (section 1731)
Santa Rosa Junior College
Fall 2018

Lecture: Baker Hall, room 1801 (TuTh, 5:00 – 6:30 p.m.)
Lab: Baker Hall, room 1885 (TuTh, 6:30 – 9:30 p.m.)

Instructor: Dr. Kristylea Ojeda
Office: Baker Hall, room 1812
Office Hours: TuTh, 4:00 – 4:50 p.m. or by appointment
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Course Description: This course covers the morphology, growth, metabolism, genetics and control of microorganisms, with emphasis on bacteria and viruses. In addition, principles of microbial pathogenicity and the human immune response are included. Additionally, there is an emphasis on laboratory techniques. The course is intended for Allied Health majors considering transfer to CUS or UC.

Prerequisites: Completion of CHEM60 or higher (V6)**,** BIO10 or higher (V7), and ENGL1A.

Required Materials:
1. Gerard Tortora, Berdell Funke, and Christine Case. 2016. **Microbiology: an introduction (12th ed.).** (ISBN: 0-321-92915-2) (While the page numbering will be different, the 10th and 11th editions of the textbook are also fine.)
2. **Microbiology 5 Laboratory Manual.** Santa Rosa Campus.
3. Sharpie **Ultra Fine** point black permanent marker

Optional Materials:
1. Steven Alexander and Dennis Strete. 2000. **Microbiology: a photographic atlas for the laboratory.** (ISBN: 0-8053-2732-0)
2. Colored pencils

Reserved Material: both the 12th edition of the textbook (call# TBA) and the photographic atlas (call# QR54 .M53 2001) are available on reserve at the Santa Rosa campus library

Course Objectives: Upon successful completion of this course, students will be able to:
1. Integrate basic principles of microbial cell structures and processes with evolutionary and ecological concepts.
2. Explain the impact of microbiology on medical, public health, and environmental concerns.
3. Demonstrate proficiency in a variety of standard laboratory techniques used for the routine culture, analysis, and identification of microorganisms.

Important Dates:
1. The last day to drop and receive a refund is September 2nd, 2018.
2. The last day to drop without any type of grade is September 9th, 2018.
3. The last day to drop with a grade of "W" is November 18th, 2018.

Accommodations for Students with Disabilities: If you need disability related accommodations for this class, please provide the Authorization for Academic Accommodations (AAA letter) from the Disability Resources Department (DRD) to the instructor as soon as possible. If you have not received authorization from DRD, please contact them directly. DRD is located in Analy Village on the Santa Rosa campus, and Jacobs Hall on the Petaluma Campus.

Academic Honesty: SRJC is an academic community. Students, faculty members, administrators, and staff are expected to adopt standards of behavior that place a high value on respecting the ideas of others. All intellectual accomplishments — examinations, papers, lectures, experiments, and other projects — should adhere to the highest standards of academic integrity and ethics. **Students should avoid academic dishonesty in all of its**

forms, including plagiarism, cheating, and other forms of academic misconduct – all submitted work MUST be your own. Students found cheating or students found assisting others in cheating will receive zero credit on that exam/assignment and further disciplinary action may be pursued. Any breach of academic integrity will be reported to the college. Review the complete SRJC Academic Integrity at the following link: https://www.santarosa.edu/polman/3acadpro/3.11P.pdf

Emergency Evacuation Plan: In case of emergency, dial 527-1000 from a cell phone or 1000 from any campus phone.

1. Evacuation/Fire Alarm Sounding In the event of an emergency that requires evacuation of the building, please leave the class immediately, but calmly. Our class will meet on the **grass area outside of the lab room** to ensure everyone got out of the building safely and to receive further instructions. If you are a student with a disability who may need assistance in an evacuation, please see me during my office hours to discuss an evacuation plan. DO NOT LEAVE the designated area before you have been accounted for.
2. Earthquakes: Take shelter under a desk, table, or doorframe to protect yourself. Once the shaking stops – if there is damage – collect your belongings and evacuate the area. Again, we will meet on the grass area outside lab, and I will take roll.
3. Power Outage: If there is a power outage for 10 minutes, we will evacuate the building and meet at a pre-determined area. At this point we will attempt to locate another classroom with power to resume class.

