

## Term Information

Effective Term Autumn 2022

## General Information

Course Bulletin Listing/Subject Area Food Science & Technology  
Fiscal Unit/Academic Org Food Science & Technology - D1156  
College/Academic Group Food, Agric & Environ Science  
Level/Career Undergraduate  
Course Number/Catalog 1200  
Course Title The Science of Cooking  
Transcript Abbreviation Science of Cooking  
Course Description This course covers the scientific method, sanitation and hygiene, safety in the kitchen and laboratory, weights and measurements, cooking methods, tasting and evaluation, food components, correlations to industrial food processing and preservation, and events, laws, and very important persons in the development of food science and technology as a discipline. Students must have access to a kitchen.  
Semester Credit Hours/Units Fixed: 4

## Offering Information

Length Of Course 14 Week  
Flexibly Scheduled Course Never  
Does any section of this course have a distance education component? Yes  
Is any section of the course offered Greater or equal to 50% at a distance  
Grading Basis Letter Grade  
Repeatable No  
Course Components Laboratory, Lecture, Recitation  
Grade Roster Component Lecture  
Credit Available by Exam No  
Admission Condition Course No  
Off Campus Never  
Campus of Offering Columbus, Lima, Mansfield, Marion, Newark, Wooster

## Prerequisites and Exclusions

Prerequisites/Corequisites None  
Exclusions  
Electronically Enforced Yes

## Cross-Listings

Cross-Listings

## Subject/CIP Code

Subject/CIP Code 01.1001  
Subsidy Level Baccalaureate Course  
Intended Rank Freshman, Sophomore, Junior, Senior

## Requirement/Elective Designation

Natural Sciences

## Course Details

### **Course goals or learning objectives/outcomes**

- Understand the meaning and importance of using the Scientific Method
- Understand the scientific principles of food preparation in the kitchen
- Understand historical aspects of food processing and technology and their connection to the scope of food laws and regulations

### **Content Topic List**

- The scientific method, credible sources of information
- Sanitation, hygiene, and safety
- Measurements; Data collection and organization
- Sensory and consumer science
- Nutrition basics; government agencies and programs; food laws; food packages
- Properties of water; heat transfer, heating and cooling
- Food components: water, carbohydrates, fats, protein
- Meat, poultry, fish; nonmeat protein sources
- Baking; Cereals, rice pasta
- Milk and milk products; fermentation
- Fruits and vegetables
- Beverages
- Flavors, seasonings, spices, herbs
- Industrial food processing, unit operations
- Food preservation

### **Sought Concurrence**

No

## Attachments

- Distance Approval Cover Sheet Generic\_4-6.docx: Distance Approval Cover Sheet  
*(Other Supporting Documentation. Owner: Davis, Molly Jane)*
- 1200 ELO Foundation Submission 4-6.pdf: GE Foundation  
*(Other Supporting Documentation. Owner: Davis, Molly Jane)*
- FDSCTE 1200 Responses to ASC Panel Recommendations\_4-6.docx: Response to Panel Feedback  
*(Cover Letter. Owner: Davis, Molly Jane)*
- FDSCTE 1200 Science of Cooking AU22\_4\_6\_2022\_Final.docx: Syllabus  
*(Syllabus. Owner: Davis, Molly Jane)*

**Comments**

- Revised per email feedback from ASCCAO (by Davis, Molly Jane on 04/07/2022 01:54 PM)
- Returned to department to incorporate ASCCAO feedback

Revise as per COAA via email 19 November 2021

Revise as per conversation 17 November 2021 (by Osborne, Jeanne Marie on 02/16/2022 11:52 AM)

- Please see feedback email sent to department 2-15-22 RLS (by Steele, Rachel Lea on 02/15/2022 02:46 PM)

**Workflow Information**

Status	User(s)	Date/Time	Step
Submitted	Davis, Molly Jane	11/04/2021 10:11 AM	Submitted for Approval
Approved	Rodriguez-Saona, Luis Enrique	11/04/2021 12:08 PM	Unit Approval
Revision Requested	Osborne, Jeanne Marie	11/17/2021 09:47 AM	College Approval
Submitted	Davis, Molly Jane	11/17/2021 01:54 PM	Submitted for Approval
Approved	Rodriguez-Saona, Luis Enrique	11/17/2021 07:48 PM	Unit Approval
Revision Requested	Osborne, Jeanne Marie	11/22/2021 09:12 AM	College Approval
Submitted	Davis, Molly Jane	01/21/2022 02:57 PM	Submitted for Approval
Approved	Rodriguez-Saona, Luis Enrique	01/21/2022 04:28 PM	Unit Approval
Approved	Osborne, Jeanne Marie	01/24/2022 02:27 PM	College Approval
Revision Requested	Steele, Rachel Lea	02/15/2022 02:46 PM	ASCCAO Approval
Submitted	Rodriguez-Saona, Luis Enrique	02/15/2022 04:02 PM	Submitted for Approval
Approved	Rodriguez-Saona, Luis Enrique	02/15/2022 04:03 PM	Unit Approval
Revision Requested	Osborne, Jeanne Marie	02/16/2022 11:52 AM	College Approval
Submitted	Davis, Molly Jane	04/07/2022 01:54 PM	Submitted for Approval
Approved	Rodriguez-Saona, Luis Enrique	04/11/2022 11:31 AM	Unit Approval
Approved	Osborne, Jeanne Marie	04/11/2022 11:46 AM	College Approval
Pending Approval	Cody, Emily Kathryn Jenkins, Mary Ellen Bigler Hanlin, Deborah Kay Hilty, Michael Vankeerbergen, Bernadette Chantal Steele, Rachel Lea	04/11/2022 11:46 AM	ASCCAO Approval

March 30, 2022

Dear ASC Curriculum Committee,

We thank the Natural and Mathematical Sciences Panel of the ASC Curriculum Committee for reviewing FDSCTE 1200 (4-credit lecture/lab). The panel provided excellent advice and insight about our course for the new GE.

The panel listed several items that they would like us to address (shown in black-colored font below). Below we list the items and the actions (shown in green font) that we took to address these concerns.

Based on the panel's recommendations, we revised the syllabus for FDSCTE 1200, the Distance Approval Cover Sheet, and the ELO Foundation Submission document. We believe that we have adequately addressed all the committee's concerns listed below in these documents. If the committee has additional concerns or questions, please let us know so we can keep working on these items until the committee is fully satisfied.

Sincerely,

Department of Food Science and Technology

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Good afternoon,

The Panel did not vote on the proposal as they would like the following points addressed:

- The Panel would like to express that they are extremely enthusiastic about the course and supportive of its development. Thank you! We are excited, too.
- The current structure of the course appears to be 2 credit hours of lecture (online) and 2 credit hours of lab (one hour online and one hour in-person). This is an unusual structure, as most Natural Science classes devote approximately three credit hours to lecture/recitation and approximately one credit hour to laboratory activities. The Panel asks that the department communicate more specific information about why this unique structure was chosen, and what students will be doing during the lecture, the online portion of the laboratory and the in-person portion of the laboratory. Additionally, the Panel notes that the Distance Learning Cover Sheet (pg. 2-4) refers to in-person "recitations," and they would like clarification about these recitations, as they do not appear to be mentioned in the course syllabus.
  - Lecture: All lecture content is delivered online.
  - In-person lab sessions (1 per week, 2 hours): The in-person lab will consist of two parts:
    - 1) Students will receive detailed instructions and demonstrations of what they will be doing in the upcoming online lab. Since many students may have limited or no cooking skills, there is no substitute for being able to make explanations in person and have the opportunity to ask questions.
    - 2) Students will observe products made in the at-home lab. For example, in the online lab work, there will be variations in formulas, and different

students or groups will be assigned to each of the variations (e.g., for bread, one group will be assigned the double yeast formula, another the half yeast formula). These different products will be brought to the in-person lab for observation, evaluation, and sharing of data by all members of the class.

