

Food Microbiology Laboratory Spring 2020

Lab Instructor:

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Office hours:

1pm-3pm Monday and Thursday or by arrangement
Room 213A food science building

Grading

Weekly lab report	10
Formal lab reports (1 formal report will be written)	20
Class participation/ general conduct/ cleanliness etc.	10
Quizzes	10
Exam 1	10
Exam 2	20
Group project	20

• Weekly Lab Reports: Each week students are responsible for handing in a short, one-page, summary report on the lab completed the previous week. Reports should be clearly written and concise and will be graded based on quality of the content.

- a) Each experiment should start on a new page and should have **a title**.
- b) The **objective/purpose** of each experiment should be clearly stated.
- c) In the **materials and methods section**, you should list the microorganisms used in the experiment, media/growth conditions, and the experimental procedures.
- d) The **results** section should include raw data, your preliminary calculations.
- e) In the **discussion** section you should try interpreting your results.

• Full Lab Reports (Formal lab reports): will be written independently and should follow the format of a scientific paper. They should be typed, concise and neat. You may include a hand drawing in your report when appropriate. Visual representation of your data (graphs) should be prepared through software such as Excel, Origin, etc. Lab reports will be due week 9 on any of the labs, choose the one you are most comfortable with. This is an exercise to teach you more about writing a formal lab report and understanding what is appropriate for one.

• Quizzes: Will be given weekly at the beginning of class, during the first 10-15 minutes. Students late to class will not be able to make up quizzes.

• Exams Will include topics discussed in the class. Exam 1 will be a written exam based on labs from weeks 1-6. Exam 2 will cumulative and partially practical on labs from all weeks.

Attendance/Participation

Attendance to all labs is mandatory, unless in the case of an emergency. It is the responsibility of the student to make up any missed work or notes. Participation in all labs is required as well as participation in class discussions during the introduction to each lab. Final participation grade will be based on lab participation/attitude/group work/discussions/cleanliness. Time will be given at the end of each lab to properly clean before the end of the lab period.

Group Project

Groups will conduct their own experiment based on what has been learned in lab and course lectures. A report and presentation will be given. One week of class time will be given to work on the lab portion of the project.

Expectations of Previous Knowledge:

Basic microbiology and lab technique; use of microscope, gram stains, aseptic technique, colony isolation and plate counting.

Topics covered in the class

- Lab safety and general lab instructions
- Bacteriocins and well diffusion assay
- Total plate count of milk/fermented foods
- Detection of food borne pathogens (*Escherichia coli*)
- Detection of food borne pathogens (*Salmonella*)
- Yeasts and molds
- Testing the efficacy of the sanitizers
- Detection of antibiotic resistant bacteria in foods.

Section 2		Section1	Topic	Notes
Jan. 23 rd	Introduction, Lab Safety and	Jan. 27th	Introduction, Lab Safety and Lab1-Thumbprints	
Jan. 30th	Lab1-Thumbprints	Feb. 3rd	Lab2--Industrial Fermentation, Yogurt making	
Feb. 6th	Lab2--Industrial Fermentation, Yogurt making	Feb. 10th	Lab2--Quality Assurance test	
Feb. 13rd	Lab2--Quality Assurance test	Feb. 17th	Lab3--Yeasts, Molds, and Spoilage	
Feb. 20th	Lab3--Yeasts, Molds, and Spoilage	Feb. 24th	Lab4-- <i>Salmonella</i>	
Feb. 27th	Lab4-- <i>Salmonella</i>	Mar. 2nd	Lab5-- <i>E. Coli</i> and Coliform	

Mar. 5th	Lab5--E. Coli and Coliform	Mar. 9th	Exam 1	
Mar. 12th	Exam 1	Mar. 23rd	Lab6--Green spoilage (MPN test)	
Mar. 26th	Lab6--Green spoilage (MPN test)	Mar. 30th	Lab7--antibiotics	
Apr. 2nd	Lab7--antibiotics	Apr. 6th	Lab8--Bacteriocin	
Apr. 9th	Lab8--Bacteriocin	Apr. 13th	Group project	Experiments to be conducted
Apr. 16th	Group project	Apr. 20th	Group project	Group project experiments results discussed
Apr. 23rd	Group project	Apr. 27th	Group project	Group project presentation
Apr. 30th	Exam 2	May 4th	Exam 2	

ACCOMODATIONS FOR STUDENTS WITH DISABILITIES

Please follow the procedures outlined at <https://ods.rutgers.edu/students/registration-form>. Full policies and procedures are at <https://ods.rutgers.edu/>

ACADEMIC INTEGRITY

The university's policy on Academic Integrity is available at <http://academicintegrity.rutgers.edu/academic-integrity-policy>. The principles of academic integrity require that a student:

- properly acknowledge and cite all use of the ideas, results, or words of others.
- properly acknowledge all contributors to a given piece of work.
- make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of impermissible materials or impermissible collaboration.
- obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.
- treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
- uphold the canons of the ethical or professional code of the profession for which he or she is preparing.

Adherence to these principles is necessary in order to ensure that

- everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
- all student work is fairly evaluated and no student has an inappropriate advantage over others.
- the academic and ethical development of all students is fostered.
- the reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.

STUDENT WELLNESS SERVICES

Just In Case Web App <http://codu.co/cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901/
www.rhscaps.rutgers.edu/

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / www.vpva.rutgers.edu/

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

Scarlet Listeners

(732) 247-5555 / <http://www.scarletlisteners.com/>

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.

MICROBIOLOGY LABORATORY SAFETY RULES

YOU WILL BE WORKING WITH LIVE, POTENTIALLY PATHOGENIC MICROORGANISMS. FOR YOUR SAFETY AND THAT OF OTHERS, THESE RULES MUST BE OBSERVED.

1. Always wear a lab coat.
2. Wear protective gloves when required.
3. Outer clothing, books, backpacks should be kept in the cabinet under your bench or in a locker.
4. **You cannot bring food or beverages into the lab. No eating or drinking in the lab.**
5. Do not place anything - pencils, pipettes, fingers, etc. in your mouth. Do not rub your eyes.
6. Long hair must be tied back.
7. Following the safety policy of Rutgers, **no open toe shoes or sandals are to be worn in lab as well as shorts or short skirts.**
8. Safety glasses must be worn.
9. Each day clean the top of your bench with the disinfectant provided before you leave. This is for your protection and greatly reduces the possibility of contamination of your cultures.
10. **Report any accident, no matter how minor, to your lab instructor.**
11. If a culture is dropped or spilled, notify **your instructor at once**. Cultures are never to be taken from the lab.
12. Gas burners must be turned off when not in use.
13. Pipettes, plastic ware, culture tubes, Petri dishes, *etc.* must be placed in the proper receptacle.
14. Place used slides and cover slips in sharps containers.
15. Never touch a door with gloves on. Do not leave the lab with gloves on.
16. Wash your hands before you leave the lab.