Grading: Student learning will be assessed based on performance of students on (1) four lecture exams, (2) three lab exams, (3) lab quizzes, and (4) a written and oral microorganism report.

1. There will be four lecture exams.
    a. See lecture schedule for exam dates and times.
    b. Each lecture exam is worth 100 points.
    c. Students will not be allowed to leave the room, for any reason, during examination.
    d. The exam material will be taken from lecture, quizzes, and in-class activities and discussions. Required reading assignments are provided and should be used as a reference for studying. However, material covered in the textbook and not in lecture will not appear on exams.
    e. Student Learning Outline (SLO) worksheets are available on the course Canvas page, and may serve as useful study tools. However, exam content is not restricted to the topics on the provided SLO worksheets.
    f. The first three lecture exams will include material only from lecture, while the fourth lecture exam will cover the last section of lecture as well as the last section of lab.
    g. Lecture exam format may include multiple-choice, true-false, matching, labeling/drawing images, fill-in-the-blank, short answer, and essay questions.
    h. The lecture exams are not cumulative.
    i. Handwriting on exams must be legible. If I cannot read your answer, it is wrong.
    j. An unexcused absence from any exam will be recorded as a zero. **NO** make-up exams will be provided for unexcused absences.
    k. Students that are absent from an exam for extenuating circumstances (incapacitating illness, incapacitating injury, or death in the family) **must receive official documentation** (i.e.: note from doctor) and **must contact the instructor prior to the next lecture** in order to make up the exam.
    l. There will be **NO** opportunity to redo exams questions for a better grade.
2. There will be three lab exams.
    a. See lab schedule for exam dates.
    b. Each lab exam is worth 100 points.
    c. Students will not be allowed to leave the room, for any reason, during examination.
    d. The lab exam material will be taken from lab introductions, the lab manual, lab procedures, lab equipment, lab results, lab discussions and activities, and related lecture content.
    e. Lab exam format will be stations set up in the lab, with each station having objects or pictures about which questions will be asked (same as BIO10 format).
    f. Lab exams MAY include a performance component where students demonstrate lab techniques.
    g. The lab exams are not cumulative.
    h. Handwriting on exams must be legible. If I cannot read your answer, it is wrong.
    i. Lab exams **CANNOT** be made up (regardless of excused or unexcused absences).

j. There will be **NO** opportunity to redo exams questions for a better grade.

3. There will be several lab quizzes.
    a. Several quizzes are scheduled (see lab schedule below), and additional pop quizzes will be administered in class as necessary. Quizzes will vary in point values.
    b. Quizzes will be administered in the **FIRST** 15 minutes of lab. There are **NO** makeup quizzes if a student is more than 10 minutes late to class or is absent from class.
    c. Students will not be allowed to leave the room, for any reason, during a quiz.
    d. An unexcused absence from any quiz will be recorded as a zero. **NO** make-up quizzes will be provided for unexcused absences.
    e. Students that are absent from a quiz for extenuating circumstances (incapacitating illness, incapacitating injury, or death in the family) **must receive official documentation** (i.e.: note from doctor) and **must contact the instructor prior to the next class** in order to make up the quiz.
    f. There will be **NO** opportunity to redo quiz questions for a better grade.
4. There will be one written report (60pts), with an oral presentation (40pts), on a microorganism of the student's choosing. (Further instructions will be provided in class.)
    a. An electronic copy must be submitted to Turn-it-in (via the course Canvas page) by 5:00 p.m. on Tuesday, December 4th. **Late submissions will not be accepted**.
    b. Oral presentations will be given during lab on Tuesday, December 4th, Thursday, December 6th; or Tuesday, December 11th.
    c. Failure to complete the oral portion of the assignment will result in zero points for the entire assignment.

Grade Summary: Final course grades will be based on your total number of points divided by the total number of points possible for the entire semester. The following is an approximate breakdown of points.