- At-home lab exercises (1 per week, 2–3 hours): Labs take place in the student's own kitchen (or residence hall, etc). Students apply the concepts learned through lecture and further developed in the in-person lab session.
- Since the course is based on FDSCTE 1140, the Panel asks that the department provide a statement that details how this course differs from 1140 and what has been added that makes this a GE course rather than a more “skills-based” course like 1140.
  - The format of this course is modelled after 1140 in structure, in that students perform lab work in their own kitchen rather than a campus laboratory. The content of 1200 is not based on 1140; there is no comparison in scope, depth, or purpose of the class. FDSCTE 1140 is a free elective course with a very cursory look at food science in the kitchen only. FDSCTE 1200 will use the kitchen as a laboratory to teach scientific principles as they apply to food processing. For example, 1140 has more emphasis on safety and sanitation, while 1200 will explore parallels between ‘cooking’ and food processing on a larger scale.
- The Panel suggests that the department consider whether they would like to exclude students who have taken FDSCTE 1140 from taking FDSCTE 1200, and/or exclude students who will take FDSCTE 1200 from taking FDSCTE 1140. (Course Request pg. 2 under “Prerequisites and Exclusions”).
  - We do not feel there is a need to exclude the course as there is no comparison in scope, depth, or purpose of the classes.
- The Panel asks that the department revise the Course Description (Course Request, pg. 1 under “General Information”) to include the fact that students must have access to a kitchen so that students are aware of this requirement before enrolling in the course.
  - We addressed this comment by adding “Students must have access to a kitchen.” to the Course Description on page 2.
- The Panel commends the department for including provisions that are sensitive to food allergies (syllabus pg. 6 under “How This Course Works, Attendance and Participation Requirements”). However, the Panel ask that this statement be expanded to include consideration of cultural/religious issues (i.e., Kosher, Halal) and dietary (i.e. vegetarian/vegan) concerns.
  - We addressed this comment by revising the sentence to say “*If you have an allergy, cultural/religious restrictions (i.e., Kosher, Halal), dietary concerns (i.e. vegetarian/vegan), or other situation that prevents you from safely participating in product tasting, please contact the instructor regarding an alternate activity.*”

- The Panel has a number of practical concerns regarding the required access to a kitchen for this course:
  - As a 1000-level GE Foundations course, FSCTE 1200's primary enrollees will be students in their first few semesters. Since most first- and second-year students are required to live in University Housing, this could create a barrier to students enrolling.
    1. The use of a personal kitchen for laboratories is borrowed from the very successful FDSCTE 1140 course. Students in 1140 are required to use kitchens and in the last 9 years of offering the course, only one accommodation request has been made of either instructor. After discussion between the instructor and student, the student realized they did have a kitchen they would be able to use. The 1140 class is very successful with high enrollment, on average about 150 students per semester.
  - Although some dormitories do have a kitchen that residents can sign up to use, these areas are shared by hundreds of students, and as such they may not be predictably available for students to use for weekly assignments. Additionally, these facilities often have old, damaged, or unsanitary equipment that is not in good working order. The tools available in these facilities are also inconsistent from building to building.
    1. The instructor and other members of the department met with **Toni Greenslade-Smith, Director of Housing Administration**, to discuss and tour the residence hall kitchens. Toni explained that each residence hall or residence hall complex has a kitchen facility, so that all students who live within the University housing system do have access to a kitchen. Toni also said all kitchen facilities are first-come, first-served, but they are most often available. We added Appendix I to the syllabus, which provides details on kitchen access for students living in the residence halls.
    2. The current 1140 instructor was responsible for as much as 10% annually of the faculty programming in the residence halls prior to 2020. She has extensively used the kitchens with students to make cakes, cookies, pies, and other savory meals. Each residence hall or residence hall complex has a kitchen facility with a stovetop, sink, and refrigerator (see photo). Students will be encouraged to work together to pool resources and share the spaces efficiently. They will also be encouraged to talk with their dorm community regarding kitchen availability.
    3. Regarding the tools available, a list of required equipment (scale, digital thermometer, pots, and pans) and utensils (measuring spoons and cups, mixing bowls, scraper, spatula) will be provided. Some items, such as the scale and thermometer, must be the same brand and model for all users in order to reduce variability. We are working with a company called Science Interactive to create a kit that will contain those items at a reasonable cost (p. 6 of the Syllabus). Other items could be borrowed or may be able to

be purchased at local thrift shops (list provided in Appendix III) at low cost. As the course continues, students may also be able to purchase used equipment from former students.



*Kitchen facility in Busch House.*

- The Panel asks if the department might have access to test kitchen facilities/labs that students could use if they do not have the ability to cook at home.
  1. If students do not have access to a kitchen or do not want to use a residence hall kitchen, they are encouraged to make alternative arrangements with their classmates, family, or friends. Students will be encouraged to work in groups with their classmates. Therefore, it is necessary that only one student per group have access to a kitchen, as long as others are permitted to work in the same space. The Department of Food Science and Technology does not have a test kitchen facility available for student use.
- The syllabus seems to indicate that students may be asked to cook at home and bring samples to class – how viable might this be from the standpoint of student schedules (carrying the items around campus all day, needing to cook several days in advance, etc)?
  1. We have carefully designed the curriculum with these sampling sessions in mind to make sure the samples are easily and safely transportable. Students will not be eating or tasting samples, but performing sensory evaluations that will not involve consumption, such as examining smell and texture.

- The Panel requests that the department include a weekly list of necessary equipment and ingredients for each lab, so that students have adequate time to budget for ingredients and plan for transportation and storage of perishables.
  - The instructor made a list of necessary equipment and ingredients for each lab. We included this document as Appendix II at the end of the syllabus.
- The Panel strongly recommends that the department consider alternatives to Proctorio (syllabus pg. 9, 11) because of issues related to ADA requirements for accessibility, student privacy, and the requirement for specific kinds of devices. While the university does allow the use of Proctorio if the department deems that it is necessary, they strongly encourage that instructors consider other methods of assessment and recommend the resources found here: <https://teaching.resources.osu.edu/teaching-topics/strategies-tools-academic-integrity>.
  - The instructor included the Proctorio statement in the event that she may choose to use Proctorio at some point during the semester, but it is more likely that it will not be used.
- The Panel asks that the department revisit the wording surrounding the requirement for students to “document” illness or emergency. (syllabus pg. 5 under “Attendance and participation requirements”). Since on-campus health services will not see students just to document illness, forcing students to get a doctor’s note sometimes means paying out-of-pocket to see a practitioner at an off-campus clinic.
  - We addressed this comment by revising the statement to read “...you will need to make arrangements with the instructor as to how you will make up that session’s activities in the case of illness or emergency.”



