



BIOL351 Food Microbiology Spring 2025 (Draft Syllabus)

Welcome to Food Microbiology!

I am excited to be your instructional guide through the tasty subject of food microbiology this semester. Know that YOU are an integral part of this course because you will bring unique perspectives and experiences to our learning community. I am glad you are here and look forward to learning with you. Below are some main informational items about this course. - **Dr. R-J**



Class Instructor:

Laura Runyen-Janecky

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Gottwald Science Center A-207

Office hours: I look forward to working with you (either individual or in small groups) outside of class.

Course meeting times:

Gottwald B200 and D308 on W/F from 1:30-4:20. Also, you will need to check on experiments outside of scheduled class time. These commitments will include stopping by the lab to start cultures, perform tests and/or make observations on growing cultures.

Prerequisites for the course:

C- or above in BIOL202

Required materials:

Blackboard and BOX access for class

Access to a laptop with Excel (not Google sheets) installed.

Eye protection, closed-toed shoes, calculator and a medium 3-ring binder as a lab notebook.

"Everything in food is science. The only subjective part is when you eat it." – A. Brown

"In the banquet of life, microorganisms are the unseen chefs, crafting the delicate balance between flavor and safety in every dish we consume" -A.I.



Can you spot Dr. R-J in this cheese cave?



What will you learn in this course?

Course overview: Food is one of the basic necessities of life. Microscopic organisms (microbes) play a large role in the production, preservation, quality, and safety of food products. This course will be a collaborative endeavor between the course participants (both you and I) to understand the ways in which microorganisms affect foods from around the world, sometimes increasing and other times decreasing the quality and value of the food product. The Food Microbiology course work will examine essential concepts in food production, preservation, quality, and safety, with the goals of providing biology majors with an introduction to selection of the major concepts and practical applications of microbiology as it relates to food. Through a combination of readings, activities, laboratory exercises, and discussions, we will gain insight into the complex interactions between microorganisms and the foods humans consume.

By the end of this course, you should be able to:

- Recognize the types of organisms relevant to food production, quality and safety
- Explain the importance of beneficial microbes in food production
- Describe the detrimental effects of microbes on food from the perspective of food quality and food safety
- Explain how environmental factors influence the growth of microbes in food products, and how they are relevant for controlling microbial growth
- Articulate how microbial fermentations are used in food production
- Be aware of the regulatory frameworks and standards in place to ensure food safety and prevent foodborne illnesses
- Quantify and identify microbes from food products using methods common in food microbiology
- Apply the framework of production, spoilage, and safety to food

This course will help you develop transferrable skills that will enable you to:

- Develop hypotheses, design experiments, and critically analyze results related to food microbiology
- Participate in the process by which scientific knowledge is acquired by developing and executing a novel food microbiology project.
- Read and apply the current scientific literature.
- Effectively communicate ideas, which is a hallmark of a liberal arts education

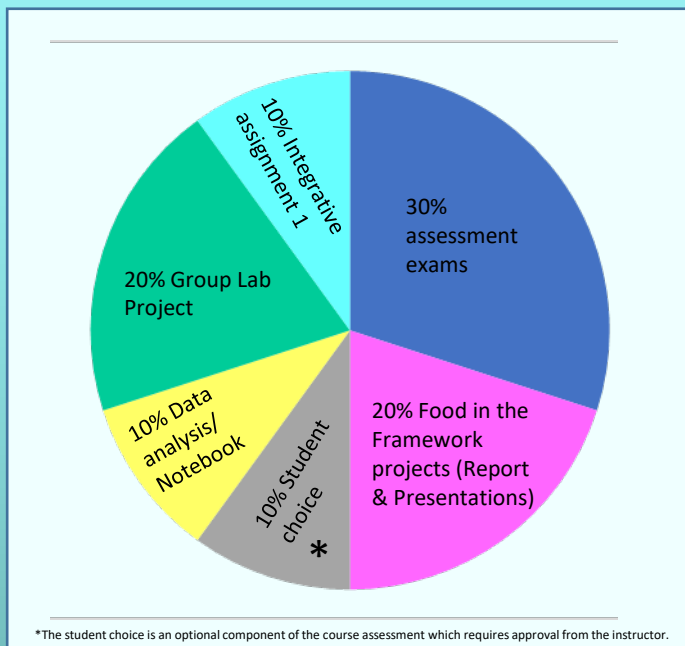
This course is designed to foster integrative learning, encouraging you to connect knowledge and skills from various disciplines and experiences. Integrative learning will help prepare you for the complexities of the modern world by emphasizing the interconnectedness of ideas and the application of knowledge in diverse contexts.

In this class you will:

- Evaluate how the content and tasks in this course are built upon what you learned in the Biology core curriculum
- Develop skills and ethos to mindfully integrate new knowledge and ideas into previous ones through connecting a topic in Food Microbiology to other areas of inquiry
- Use metacognitive strategies to hone communication skills



How will you demonstrate attainment of the learning goals?



Assignment of Grades: Remember that college is about learning, and the grade you earn is a representation of that learning. It is intended to be a short-hand for other audiences to know how you met the objectives and challenges of this particular course during this particular time.

90-100% of the points = A range (A+, A, A-)
80-89.9% of the points = B range (B+, B, B-)
70-79.9% of the points = C range (C+, C, C-)
60-69.9% of the points = D range (D+, D, D-)
< 59.9 points = F

Pluses and minuses will be assigned at the instructor's discretion, based on elements including, but not limited to, class participation and trajectory of learning.

