



## **BISC 115Lxg The Biology of Food**

**Units: 4**

**Spring 2025**

**Lecture: Monday and Wednesday 2:00 – 3:20pm**

**Lecture Location: ZHS 159**

**Lab Location: ZHS 257**

**Instructor: Grayson Jagers**

**Office:** ZHS 256

**Office Hours:** TBD

**Contact Info:** [jagers@usc.edu](mailto:jagers@usc.edu)

**Teaching Assistants: TBD**

**Office:**

**Office Hours:**

**Contact Info:**

### **Course Description**

Food is something we all have some sort of a connection with. Whether you see it as a tool for artistic expression, or simply as fuel for your body, food is derived from the living world around us. BISC 115Lxg will relate concepts from the biological sciences in an applicable context by using the food we eat to provide students with an understanding of molecular biology, biochemistry, microbiology, and nutrition.

Students from a variety of majors will leave this course having learned how the food they eat demonstrates various aspects of biology, and how it is connected to the environment that produces it. This course seeks to promote further interest in the biological sciences, as well as foster an appetite for cooking, and exploring the culinary world.

### **Course Notes**

This course has a mandatory laboratory component. Many labs involve the handling of food items. Please inform the instructor and teaching assistants of any food-related allergies, dietary restrictions, or opposition to handling of certain types of foods.

### **Required Readings and Supplementary Materials**

None

## Optional Readings and Supplementary Materials

McGee, Harold. *On Food and Cooking: The Science and Lore of the Kitchen*. Revised Edition: First Scribner, 2004.

## Description and Assessment of Assignments

Exams will be provided during the lecture section on the dates listed below. Exams are a mixture of multiple-choice and true/false questions, and scantrons will be provided. For students who receive testing accommodations, please provide Dr. Jagers with the appropriate documentation as soon as possible.

## Participation

There is participation credit associated with each lab. To receive full-participation, students must arrive on time, contribute to the in-class work, and behave appropriately. Additionally, there are ten homework assignments. Each homework assignment must be turned in at the beginning of the lab period for the week that they are due.

## Grading Breakdown

Three exams, and your lab meetings will determine your course grade. Each exam will be worth 100 points. The laboratory sections will make up the remaining 110 points. The laboratory score will be determined by eleven labs and their related homework assignments.

**Table 1 Grading Breakdown**

Assessment Tool (assignments)	Points	% of Grade
Midterm 1	100	24.4
Midterm 2	100	24.4
Final Exam	100	24.4
Lab Homework	55 (11x5)	13.4
Lab Participation	55 (11x5)	13.4
<b>TOTAL</b>	<b>410</b>	<b>100</b>

## Grading Scale

A range: 90% and Up

B range: 80-89%

C range: 70-79%

D range: 55-69%

F: 54% and Below

## Assignment Submission Policy

Homework assignments will be submitted through the Brightspace page associated with your lab section.

## Grading Timeline

Grading of exams and homework assignments should typically be completed within a week of their submission dates.

## Attendance

**Laboratory and exam attendance is mandatory.** Students are required to attend the laboratory section that they are registered for, and no remote options are provided. If a student misses a lab, the lab must be made up within the same week to receive credit. To make up a lab, please email Dr. Jagers, and provide days and times that fit into your schedule.

If you are a member of a university club or athletic team, and you know in advance that you cannot attend a specific meeting, please let me know as soon as possible.

### **Academic Integrity**

The University of Southern California is foremost a learning community committed to fostering successful scholars and researchers dedicated to the pursuit of knowledge and the transmission of ideas. Academic misconduct is in contrast to the university's mission to educate students through a broad array of first-rank academic, professional, and extracurricular programs and includes any act of dishonesty in the submission of academic work (either in draft or final form).

This course will follow the expectations for academic integrity as stated in the [USC Student Handbook](#). All students are expected to submit assignments that are original work and prepared specifically for the course/section in this academic term. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s). Students suspected of engaging in academic misconduct will be reported to the Office of Academic Integrity.

Other violations of academic misconduct include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

Academic dishonesty has a far-reaching impact and is considered a serious offense against the university. Violations will result in a grade penalty, such as a failing grade on the assignment or in the course, and disciplinary action from the university itself, such as suspension or even expulsion.

For more information about academic integrity see the [student handbook](#) or the [Office of Academic Integrity's website](#), and university policies on [Research and Scholarship Misconduct](#).

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment or what information requires citation and/or attribution.