# The Science of Cooking Syllabus

FDSCTE 1200 Autumn 2022

## Course Information

- **Course times and location:**
  - Weekly lecture content equivalent to 2 hours of lecture will be delivered online via the CarmenCanvas site for the course.
  - Weekly 2-hour in-person laboratory sessions – Room, Day, and Time to be determined. Students will receive instructions/details/demonstrations of what they will be doing in the online lab, and will share data from their most recent labs.
  - Weekly at-home laboratory exercises that will require approximately 2 hours of time will be delivered online via the CarmenCanvas site for the course (see p. 5 of this syllabus for details). Labs take place in the student's own kitchen (or residence hall, etc).
- **Credit hours:** 4 credit hours
- **Mode of delivery:** Hybrid

## Instructor

- **Name:** Louise A. Campbell, Ph.D.
- **Email:** [Campbell.2127@osu.edu](mailto:Campbell.2127@osu.edu)
- **Phone Number:** No office phone! Please use the course email to contact me or leave a message for me at the FST main office at 614-292-6281.
- **Office location:** 264C Howlett Hall
- **Office hours:** immediately after class, by appointment in person, or by video conference
- **Preferred means of communication:**
  - My preferred method of communication for questions is the CarmenCanvas email communication tool. If you are not yet enrolled in the class and/or do not have access to the CarmenCanvas email communication tool, please reach out to me via email at [campbell.2127@osu.edu](mailto:campbell.2127@osu.edu).



- My class-wide communications will be posted on the Home Page and sent through the Announcements tool in CarmenCanvas. Please check your [notification preferences](https://go.osu.edu/canvas-notifications) (go.osu.edu/canvas-notifications) to be sure you receive these messages.

## Course Prerequisites

None

## Course Description

This course covers the scientific method, sanitation and hygiene, safety in the kitchen and laboratory, weights and measurements, cooking methods, tasting and evaluation, food components, correlations to industrial food processing and preservation, and events, laws, and very important persons in the development of food science and technology as a discipline.

**Students must have access to a kitchen.**

## Topics

Topics for this course include:

- The scientific method; credible sources of information
- Sanitation, hygiene, and safety
- Measurements; Data collection and organization
- Sensory and consumer science
- Nutrition basics; government agencies and programs; food laws; food packages
- Properties of water; heat transfer, heating and cooling
- Food components: water, carbohydrates, fats, protein
- Meat, poultry, fish; nonmeat protein sources
- Baking; cereals, rice, pasta
- Milk and milk products; fermentation
- Fruits and vegetables
- Beverages
- Flavors, seasonings, spices, herbs
- Industrial food processing, unit operations
- Food preservation

## Course Goals

Through the course topics and the learning activities of this course, students will:

- A. Understand the meaning and importance of using the Scientific Method
- B. Understand the scientific principles of food preparation in the kitchen
- C. Understand historical aspects of food processing and technology and their connection to the scope of food laws and regulations



## Course Learning Outcomes

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

- A1 Use the Scientific Method appropriately (make observation; formulate hypothesis; conduct experiment to test hypothesis; collect and analyze data; draw conclusion)
- A2 Demonstrate accurate and appropriate methods of data collection, analysis, and presentation
- A3 Draw appropriate conclusions based on data analysis
- A4 Apply the Scientific Method to evaluation of food products
- B5 Understand the properties of food ingredients and their interactions in food preparation
- B6 Understand different cooking methods
- B7 Recognize similarities between preparation of food in the home and in the factory
- C8 Identify key discoveries/developments/figures (people) in food processing and technology
- C9 Identify laws and regulations that concern food processing and food ingredients

## General Education Expected Learning Outcomes

As part of the Natural Science category of the General Education curriculum, this course is designed to prepare students to be able to do the following:

1. Engage in theoretical and empirical study within the natural sciences, while gaining an appreciation of the modern principles, theories, methods, and modes of inquiry used generally across the natural sciences.
2. Discern the relationship between the theoretical and applied sciences, while appreciating the implications of scientific discoveries and the potential impacts of science and technology.

The GE Learning Objectives that will be assessed in this course include:

- 1.1 Explain basic facts, principles, theories and methods of modern natural sciences; describe and analyze the process of scientific inquiry.
- 1.2 Identify how key events in the development of science contribute to the ongoing and changing nature of scientific knowledge and methods.
- 1.3 Employ the processes of science through exploration, discovery, and collaboration to interact directly with the natural world when feasible, using appropriate tools, models, and analysis of data.
- 2.1 Analyze the inter-dependence and potential impacts of scientific and technological developments.
- 2.2 Evaluate social and ethical implications of natural scientific discoveries.
- 2.3 Critically evaluate and responsibly use information from the natural sciences.



Through this course, students will fulfill these learning outcomes by:

- Examining how the natural sciences apply to food.
- Using the Scientific Method appropriately when participating in laboratory activities.
- Understanding the properties of food components and their interaction in food preparation, including effects of cooking methods on those components.
- Recognizing similarities between preparation of food in the home and in the factory.
- Identifying key discoveries and developments in food processing and technology.
- Identifying laws and regulations that concern food processing and food ingredients.

# How This Course Works

**Mode of delivery:** This course is hybrid. Lecture and one laboratory portion of the course will be online; one weekly laboratory session (required attendance) will be in person; room, day(s), and time(s) to be determined.

**Pace of activities:** This course is made up of two components: lecture and lab. Lecture content will be delivered online in the CarmenCanvas course modules. Lab will consist of two parts, one weekly in-person session and one set of weekly at-home lab exercises. **Students will need to have access to a kitchen in order to carry out the at-home laboratory work.**

Students will be encouraged to work in groups for each of the at-home lab exercises over the course of the semester, and time will be allotted in the first in-person lab session to form those groups. Instructions on how to carry out at-home lab exercises will be provided in the modules and there will be opportunities for discussion and Q&A during the in-person lab sessions. It is the student's responsibility to be prepared for each lab.

Many in-person lab sessions will require preparation of a worksheet in advance, data collection during the at-home lab exercises, and summarization of results. Results of the at-home lab exercises will be shared and discussed in the in-person lab sessions. Lab worksheets must be submitted by 11:59 pm on the day before the in-person lab sessions. Failure to submit on time may mean that you are not admitted to the in-person lab session and you may not be eligible to complete the assignment associated with the upcoming at-home lab exercise.

**Credit hours and work expectations:** FDSCTE 1200 is a **4-credit-hour course**. University policy states that *“Every 1 credit hour assigned to the class equates to total of 3 hours of work per week for a “C” grade (1 hour of instruction and 2 additional study hours per week). Therefore a 4-credit hour course during a 16-week term should have 4 hours of instruction and 8 hours of homework/study time per week, for the student to earn a C grade.”* (<https://aaas.osu.edu/faculty-resources/teaching-resources-and-policies/credit-hours-and-class-instruction-time>)

**Attendance and participation requirements:** Research shows regular participation is one of the highest predictors of success. With that in mind, I have the following expectations for everyone's participation:

- **Weekly in-person laboratory sessions:** Because this is a hybrid, in-person and distance-education course, your attendance is based on your online activity, your in-person lab participation, and completion of the at-home lab exercises. **Attendance and participation in the in-person lab sessions is mandatory.** It is essential that you come prepared to the in-person lab sessions, where you will have an opportunity to ask questions about at-home lab assignments, about specific procedures, to review lab worksheets, to evaluate products made by yourself and your classmates from the at-home lab, and to ask questions about the online course material. You are expected to attend in-person lab sessions, pay attention, and ask questions on any material or instructions that need clarification. We may be evaluating samples in class, or you may be reporting on attributes of samples from your own at-home lab work. You will need to



have your device with you, and are welcome to refer to your evaluation comments during the discussions.