	Each	**Total**
Lecture Exams	100pts	400pts
Lab Exams	100pts	300pts
Quizzes	Varies	About 50pts
Report	100pts	100pts
Approximate Total:		**About 850pts**

Grading Scale: Grades are determined on a straight grading scale.

A	100% - 90%	B	89.9% - 80%	C	79.9% - 70%	D	69.9% - 60%	F	< 59.9%

Policies for Lectures:

1. Attend all lectures - **arrive on time and stay the entire time**. Regular attendance is essential for doing well in this class.
2. Come prepared to class! This includes arriving on time and having **read the text BEFORE each lecture (see course schedule)**. Because I will not be testing on material that is not covered in lecture, I recommend that you first skim the sections of the textbook before you come to class. Then, following the lecture read in detail those specific areas that were covered.
3. **Take good notes.** I do not provide students with notes or outlines of lecture material, nor do I provide practice exams.
4. Lecture slides and any supplemental readings, assignments, or materials will be provided on the course Canvas site, which can be accessed via the instructor's homepage or the section homepage.
5. Students that are absent from lecture for extenuating circumstances must receive official documentation and must contact the instructor prior to the next lab. If you have more than **TWO** unexcused absences from lecture, your letter grade will automatically be **dropped one letter grade**!
6. If you miss a lecture, either excused or unexcused, it is your responsibility to access the lecture slides on the course Canvas page, to get notes from someone that was in class, and to come to my office hours with questions.

Polices for Labs:

1. Attend **ALL** labs. **Labs cannot be missed**, except for extreme extenuating circumstances. Students that are absent from lab for extenuating circumstances must receive official documentation and must contact the instructor prior to the next lab. If you have more than **TWO** unexcused absences from lab, your letter grade will automatically be **dropped one letter grade**!
2. If you miss a lab, either excused or unexcused, it is not the responsibility of your lab partner(s) to catch you up on missed material, nor is it the instructor's responsibility to do so during lab time.
3. **Arrive on time and stay the entire time!** If you are more than 10 minutes late to lab, you will have missed important introductory and safety instructions, and the instructor may deny you the right to participate in the lab, which will be considered an unexcused absence. Be prepared to stay for the whole lab time - take the time to answer all lab questions completely and thoroughly.
4. Come prepared to lab! This includes having **read the lab procedure and the associated sections from the textbook BEFORE each lab (see course schedule)**. Use the information from the reading and from lecture to fill in some of the answers in the lab manual prior to coming to lab.
5. Proper behavior and etiquette is expected. Any student misbehaving, failing to follow instructions or safety procedures, or risking the safety of other students in any way will be removed from that lab, which will be considered an unexcused absence.
6. Your textbook is not required for lab, but you may find it helpful to have with you.

Additional Course Policies:

1. **Cell phones are to be turned to silent and are not be used or even visible during lecture and labs** unless it is being used as a recording device.
2. It is the practice of the Biological Sciences Department to not return exams to students. I will return your lab exams, but lecture exams will be available for review after they are graded and then kept in my office for a period of one year, after which time they will be shredded.
3. If a student has any questions or concerns about a specific exam or grade, they must make an appointment to discuss the exam with the instructor **within two weeks** of the date the grade was made available. If you feel that a mistake has been made in the grading of an assignment or exam, a viable "regrade" will include the specific question(s), your "wrong" answer, and your argument for the "right" answer with support from lecture notes and/or the textbook. After that timeframe, your grade will remain as given.
4. After final course grades are submitted, students have two months to request an appointment to review any exams for the previous semester.
5. Students will respect others at all times. Differences in ability, gender, race, ethnicity, religion, and sexual orientation will be embraced. Any disrespect will not be tolerated.
6. Students who choose not to continue in the course are responsible for turning in a drop card to the admissions office or online. Failure to officially drop the course may result in an "F".