Honor Code: "The School of Arts and Sciences, the Jepson School of Leadership Studies, and the Robins School of Business each operate under the University Honor Code Statute. Cheating, plagiarism, lying, academic theft, disclosing honor council information, registration irregularity, and failure to report an Honor Code Statute violation are all considered breaches of the code. Any person who violates these standards shall be subject to disciplinary action ranging from reprimand up to and including expulsion from the University. Guilt or innocence will be determined and sanctions imposed, when necessary, according to established procedures, with procedural fairness observed and with appropriate appeal procedures available." - University of Richmond Undergraduate Catalog)

How does the Honor Code apply to this course?
While you are encouraged to discuss class and lab material with others, all graded assignments must be your own work unless otherwise indicated. Each assignment will indicate allowable resources. Any work suspected to have violated the Honor Code is subject to being submitted to the Honor Council.

Americans with Disabilities Act (ADA)

Compliance: Please contact me within the first week of class if you require special accommodations because of an identified condition that meets the requirements of the Americans with Disabilities Act (ADA). Special accommodations are available if there is a documented need. The University has [diagnostic services](#), which may be helpful to you if you suspect that you have a condition that is hindering your academic performance.



What are the course policies?

Class attendance:

Class time is designed to provide critical materials and activities that help you reach the learning outcomes. Thus, you should attend all class sessions unless you are ill or have an approved absence.

Laptop/phone policy (during class and lab):

You must keep cell phones silenced and put away (unless otherwise noted). For laptop use in class, I respectfully request that you stick to course related work, so as not to distract your classmates. Studies provide evidence that multitasking on your computer reduced your ability to learn is distracting to others behind you, reducing their ability to learn (Sana et al. 2013. Computers & Education: 62: 24-31).

Exam policy:

You should plan to take assessment exams as indicated in the course schedule. Excused absences include (1) a conflict that is excused by the Dean (example, university sponsored activities such as varsity sporting event), (2) illness, (3) conflict with religious observance, and (4) family emergencies.

Late work policy:

Late may be accepted for up to 3 days after the due date, with a penalty of 10% off per day for unexcused late work. After 3 days or when the graded work is returned to other students or the answer key is released (whichever comes first), the late work will not be accepted.

Writing center and speech center:

To help you develop your communication skills, you are strongly encouraged to use the writing and speech center, including having your work reviewed by trained student consultants.

Preclass Preparation: In this course, the traditional structure of your professor as a “sage on the stage” has been replaced with your professor as your “guide by the side”. As part of this model, you will be required to initially engage with course materials independently before class sessions by reading materials and watching videos. Then, class time will be dedicated to collaborative activities, discussions, and practical applications (lab) of the material, allowing for a deeper exploration of concepts and fostering a dynamic learning environment.

Laboratory safety: We will be working with live microorganisms, almost all of which are known Risk Group 1 organisms. These organisms do not consistently cause disease in immunocompetent adult humans, and they present minimal potential hazard to laboratory personnel and the environment. However, in an abundance of caution and because almost all microbes have the potential to be pathogenic in a particular human niche, we will minimize risk of exposure to the microbes using an enhanced BSL-1 lab biosafety protocol. This includes wearing personal protective equipment such as glasses, lab coats, gloves, and closed-toe shoes when working with microbes. We will also do limited work with unidentified microbes cultured from food. In this case, because we will not know the risk group of the microbes, we will refrain from opening plates and tubes once the microbes have been cultured. You will be instructed on the necessary safety precautions for each lab session. No matter how carefully one works, spills can occur, and you could be exposed to one of the microbes with which you or your lab mates are working. Thus, it is essential that you comply with safety regulations. You should report any spills or incidents of exposure to microorganisms and monitor for infections following work with live microorganisms.



Where can you find more resources?

If you experience difficulties that impact your ability to thrive at UR and/or succeed in this course, I hope you feel comfortable consulting me. Listed below are also other resources that can support you in your efforts to meet academic and personal well-being needs.



[Academic Skills Center](#)

Supports students in assessing their academic strengths and weaknesses; honing their academic skills through teaching effective test preparation, critical reading and thinking, information processing, concentration, and related techniques; working on specific subject areas ; and encouraging campus and community involvement.



[Boatwright Library Research Librarians](#)

Assist students with identifying and locating the best resources for assignments, research papers citations, and other course projects. Research support will be provided online or by appointment.



[Writing Center](#)

Assists writers at all levels of experience, across all majors. Students can schedule appointments with trained peer writing consultants who offer friendly critiques of written work.



[Speech Center](#)

Assists with preparation and practice in the pursuit of excellence in public expression. Recording, playback, coaching and critique sessions offered by teams of student consultants trained to assist in developing ideas, arranging key points for more effective organization, improving style and delivery, and handling multimedia aids for individual and group presentations.



[Disability Services](#)

Works to ensure that qualified students with a disability are provided with reasonable accommodations that enable students to participate fully in activities, programs, services and benefits provided to all students.

Please contact me if you require special accommodations because of an identified condition that meets the requirements of the Americans with Disabilities Act (ADA). Special accommodations are available if there is a documented need. The University has diagnostic services, which may be helpful to you if you suspect that you have a condition that is hindering your academic performance. Your academic advisor may be able to offer you more information about these services..



[Personal well being](#)

[Counseling and Psychological Services](#)

Assists students in meeting academic, personal, or emotional challenges. Services include assessment, short-term counseling and psychotherapy, crisis intervention, psychiatric consultation, and related services.

If you are experiencing financial, food or housing insecurity that is influencing your academic performance, please contact the Dean of [Westhampton](#) or [Richmond](#) college.



[Career Services](#)

Assists students in exploring their interests and abilities, choosing a major, connecting with internships and learning experiences, investigating graduate/professional school options, and landing a first job.