- If you are not able to attend your registered in-person lab session, you may be able to attend another section that week; to do so, you must request permission from the instructor as far in advance as possible. Otherwise, you will need to make arrangements with the instructor as to how you will make up that session's activities in the case of illness or emergency. Contact the instructor as soon as possible, and accommodations may be made at the discretion of the instructor.
- **Logging in: AT LEAST TWICE PER WEEK**  
You are expected to log in to the course in CarmenCanvas every week. During most weeks you will probably log in multiple times. If you have a situation that might cause you to miss a week or more of class, please discuss it with the instructor as soon as possible.
- **Office hours and live sessions:** If you would like to discuss an assignment, or feel that you need to talk in person rather than by email, please contact me initially by email so that we can schedule a time to meet on campus or by Zoom.
- **Tasting and evaluating foods** is an essential part of the laboratory experience in this course, and may be conducted or discussed in the in-person lab. Tasting does not mean consuming. You will be trained as to how to perform the evaluations in a consistent and professional manner. *If you have an allergy, cultural/religious restrictions (i.e., Kosher, Halal), dietary concerns (i.e. vegetarian/vegan), or another situation that prevents you from safely participating in product tasting, please contact the instructor regarding an alternate activity.*

## Course Materials, Fees, and Technologies

### Required Materials

- All course text materials, or instructions on how to access them, will be provided on CarmenCanvas, in the Laboratory Kit, or in the in-person lab sessions.
- This course does not have a required text. The lecture material and laboratory instructions for each module will be posted on CarmenCanvas in either Page or PDF format.
- **You will need to have access to a kitchen.** Minimum kitchen equipment required includes an oven, refrigerator, stove or cooktop (a microwave will not be sufficient), and access to a sink and cleaning supplies for your workspace. See Appendix I for information on kitchen access for students living in residence halls.
- Laboratory Kit to be purchased by the student from Science Interactive. The cost of the kit will not exceed \$100. You will need a whisk or electric mixer, small (1-2 quart) and medium size cooking pot (4 quarts), skillet, measuring cups for dry ingredients and for liquids, and measuring spoons. You may need to purchase fresh food items, such as yogurt or eggs. Other materials will be provided as needed at in-person lab sessions.



See Appendix II for detailed lists of the materials and ingredients needed for each lab. See Appendix III for information on low-cost options for purchasing kitchen equipment.

## Recommended/Optional Material

- *Culinary Reactions, The Everyday Chemistry of Cooking*, by Simon Quellen Field (2012, Chicago Review Press, Inc.).
- *I'm Just Here for the Food*, Alton Brown (2002, Stewart, Tabori & Chang).
- *On Food and Cooking, The Science and Lore of the Kitchen*, Harold McGee (2004, Scribner)

## Required Equipment

- **Computer:** current Mac (MacOS) or PC (Windows 10) with high-speed internet connection.
- **Webcam:** built-in or external webcam, fully installed and tested
- **Microphone:** built-in laptop or tablet mic or external microphone
- **Other:** a mobile device (smartphone or tablet) to use for BuckeyePass authentication

If you do not have access to the technology you need to succeed in this class, review options for [technology and internet access](https://go.osu.edu/student-tech-access) (go.osu.edu/student-tech-access).

## Required Software

**Microsoft Office 365:** All Ohio State students are now eligible for free Microsoft Office 365. Visit the [installing Office 365](https://go.osu.edu/office365help) (go.osu.edu/office365help) help article for full instructions.

## CarmenCanvas Access

You will need to use [BuckeyePass](https://buckeyepass.osu.edu) (buckeyepass.osu.edu) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you do each of the following:

- Register multiple devices in case something happens to your primary device. Visit the [BuckeyePass - Adding a Device](https://go.osu.edu/add-device) (go.osu.edu/add-device) help article for step-by-step instructions.
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes, good for 365 days, that can each be used once.
- [Install the Duo Mobile application](https://go.osu.edu/install-duo) (go.osu.edu/install-duo) on all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.



If none of these options will meet the needs of your situation, you can contact the IT Service Desk at [614-688-4357 \(HELP\)](tel:614-688-4357) and IT support staff will work out a solution with you.

## Technology Skills Needed for This Course

- Zoom, text, audio, and video chat ([go.osu.edu/zoom-meetings](https://go.osu.edu/zoom-meetings))
- Ability to take and to insert digital photos into a document
- Use Microsoft Word, Excel, and Power Point effectively
- Recording, editing, and uploading video may be required in certain circumstances

## Technology Support

For help with your password, university email, CarmenCanvas, or any other technology issues, questions or requests, contact the IT Service Desk, which offers 24-hour support, seven days a week.

- **Self Service and Chat:** [go.osu.edu/it](https://go.osu.edu/it)
- **Phone:** [614-688-4357 \(HELP\)](tel:614-688-4357)
- **Email:** [servicedesk@osu.edu](mailto:servicedesk@osu.edu)

# Grading and Faculty Response

## How Your Grade is Calculated

Assignment or Category	% of total
Numbered Assignments	10
Lab Worksheets and Lab Reports	30
Unit Quizzes	30
Project Report	15
Project Presentation	15
	100

See [Course Schedule](#) for due dates.



# Descriptions of Major Course Assignments

## Numbered Assignments

Numbered assignments will include creating a Word document, a Power Point slide presentation, and an Excel spreadsheet to demonstrate ability to utilize these tools, which will be used in other components of the course.

**Academic integrity and collaboration:** All assignments completed in this course must be completed solely by the student and be their own, original work.

## Lab Worksheets and Lab Reports

Lab worksheets and lab reports will typically be due at 11:59 pm on the day before in-person lab. Failure to submit on time may mean that you are not admitted to the in-person lab session and you may not be eligible to complete the assignment associated with the upcoming lab.

Reports will be due according to published dates.

**Academic integrity and collaboration:** You must complete the lab worksheets and lab reports yourself, without any external help or communication. If you are working with others in generating data for a lab exercise, team members must be identified, and the recorded data must be the same for each team member. The remainder of the lab report must be completed by each individual.

## Unit Quizzes

Unit quizzes will assess knowledge and comprehension of lecture material. Quizzes are timed. You may be using Proctorio for taking these quizzes. See page 10 of the syllabus for more information on Proctorio.

Quizzes may be supplemented by other assignments, such as creating an infographic on a historical figure of importance in food and cooking.

**Academic integrity and collaboration:** You must complete the quizzes yourself, without any external help or communication. Tutor assistance or assistance by others (including verbal and written communication) is not permitted to complete quizzes. However, you may refer to your notes and course materials while taking the online quizzes. No outside assistance in the form of electronics (including the Apple watch), notes, or verbal or written communication with others is permitted during a quiz.

## Project Report and Presentation

There will be one partner project associated with the in-person lab sessions. The project will require both a written report and a presentation to the class. Both partners are expected to contribute to the report and both must participate in the presentation. Group projects can be stressful for students when it comes to dividing work, taking credit, and receiving grades and feedback. I have attempted to make the guidelines found in the CarmenCanvas site for this



course for group work as clear as possible for this project, but please let me know if you have any questions.

**Academic integrity and collaboration:** All project work in this course, must be completed solely by the members of each group and be the original work of those students.