Tips for Doing Well in This Class: Many students find this class overwhelming. You will be asked to learn a great deal of vocabulary, concepts, and pathways. Here are a few tips for doing well in this course:

1. Attend all lectures and labs.
2. Come prepared to class by arriving on time and having done the assigned readings.
    a. <u>For Lecture Readings:</u> Because I will not be testing on material that is not cover in lecture, I recommend that you first skim the textbook before you come to class. Then, following the lecture read in detail those specific areas that were covered.
    b. <u>For Lab Readings:</u> Read the lab procedure and the associated sections from the textbook before each lab. Then, use the information from the reading and from lecture to fill in some of the answers in the lab manual prior to coming to lab. It will also be helpful to have your textbook in lab.
3. Establish good note-taking skills. Since the lecture slides are provided on Canvas, you **should NOT copy the text on each slide**. Rather, you should **<u>paraphrase</u> what the instructor is explaining about each slide**. Your notes may very well be sloppy so it is a good idea to **recopy your notes after each lecture**. As you recopy, make sure you understand the words and ideas. If you are still confused in a particular area, consult the textbook, lecture slides, and/or the instructor for clarification.
4. **Actively participate** in class and ask questions (in class and/or come to my office hours)!
5. Set aside time to read the book and **study every day**! For college classes, you are expected to dedicate 2-3 hours per week outside of class for every 1 hour spent in lecture.

6. Come to my office hours.
7. Make flash cards for the vocabulary, and then practice with them often.
8. Do the practice problems in the textbook that are associated with the lecture material.
9. Form a study group with other students.
10. **DO NOT wait until the end of the semester to seek help!**

Lecture Schedule (Fall 2018):

Week	Tues	Lecture Topics (assigned reading):	Thurs	Lecture Topics (assigned reading):
1	8/21	- Introduction to Microbiology (Ch 1; pg 1-6)	8/23	- History of Microbiology (Ch 1; pg 6-11)
2	8/28	- Koch's Postulates (Ch 14; pg 394-395)	8/30	- Cell Theory and the Unity of Life (Ch 2; pg 34-46)
3	9/4	**- Flex Day: no lecture**	9/6	- Prokaryotic Cell (Ch 4; pg 73-94)
4	9/11	- Prokaryotic Cell continued - Biofilms (Ch 6; pg 156-157)	9/13	- Eukaryotic Cell (Ch 4; pg 94-103)
5	9/18	- Microbial Growth (Ch 6; pg 150-156 and 163-166)	9/20	- DNA Structure (Ch 2; pg 44-45 and handout) - DNA Replication (Ch 8; pg 204-209) - PCR (Ch 9; pg 243-244)
6	9/25	**- Lecture Exam 1 (through Microbial Growth)**	9/27	- Gene Expression (Ch 8; pg 209-213)
7	10/2	- Gene Expression continued	10/4	- Discuss Microorganism Reports **- Library workshop/tutorial in Library room 4327 @ 5:00 p.m.**
8	10/9	- Antimicrobial Drugs continued (Ch 20; pg 549-567) - Antibiotic Resistance (Ch 20; pg 569-573)	10/11	- Bacterial Genetics (Ch 8; pg 218-223)
9	10/16	- Bacterial Genetics continued - Horizontal Gene Transfer (Ch 8; pg 225-233)	10/18	- Horizontal Gene Transfer continued
10	10/23	- Metabolism (Ch 5; pg 110 and 117-131)	10/25	**- Lecture Exam 2 (through Gene Transfer)**
11	10/30	- Metabolism continued - Waste Water Treatment (Ch1; pg 14 and Ch 27; pg 782-789)	11/1	- Viruses (Ch 13; pg 359-366 and 369-381)
12	11/6	- Viruses continued (HPV: pg 381 and 763-764) (Polio: pg 618-620)	11/8	**- Field trip – Waste Water Treatment Plant located at 4300 Llano Road @ 5:00 p.m.**
13	11/13	- Viruses continued (Rabies: pg 620-625) (Influenza: pg 695-698)	11/15	- Viruses continued (HIV: pg 534-544)
14	11/20	- Pathogenicity (Ch 15; pg 418-424)	11/22	**- Thanksgiving Day: no lecture**
15	11/27	**- Lecture Exam 3 (through Viruses)**	11/29	- Innate Immunity (Ch 16; pg 442-463)
16	12/4	**- Microorganism Reports due to Turnitin by 5:00 p.m.** - Innate Immunity continued	12/6	- Adaptive Immunity (Ch 17; pg 469-488)
17	12/11	- Adaptive Immunity continued - ELISA (Ch 18; pg 509-510)	12/13	- Adaptive Immunity continued - Review
18	12/18	**- Lecture Exam 4 from 5:00 –7:45 p.m. (through Adaptive Immunity)**	12/20	**- Finals Week: no lecture**