### **Course Evaluations**

Course evaluation occurs at the end of the semester university-wide. It is an important review of students' experience in the class. The process and intent of the end-of-semester evaluation should be provided. In addition, a mid-semester evaluation is recommended practice for early course correction. [Contact CET](#) for support in creating a mid-semester evaluation.

### **Course Schedule**

#### **Exam Dates**

Midterm 1: Wednesday, February 19

Midterm 2: Wednesday, April 2

Final Exam: Monday, May 12, 2:00PM

## Lecture Schedule

Week of -	Lecture Topic
Jan 13	Course Introduction, Four Basic Food Molecules
Jan 20	<b>MLK Day (No Class Monday)</b> , Four Basic Food Molecules
Jan 27	Four Basic Food Molecules, Micronutrients,
Feb 3	Oxidation and Antioxidants, Microbiology and Food
Feb 10	Microbiology and Food continued, Alcohol
Feb 17	<b>President's Day (No Class Monday), Midterm 1 Exam</b>
Feb 24	Taste, Flavor and Aroma, Biology of Plants
Mar 3	Fiber & Phytochemicals, Coffee & Caffeine
Mar 10	Biology of Land Animals, Fish, and Shellfish
Mar 17	<b>Spring Break!!!</b>
Mar 24	Meat Alternatives, Reactions in Cooking
Mar 31	Chocolate, <b>Midterm 2 Exam</b>
Apr 7	Food Production and Agricultural Pollution, Fundamentals of Genes & Inheritance
Apr 14	Genes & Inheritance, Domestication of Wheat and Corn
Apr 21	History of GMOs
Apr 28	GMOs, The Relationship between Diet and Disease

## Lab Schedule

Week Of -	Lab Topic	Homework Due
Jan 13	No Lab	
Jan 20	No Lab	
Jan 27	Laboratory Introduction	
Feb 3	Cheese and Tofu	Lab Intro Quiz
Feb 10	Cooking and Vitamin C Content	HW 1
Feb 17	Lacto-fermentation	HW 2
Feb 24	No Lab	HW 3
Feb 26	Miso Fermentation	
Mar 3	Taste Receptors and Flavor Chemistry	HW 4
Mar 10	No Lab	HW 5
Mar 17	<b>Spring Break</b>	
Mar 24	Ice Cream Experiment	
Mar 31	Chemical Leavening	HW 6
Apr 7	GMO Detection Part 1: DNA Extraction	HW 7
Apr 14	GMO Detection Part 2: PCR	HW 8
Apr 21	GMO Detection Part 3: Gel Electrophoresis	HW 9
April 28	No Lab	HW 10

## Statement on University Academic and Support Systems

### **Students and Disability Accommodations:**

USC welcomes students with disabilities into all of the University's educational programs. [The Office of Student Accessibility Services](#) (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at [osas.usc.edu](https://osas.usc.edu). You may contact OSAS at (213) 740-0776 or via email at [osasfrontdesk@usc.edu](mailto:osasfrontdesk@usc.edu).

### **Student Financial Aid and Satisfactory Academic Progress:**

To be eligible for certain kinds of financial aid, students are required to maintain Satisfactory Academic Progress (SAP) toward their degree objectives. Visit the [Financial Aid Office webpage](#) for [undergraduate-](#) and [graduate-level](#) SAP eligibility requirements and the appeals process.

### **Support Systems:**

[Counseling and Mental Health](#) - (213) 740-9355 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

[988 Suicide and Crisis Lifeline](#) - 988 for both calls and text messages – 24/7 on call

The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline consists of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

[Relationship and Sexual Violence Prevention Services \(RSVP\)](#) - (213) 740-9355(WELL) – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

[Office for Equity, Equal Opportunity, and Title IX \(EEO-TIX\)](#) - (213) 740-5086

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

[Reporting Incidents of Bias or Harassment](#) - (213) 740-2500

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

[The Office of Student Accessibility Services \(OSAS\)](#) - (213) 740-0776

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

[USC Campus Support and Intervention](#) - (213) 740-0411

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

[Diversity, Equity and Inclusion](#) - (213) 740-2101

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

[USC Emergency](#) - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

[USC Department of Public Safety](#) - UPC: (213) 740-6000, HSC: (323) 442-1200 – 24/7 on call

Non-emergency assistance or information.

[Office of the Ombuds](#) - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

[Occupational Therapy Faculty Practice](#) - (323) 442-2850 or [otfp@med.usc.edu](mailto:otfp@med.usc.edu)

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.