## Late Assignments

Access to Carmen Assignments, Quizzes, and Lab Worksheets will generally be available for approximately one week before they are due. Some assignments may have even longer lead times. All work must be submitted through CarmenCanvas. Assignment submission pages are typically closed at 11:59 pm on the due date, so that late submissions are not possible. Note the due dates, plan ahead to avoid connectivity issues, and allow adequate time to complete each item. Computer and submission issues (because of trying to submit an hour or two prior to the deadline when the traffic is high) are not valid excuses for missing a submission on time. Unless there is an unforeseen catastrophe with the system that originates within the University or unless I specifically request it, I will not accept any work through email.

**It is your responsibility to make sure your assignment is submitted properly and on time.** Please refer to the Assignments tab in Carmen for due dates.

Extensions on due dates may be granted for **valid** and **documented** reasons, such as a medical emergency or death in the immediate family. Students should contact the instructor via the CarmenCanvas course Inbox within 24 hours of the deadline. It will save us both time if you attach your documentation to your request. In the case of extended illness or injury, accommodations will be made at the discretion of the instructor. **Poor planning and computer problems do NOT qualify as emergencies.** If students have ongoing issues with wireless connections, contact the Help Desk at 614-688-HELP.

Because of its online components, this course is highly dependent on technology. You are responsible for your own tech, which includes your device(s) and your connection.

## Instructor Feedback and Response Time

I am providing the following list to give you an idea of my intended availability throughout the course. Remember that you can call **614-688-HELP** at any time if you have a technical problem.

- **Preferred contact method:** Once you are enrolled in the course, please use the CarmenCanvas email communication tool to be sure that your email receives priority. I will make every attempt to reply to e-mails within 36–48 hours on school days. If you do not receive a reply within 3 school days, please re-send your email – I'm human, and it is possible that an email will be overlooked. I am generally not online weekends/holidays.
- When sending email, please be as clear and concise as possible. Here is a timesaving tip: Before emailing, please make sure the answer to your question isn't already in the Syllabus, Course Guide, Assignment instructions, or on a Discussion Board.



## Grading Scale

93–100: A

90–92.9: A-

87–89.9: B+

83–86.9: B

80–82.9: B-

77–79.9: C+

73–76.9: C

70–72.9: C-

67–69.9: D+

60–66.9: D

Below 60: E



# Other Course Policies

## Discussion and Communication Guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

### Proctorio

Proctorio, an online proctoring tool, may be used during this course. Proctorio offers you flexibility to take your tests at the time and in the location of your choosing. Students are required to have a webcam (USB or internal) with a microphone and a strong and stable internet connection. During the course of an exam, Proctorio will record the testing environment, therefore students should select private spaces for the exam session where disruptions are unlikely and where recording devices can be enabled. Instructions for installing Proctorio use will be provided. To use Proctorio you must be **over 18 years of age**. (Please contact the Instructor if under 18.) Additionally, the tool has **limitations in its accessibility** for students reliant upon screen readers and keyboard navigation. Additional information on academic integrity at Ohio State and [recommended proctoring options](#) is available.

Students will be given the opportunity and encouraged to take a sample practice quiz with Proctorio before an examination for credit is deployed. This will ensure that the entire class, including those with accessibility concerns, will be ready to use Proctorio or have an alternative in place.

### E-Mail Etiquette

Professional relationships should be maintained when using e-mail for a class. Below are guidelines from Bloomsbury's guide on email etiquette that you should follow when drafting your e-mail. I will not respond to e-mails that I consider inappropriate. I will respond to appropriate emails in a timely manner. If you require an immediate response, consider visiting with me in person.

As I teach more than one class, and there are multiple sections of this class, it will speed my response time if you indicate right up front (subject line) that you are in FDSCTE 1200 or mention The Science of Cooking, and mention which section (day, time) that you are in.

#### DO

- Include a descriptive statement in the subject line.
- Use proper salutations when beginning an e-mail.
- Be concise in the body of the e-mail, use complete sentences and proper grammar.
- Use an appropriate closure at the end of each e-mail followed by your first and last name.
- If replying to an e-mail, reference the original e-mail and its content.



- Be selective of your choice of words. Emotions are difficult to convey in text and without the benefit of facial expressions your sentiment can be lost in the words you choose to write.

### DON'T

- Use all capital letters; this conveys a tone of ANGER.
- Use e-mail as a format to criticize other individuals.
- Ask for your grade via e-mail. Grades will not be discussed by e-mail. If you need to discuss a graded item make an appointment to do so in my office or by Zoom.
- E-mail to inquire when grades will be posted. We will work toward submitting grades promptly, however, recognize that grading assignments and exams requires considerable time to ensure uniformity and fairness.
- Send an e-mail out of frustration or anger. Learn to save the e-mail as a draft and review at a later time when emotions are not directing the content.

**Written assignments:** Your written assignments must be your own original work. In formal assignments, you should follow [APA](#) style to cite the ideas and words of your research sources. You are encouraged to ask a trusted person to proofread your assignments before you turn them in--but no one else should revise or rewrite your work.

**Reusing past work:** In general, you are prohibited in university courses from turning in work from a past class to your current class, even if you modify it. If you want to build on past research or revisit a topic you've explored in previous courses, please discuss the situation with me.

**Falsifying research or results:** All research you will conduct in this course is intended to be a learning experience. You should never feel tempted to make your results or your library research look more successful than it was.

**Collaboration and informal peer review:** The course includes many opportunities for informal collaboration with your classmates. While study groups and peer review of major written projects is encouraged, remember that comparing answers on a quiz or assignment is not permitted. If you're unsure about a particular situation, please feel free to ask ahead of time.

## Academic Integrity Policy

See [Descriptions of Major Course Assignments](#) for specific guidelines about collaboration and academic integrity in the context of this online class.

## Ohio State's Academic Integrity Policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the university's [Code of Student Conduct](#) ([studentconduct.osu.edu](http://studentconduct.osu.edu)), and that all students will complete all academic and scholarly assignments with fairness and

honesty. Students must recognize that failure to follow the rules and guidelines established in the university's *Code of Student Conduct* and this syllabus may constitute Academic Misconduct.

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the university or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the university's *Code of Student Conduct* is never considered an excuse for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

**If I suspect that a student has committed academic misconduct in this course, I am obligated by university rules to report my suspicions to the Committee on Academic Misconduct.** If COAM determines that you have violated the university's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the university.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- [Committee on Academic Misconduct](http://go.osu.edu/coam) (go.osu.edu/coam)
- [Ten Suggestions for Preserving Academic Integrity](http://go.osu.edu/ten-suggestions) (go.osu.edu/ten-suggestions)
- [Eight Cardinal Rules of Academic Integrity](http://go.osu.edu/cardinal-rules) (go.osu.edu/cardinal-rules)

## Copyright for Instructional Materials

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

**Intellectual Property** (covered by copyright) includes Course materials (Text, Audio, Video, Multimedia, Sims, Apps, etc.) and student-generated materials.

## Your Mental Health

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and

other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life Counseling and Consultation Services (CCS) by visiting [ccs.osu.edu](http://ccs.osu.edu) or calling (614) 292- 5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on-call counselor when CCS is closed at (614) 292-5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-(800)-273-TALK or at [suicidepreventionlifeline.org](http://suicidepreventionlifeline.org)

## Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Office of Institutional Equity:

1. Online reporting form at [equity.osu.edu](http://equity.osu.edu),
2. Call 614-247-5838 or TTY 614-688-8605,
3. Or Email [equity@osu.edu](mailto:equity@osu.edu)

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Office of Institutional Equity to ensure the university can take appropriate action:

- All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member.