Lab Schedule (Fall 2018):

Week	Tues	Lab Topics:	Thurs	Lab Topics:
1	8/21	- Introduction, lab safety & sanitation - Aseptic Technique - Ubiquity & handwashing (day 1)	8/23	**- Quiz: Aseptic Techniques and Sanitation** - Ubiquity (day 2) - Microscope I (Use and Care of Microscopes)
2	8/28	**- Quiz: Microscopes** - Microscopes II (Eukaryotes)	8/30	- Microscopes III & Hanging-Drop Slide (Bacteria and simple staining)
3	9/4	**- Flex Day: no lab**	9/6	- Microscope IV (Gram staining) - Streak Plate Technique and Practice Plate - Koch's Postulates (day 1)
4	9/11	- Koch's Postulates (day 2) - Media and Sterilization (day 1) - Review/open lab for Lab Exam 1	9/13	**- Lab Exam 1**
5	9/18	- Koch's Postulates (day 3) - Media and Sterilization (day 2) - Isolation from Soil (day 1)	9/20	- Koch's Postulates (day 4) - Media and Sterilization (day 3 – look at plates) - Disinfectant (day 1)
6	9/25	- Isolation from Soil (day 2) - Disinfectant (day 2) - Colony Morphology (day 1)	9/27	- Colony Morphology (day 2) - Using a Micropipette - PCR (day 1)
7	10/2	- Isolation from Soil (day 3) - PCR (day 2)	10/4	- LECTURE: Antimicrobial Drugs (Ch 20; pg 549-567) - LAB: Indigenous Microflora (day 1) - LAB: Evaluating Antibiotics (day 1)
8	10/9	- Isolation from Soil (day 4) - Indigenous Microflora and teeth (day 2) - Evaluating Antibiotics (day 2)	10/11	- Isolation from Soil (day 5) - Ames (day 1) - Review/open lab for Lab Exam 2
9	10/16	**- Lab Exam 2**	10/18	- Ames (day 2) - Transformation (day 1) - Coliform pre-lab assignment
10	10/23	- Transformation (day 2) - MRSA pre-lab assignment - Catalase (day 1) - Coliform (day 1)	10/25	- Catalase (day 2) - Coliform (day 2) - Coagulase (day 1) - Mannitol Salt Agar (day 1)
11	10/30	- MRSA (day 1) - Coagulase (day 2) - Mannitol Salt Agar (day 2) - TSI test (day 1) - Enterotube (day 1)	11/1	- Coliform (day 3) - TSI test (day 2) - Enterotube (day 2)
12	11/6	- MRSA (day 2) - Coliform (day 4) - WWTP instructions and directions - Review/open lab for Lab Exam 3	11/8	**- Field trip – Waste Water Treatment Plant located at 4300 Llano Road @ 5:00 p.m.**
13	11/13	**- Lab Exam 3**	11/15	- Assign order of presentations - MRSA (day 3) - H5N1 video and discussion
14	11/20	- MRSA (day 4) - HIV video and discussion	11/22	**- Thanksgiving Day: no lab**
15	11/27	- Lecture on vaccines (Ch18; pg 493-500) - Vaccine video and discussion	11/29	- MRSA (day 5) - Work on oral presentations
16	12/4	- Oral presentations	12/6	- Oral presentations
17	12/11	- Oral presentations	12/13	**- Quiz: Microorganism presentations** - ELISA
18	12/18	**- Finals Week: no lab**	12/20	**- Finals Week: no lab**

Disclaimer: This syllabus is subject to modification. If changes occur, an amended syllabus will be provided.