

**BISC 115Lxg The Biology of Food
Spring Semester 2020
(Section 13115)**

Lecture Syllabus

Lecture: Tuesday and Thursday 2:00 – 3:20pm

Location: Internet

Instructor: Grayson Jagers, PhD

Office: ZHS 256

Office Hours: Tuesdays 12-1pm, or by appointment

Email: jagers@usc.edu

Teaching Assistants

TBA

Course Description and Learning Objectives

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.

Along with lectures, students will be provided weekly lab presentations and assignments in place of the usual lab. The goal of these presentations and assignments is to further illustrate concepts learned in lecture. Students will also be provided with procedures (recipes) for their own at-home experimentation, which will be encouraged but is not mandatory.

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.

Optional Reading

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

Description and Assessment of Assignments

Exams, which will be conducted through Blackboard, are based upon concepts discussed in lectures. Any information presented outside of lecture will not be tested upon, unless specifically stated. Exams will be conducted during the lecture period. It is understood that some of you may be taking this course from outside the United States, which makes attending the live session more difficult. Let me know if this applies to you.

For every week that there is a lab presentation, the presentation and all associated assignments associated will be released on Tuesday 9AM PST. Students will have approximately one week to complete these assignments (Due the following Monday by 5PM PST).

Grading Breakdown

Three exams, and your six lab meetings will determine your course grade. Each exam will be worth 100 points. The laboratory sections will make up the remaining 100 points. There will be eight homework assignments (40 points), and twelve lab meetings that have participation points associated with them (60 points).

Midterm 1: 100 points

Midterm 2: 100 points

Final Exam: 100 points

Lab Quizzes/Homework: 100

Class Total: 400 points

A range: 90% and Up

B range: 80-89%

C range: 70-79%

D range: 55-69%

F: 54% and Below

Tentative Lecture and Lab Schedules

Scheduled lecture topics are subject to change. Exam dates, however, will not be moved unless circumstances absolutely require it.

Week of -	Lecture Topic
Jan 18	Course Introduction Four Basic Food Molecules
Jan 25	Four Basic Food Molecules
Feb 1	Micronutrients, Oxidation and Antioxidants
Feb 8	Microbiology and Food
Feb 15	Alcohol, Midterm 1 Exam
Feb 22	Sensory Biology, Flavor and Aroma
Mar 1	Biology of Plants
Mar 8	Fiber & Phytochemicals, Coffee & Caffeine
Mar 15	Biology of Land Animals, Fish, and Shellfish
Mar 22	Wellness Day, Midterm 2 Exam
Mar 29	Reactions in Cooking, Chocolate
Apr 5	Food Production and Agricultural Pollution, Fundamentals of Genes & Inheritance
Apr 12	Genes & Inheritance, Domestication of Wheat and Corn
Apr 19	History of GMOs, Wellness Day
Apr 26	GMOs, The Relationship between Diet and Disease

Exam Dates

Midterm 1: Thursday, February 18th

Midterm 2: Thursday, March 25th

Final Exam: Thursday, May 6th, 2:00-4:00 PM PST

Wellness Days: We will not meet for class on these days.

- Tuesday, March 23rd
- Thursday, April 22nd

Week Of -	Lab Topic
Jan 25	Cheese Making (At-home guide)
Feb 1	Fermentation (At-Home Guide)
Feb 8	Fermentation (At-Home Guide)
Feb 22	Preparing Extracts
Mar 1	Determining Dietary Needs

Mar 8	Calculating the Nutritional Value of Foods (Impact of Cooking)
Mar 15	Nutrition and Health Care
Mar 29	Hydroponic / Aeroponic Gardening
Apr 5	Plant-based and Lab-grown Meat
Apr 12	Lab Techniques Used to Identify GMOs
Apr 19	Lab Techniques used to Identify GMOs (Pt 2)

Lecture and Laboratory Meetings

Lectures will be conducted live on Zoom, and recordings will be provided. I strongly encourage attendance in the live meeting. When attending lecture, **please log in through Blackboard**. Otherwise, I have to manually admit participants, which can be an inconvenience with a class of this size.

Students will **not** be attending a live session for their scheduled laboratory sections. Instead, pre-recorded lectures (typically ten minutes in length) will be posted to Blackboard, allowing students to review the material at their convenience.

Support Systems

A number of USC's schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* (<http://dornsife.usc.edu/ali>), which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* (http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html) provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* (<http://emergency.usc.edu/>) will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.

Academic Conduct

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* (<https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>). Other forms of academic dishonesty

are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, (<http://policy.usc.edu/scientific-misconduct/>).

Academic Integrity Violations

Students who violate University standards of academic integrity are subject to disciplinary sanctions, including failure in the course and suspension from the University. Since dishonesty in any form harms the individual, other students and the University, academic integrity policies will be strictly enforced.

Disruptive and Threatening Behavior

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* (<http://equity.usc.edu/>) or to the *Department of Public Safety* (<http://capsnet.usc.edu/department/departement-public-safety/online-forms/contact-us>). This is important for the safety whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* (<http://www.usc.edu/student-affairs/cwm/>) provides 24/7 confidential support, and the sexual assault resource center webpage sarc@usc.edu describes reporting options and other resources.

End-of-Semester Evaluations

I value your thoughts on the course, and myself, as your instructor. At the end of the semester, please take time to complete the course and instructor evaluations. I am always trying to improve the course, and this is a great way for me to utilize your insight.