## Diversity

The Ohio State University affirms the importance and value of diversity of people and ideas. We believe in creating equitable research opportunities for all students and to providing programs and curricula that allow our students to understand critical societal challenges from diverse perspectives and aspire to use research to promote sustainable solutions for all. We are committed to maintaining an inclusive community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among all members; and encourages each individual to strive to reach their own potential. The Ohio State University does not discriminate on the basis of age,

ancestry, color, disability, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, race, religion, sex, gender, sexual orientation, pregnancy, protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment.

To learn more about diversity, equity, and inclusion and for opportunities to get involved, please visit:

- <https://odi.osu.edu/>
- <https://odi.osu.edu/racial-justice-resources>
- <https://odi.osu.edu/focus-on-racial-justice>
- <http://mcc.osu.edu/>

In addition, this course adheres to **The Principles of Community** adopted by the College of Food, Agricultural, and Environmental Sciences. These principles are located on the Carmen site for this course; and can also be found at <https://go.osu.edu/principlesofcommunity>. For additional information on Diversity, Equity, and Inclusion in CFAES, contact the CFAES Office for Diversity, Equity, and Inclusion (<https://equityandinclusion.cfaes.ohio-state.edu/>). If you have been a victim of or a witness to a bias incident, you can report it online and anonymously (if you choose) at <https://equity.osu.edu/>.





# Accessibility Accommodations for Students with Disabilities

## Requesting Accommodations

The university strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability including mental health, chronic or temporary medical conditions, please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with [Student Life Disability Services \(SLDS\)](#). After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's [request process](#), managed by Student Life Disability Services.

## Disability Services Contact Information

- Phone: [614-292-3307](tel:614-292-3307)
- Website: [slds.osu.edu](http://slds.osu.edu)
- Email: [slds@osu.edu](mailto:slds@osu.edu)
- In person: [Baker Hall 098, 113 W. 12th Avenue](#)

## Accessibility of Course Technology

This online course requires use of CarmenCanvas (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations as early as possible.

- [CarmenCanvas accessibility](http://go.osu.edu/canvas-accessibility) ([go.osu.edu/canvas-accessibility](http://go.osu.edu/canvas-accessibility))
- [CarmenZoom accessibility](http://go.osu.edu/zoom-accessibility) ([go.osu.edu/zoom-accessibility](http://go.osu.edu/zoom-accessibility))

## UNIVERSITY RESOURCES

**Grievances:** According to University Policies, if you have a problem with this class, you should seek to resolve the grievance concerning a grade or academic practice by speaking first with the instructor or professor. Then, if necessary, take your case to the department chairperson, college dean or associate dean, and to the provost, in that order. Specific procedures are outlined in Faculty Rule 3335-7-23. Grievances against graduate, research, and teaching assistants should be submitted first to the supervising instructor, then to the chairperson of the assistant's department.

**Content Warning:** It is not expected that the material in this course would be disturbing. However, If you encounter an issue, please take care of yourself while reading/watching the course material (take a break, debrief with a friend, contact a Sexual Violence Support Coordinator at 614-292-1111, or Counseling and Consultation Services at 614-292-5766, and contacting the instructor if needed). Expectations are that we all will be respectful of our classmates while consuming these media and that we will create a safe space for each other. Failure to show respect to each other may result in dismissal from the class.

**Lyft Ride Smart at Ohio State:** [Lyft Ride Smart at Ohio State](#) offers eligible students discounted rides, inside the university-designated service area, from 7 p.m. to 7 a.m. Each month, 10,000 discounted rides will be made available on a first-come, first-served basis with the average cost expected to be \$2 or less. Prices may be impacted by distance, traffic, time of day, special events and prime time surcharges. To qualify for program discounts, users must select "shared ride" when booking in the Lyft app. When using ride sharing, remember to visually confirm vehicle info/descriptions in the company app and ask the driver to say who they are picking up.

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# Course Schedule

The topics listed on pages 2–3 will be divided up into the following five sections:

Refer to the CarmenCanvas course for up-to-date due dates.

<b>Week LO</b>	<b>Lecture Topic</b>	<b>Lab</b>
<u>1</u> A1, A2	Scientific method, Credible information, Peer review process; Food science & technology	Introduction; Sanitation, Good handling practices, Calibration, Laboratory and kitchen safety
<u>2</u> A1, A2, A3, A4, C8	Sensory and consumer science and methods, objective and affective; difference and descriptive testing; hedonic, preference, focus groups; simple statistics	Measurements, dry and wet, volume and weight; Data collection and organization
<u>3</u> A1, A2, A3, A4, C8, C9	Nutrition basics: food choice drivers, RDIs; Government agencies, programs, and regulations; Food laws; Food packages	Sensory, Objective and Subjective, Appropriate tasting protocols, Vocabulary Basic tastes solutions, Mixture solutions, Order of concentration, Textures Taste Water: distilled, mineral, soda, spring, tap from different sources, water that has been boiled, frozen
<u>4</u> A3, B5, B6, B7, C9	Properties of water Heat transfer: heating and cooling	Observation of water during heating; effect of added ingredients
<u>5</u> A3, A4, B5, B6, B7	Food components: water, carbohydrates	Carbohydrates, simple: nutritive and nonnutritive sweeteners; sugar syrups: thread, soft-, firm-hard-ball, and soft- and hard-crack
<u>6</u> A3, A4, B5, B6, B7	Food components: fats, protein	Carbohydrates, complex: white sauces, starchy foods, gels, and pastes
<u>7</u> A3, A4, B5, B6, B7	Meat, poultry, fish	Lipids: Oils and fats. Oils: frying, absorption, smoke point, flavor. Fats: functionality in dropped cookies
<u>8</u>	Alternative protein sources, Eggs	Protein: egg white foams, gluten balls, denatured and coagulated samples; hard boiled eggs, scrambled eggs, custards, flan, souffle



A3, A4, B5, B6, B7		
<u>9</u> A3, A4, B5, B6, B7	Baking ingredients Cereals, rice, pasta	Leavened products, yeast and chemical Baking: bread, cakes muffins, cookies
<u>10</u> A3, A4, B5, B6, B7	Milk and milk products; fermentation	Dairy products: milk, cheese, yogurt, sour cream, butter, ice cream
<u>11</u> A3, A4, B5, B6, B7	Fruits and Vegetables	Fruits: berries, orchard, tropical, fresh, frozen Making jam, jelly, preserves Vegetables: root, tuber, leafy, fruits Canning vegetables
<u>12</u> A3, A4, B5, B6, B7	Beverages	Coffee, Tea
<u>13</u> A3, A4, B5, B6, B7, C8, C9	Flavors, Seasonings, Spices, Herbs	Presentations
<u>14</u> A3, A4, B5, B6, B7, C8, C9	Industrial food processing, Unit operations	Presentations
<u>15</u> A3, A4, B5, B6, B7, C8, C9	Food preservation	Presentations



## Appendix I. Kitchen Access for Students Living in Residence Halls

Each residence hall or residence hall complex has a kitchen facility with a stovetop, sink, and refrigerator (see Table 1). All kitchen facilities are first-come, first-served. They are often available, especially at off-times (mornings, evenings). Students are encouraged to discuss kitchen availability with their residence hall community.

**Table 1. Available Kitchen Facilities in Each Residence Hall**

Residence Hall	Kitchen in Building (Y/N)	If N, where can I access a kitchen?
<a href="#"><u>Archer House</u></a>	Y	
<a href="#"><u>Baker Hall East</u></a>	Y	
<a href="#"><u>Baker Hall West</u></a>	N	access to Baker East kitchen
<a href="#"><u>Barrett House</u></a>	N	access to Nosker House kitchen
<a href="#"><u>Blackburn House</u></a>	Y	
<a href="#"><u>Bowen House</u></a>	Y	
<a href="#"><u>Bradley Hall</u></a>	N	located in Paterson Hall
<a href="#"><u>Busch House</u></a>	Y	
<a href="#"><u>Canfield Hall</u></a>	N	access to Mack Hall kitchen
<a href="#"><u>Drackett Tower</u></a>	Y	
<a href="#"><u>Fechko House</u></a>	Y	
<a href="#"><u>German House</u></a>	Y	
<a href="#"><u>Halloran House</u></a>	N	access to Busch House kitchen
<a href="#"><u>Hanley House</u></a>	Y	
<a href="#"><u>Haverfield House</u></a>	N	access to Blackburn House kitchen
<a href="#"><u>Houck House</u></a>	Y	
<a href="#"><u>Houston House</u></a>	Y	
<a href="#"><u>Jones Tower</u></a>	Y	
<a href="#"><u>Lawrence Tower</u></a>	Y	
<a href="#"><u>Lincoln Tower</u></a>	Y	
<a href="#"><u>Mack Hall</u></a>	Y	
<a href="#"><u>Mendoza House</u></a>	Y	in-room kitchen
<a href="#"><u>Morrill Tower</u></a>	Y	
<a href="#"><u>Morrison Tower</u></a>	Y	
<a href="#"><u>Neil Avenue</u></a>	Y	in-room kitchen
<a href="#"><u>Norton House</u></a>	N	access to Scott House kitchen
<a href="#"><u>Nosker House</u></a>	Y	
<a href="#"><u>Park-Stradley Hall</u></a>	Y	
<a href="#"><u>Paterson Hall</u></a>	Y	
<a href="#"><u>Pennsylvania Place</u></a>	Y	
<a href="#"><u>Pomerene House</u></a>	Y	

<b>Residence Hall</b>	<b>Kitchen in Building (Y/N)</b>	<b>If N, where can I access a kitchen?</b>
<a href="#"><u>Raney House</u></a>	Y	
<a href="#"><u>Scholars East</u></a>	Y	
<a href="#"><u>Scholars West</u></a>	Y	
<a href="#"><u>Scott House</u></a>	Y	
<a href="#"><u>Siebert Hall</u></a>	Y	
<a href="#"><u>Smith-Steeb Hall</u></a>	Y	
<a href="#"><u>Taylor Tower</u></a>	Y	
<a href="#"><u>The Residence on Tenth</u></a>	Y	
<a href="#"><u>Torres House</u></a>	Y	
<a href="#"><u>Veteran's House</u></a>	Y	
<a href="#"><u>Worthington Building</u></a>	Y	in-room kitchen

## Appendix II. Laboratory Materials for Each At-Home Lab

Students are required to purchase a Laboratory Kit from Science Interactive. The cost of the kit will not exceed \$100. Students will also need access to a sink, an oven, a stovetop, and cleaning supplies for your workspace. Students will need a whisk or electric mixer, small (1 quart) and medium (4 quarts) cooking pots, skillet, measuring cups for dry ingredients and for liquids, and measuring spoons. Information on local thrift stores where low-cost equipment could be purchased is provided in Appendix III. Students may need to purchase fresh food items, such as yogurt or eggs. Other materials will be provided as needed at in-person lab sessions; these are noted as “provided” in the materials lists.

### General requirements for all at-home laboratory exercises

Table or counter space to work on

Sink, water, soap, cloth, or sponge for cleanup

Be sure that all instruments to be used for measuring are calibrated before use

Be sure that all utensils, pots, pans, etc. are clean and dry before use

### No equipment or food materials are needed for Lab 1.

## Lab 2 – Measurements; Data Collection and Organization

### Equipment and Utensils

Digital scale

Cups for dry measure:  $\frac{1}{4}$  cup,  $\frac{1}{2}$  cup, 1 cup

Cup for liquid measure: 1 cup with markings for  $\frac{1}{4}$ ,  $\frac{1}{2}$ , 1 cup

Knife or spatula with straight edge

Large spoon or scoop

Measuring spoons: Tablespoon, Teaspoon,  $\frac{1}{2}$  Teaspoon,  $\frac{1}{4}$  Teaspoon,  $\frac{1}{8}$  Teaspoon

### Food Materials

Flour, all purpose, 3 cups

Granulated sugar, 3 cups

Confectioner’s (powdered) sugar, 3 cups

Brown sugar, 2 cups (packed)

Tap water

Vegetable oil, 2 cups

Solid shortening, 1.5 cup

## **Lab 3, Sensory Evaluation, Tasting Protocols, Basic Tastes**

### **Equipment and Utensils**

Digital scale

2 ounce souffle cups with lids (provided)

### **Food Materials**

Packets of coded tasting materials (provided)

Tap water

Set of bottled water for tasting (provided)

## **Lab 4, Heat Transfer**

### **Equipment and Utensils**

Stove

Digital scale

Thermometer

1-quart heavy saucepan (will be used 2x)

Long handled spoon for stirring

Plastic souffle cups for pre-weighing food materials

### **Food Materials**

Tap water

Granulated sucrose, 50 gr

Salt, 50 mg

Corn meal, 50 mg

Gelatin, 1 envelope

Corn oil, 250 ml

Sunflower oil, 250 ml

Soybean oil, 250 ml

Olive oil, 250 ml



## **Lab 5, Carbohydrates (Simple): Nutritive and Non-nutritive Sweeteners, Candy**

### **Equipment and Utensils**

Stove

Digital scale

1-quart heavy saucepan

Plastic souffle cups for pre-weighing food materials

### **Food Materials**

Tap water

Granulated sucrose

Fructose

Dextrose

Aspartame

Splenda

Saccharine

Stevia

Acesulfame-K

Granulated sugar, 500 gr

Cream of tartar, 5 gr

Corn syrup, 30 ml

Splenda, 25 gr

Butter, 20 gr

Lemon juice, 15 ml

Cream, 150 gr

Unsweetened chocolate, 28 gr



## **Lab 6, Carbohydrates (Complex), Starches and Gels**

### **Equipment and Utensils**

Stove

1-quart heavy saucepan

Digital scale

Thermometer

Long handled spoon for stirring

Plastic souffle cups for pre-weighing food materials

### **Food Materials**

Tap water

Waxy corn starch, 24 gr

Corn starch, 24 gr

Tapioca, 24 gr

Rice starch, 24 gr

Flour, all purpose, 24 gr

Arrowroot starch, 24 gr

Granulated sugar, 24 gr

## **Lab 7, Fats and Oils, Emulsions**

### **Equipment and Utensils**

Stove

2-quart heavy saucepan or small deep fryer

Digital scale

Thermometer

Slotted spoon or tongs

Vegetable peeler or paring knife

Paper towels

Canning jars with lids, 8 oz (4)

### **Food Materials**

Russet potatoes, 1 kg (2 pounds)

Corn oil, 1500 ml

Soybean oil, 500 ml

Canola oil, 500 ml

Peanut oil, 500 ml

Olive oil, 500 ml

Solid shortening such as Crisco, 500 gr

Egg yolks, 4

Fresh lemon, 3

Salt, 24 gr

Dry mustard, 3 gr

Granulated sugar, 6 gr

White wine vinegar, 45 gr

## **Lab 8, Proteins: Egg White Foams, Gluten Balls**

### **Equipment and Utensils**

Digital scale

Portable electric mixer or whisk

Mixing bowl, 1 quart capacity

Rubber scraper

2 funnels

Glass beaker large enough to hold one of the funnels

Ruler

Timer

Plastic wrap

Large spoon

### **Food Materials**

Granulated sugar, 50 gr

4 egg whites

Cream of tartar, 2 gr

Salt, 2 gr

Egg yolk, 2 gr

Water, 2 gr

Lemon juice, 2 gr

Tap water

All-purpose flour, 150 gr

Whole wheat flour, 150 gr

Cake flour, 150 gr

Bread flour, 150 gr

Masa (corn flour), 150 gr

Rye flour, 150 gr

## **Lab 9A, Leavened Products (Yeast): Bread**

### **Equipment and Utensils**

Oven, oven thermometer

Digital scale

Thermometer

Timer

Aluminum baking pans for pup loaves (5.75 x 3.25"), 4

Rubber scraper

Mixing bowl, 3 quart capacity

Pastry cutter (optional)

Pastry scraper (optional)

Fork

Cheesecloth or clean towel

### **Food Materials**

Flour, all purpose, 375 gr

Flour, bread, 375 gr

Tap water

Dry yeast, 2 packets

Compressed or refrigerated yeast , 15 gr

Granulated sugar, 15 grams

Salt, 5 grams

Solid shortening, 20 grams

Margarine or vegetable spray for greasing pans

## **Lab 9B, Chemical Leavening Agents**

### **Equipment and Utensils**

Oven, oven thermometer

Digital scale

Graduated cylinder, 250 ml capacity

Saucepan, 1-quart capacity

Timer

### **Food Materials**

Baking soda, 6.2 gr

Cream of tartar, 4.9 gr

Cornstarch, 1 gr

Sour milk, 118 ml (make by mixing 125 gr milk + 7 gr vinegar or lemon juice)

Molasses, 59 gr

Honey, 59 gr

Baking powder, double-acting, 2 gr



## Lab 9C, Baking (Chemical Leaveners): Popovers, Biscuits, Muffins, Cake

### Equipment and Utensils

Oven, oven thermometer

Digital scale

2-quart mixing bowl

Electric hand mixer, manual eggbeater, or blender (popovers, muffins, cake)

Rolling pin (biscuits) <https://pantryscapades.com/home-accessories/11-rolling-pin-substitute-hacks-tips-you-should-know/>; <https://bakinghow.com/rolling-pin-substitutes/>

Aluminum muffin pan (popovers and muffins)

Pastry cutter or fork (biscuits)

Biscuit cutter, cup, or glass (biscuits)

Ruler (biscuits)

Flat spatula or pastry scraper (biscuits)

Rubber scraper (muffins, cake)

Aluminum baking sheet or cookie sheet (biscuits)

Aluminum cake pans, 8-inch diameter (cakes)

### Food Materials – Popovers

Flour, all purpose, 110 gr

Milk, 240 gr

Eggs, whole, 96 gr

Salt, 3 gr

Margarine or vegetable spray for muffin cups

### Food Materials – Biscuits

Flour, all purpose, 110 gr

Baking powder, double-acting, 6 gr

Salt, 1.5 gr

Solid shortening, 24 gr

Milk, 95 gr

Margarine or vegetable spray for muffin cups

**Food Materials – Muffins**

Egg, 100 gr

Milk, 500 gr

Vegetable oil, 50 gr

Flour, all purpose, 450 gr

Granulated sucrose, 50 gr

Baking powder, double-acting, 22 gr

Salt, 6 gr

Margarine or vegetable spray for muffin cups

**Food Materials – Cakes**

Butter, unsalted, 180 gr

Granulated sugar, 450 gr

Vanilla, 9 gr

Egg, beaten, 150 gr

Flour, cake, 450 gr

Baking powder, 18 gr

Salt, 6 gr

Milk, 360 gr

Margarine or vegetable spray for muffin cups





## **Lab 10, Dairy Products, Fermentation**

### **Equipment and Utensils**

Stove

1-quart heavy saucepan

Digital scale

Thermometer

Canning jars, 8-oz, 12

Cheesecloth, Plastic wrap

Wax pencil or marker

### **Food Materials - Yogurt**

Milk, whole, 400 gr

Milk, skim, 400 gr

Nonfat dry milk powder, 30 gr

Lactic acid bacteria cultures (provided)

### **Food Materials – Sour Cream**

Heavy whipping cream (35% fat), 720 gr

Milk, skim, 60 gr

Vinegar, 15 gr

Lemon juice, 15 gr

Lactic acid bacteria cultures (provided)

### **Food Materials – Queso Fresco (Farmer's Cheese)**

Milk, whole, 60 gr

Milk, skim, 60 gr

Milk, high protein (Fair Life), 60 gr

Lactic acid bacteria cultures (provided)



### Appendix III. Thrift Stores Near Campus

Students can purchase used equipment and utensils from a local thrift store at a low cost as available.

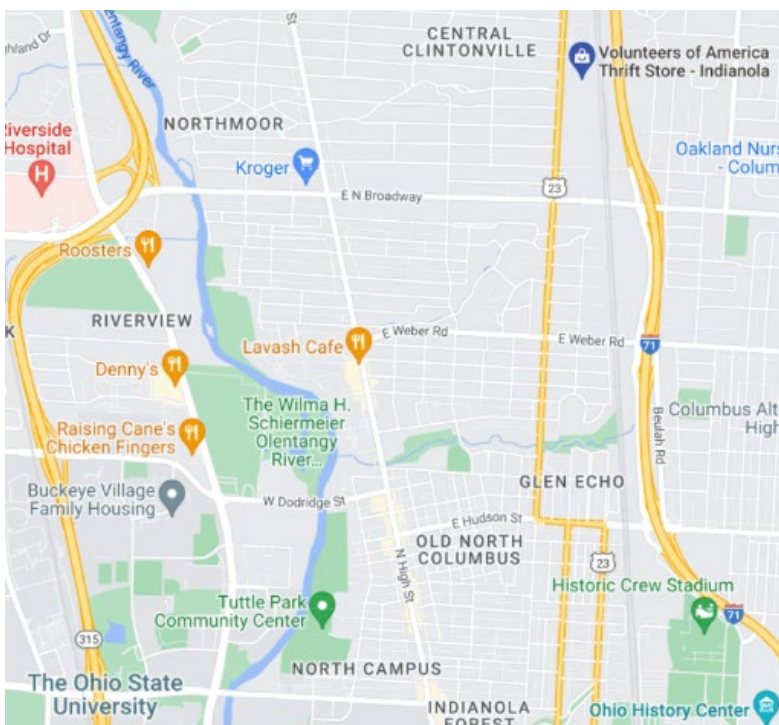
Goodwill Thrift Store  
2550 N High Street  
(614) 384-9768

Accessible via the COTA 2 E Main/N High bus route



The Volunteers of America  
3620 Indianola Ave  
(614) 263-9134

Accessible via the COTA 4 Indianola/Lockbourne bus route



# GE Foundation Courses

## Overview

Courses that are accepted into the General Education (GE) Foundations provide introductory or foundational coverage of the subject of that category. Additionally, each course must meet a set of Expected Learning Outcomes (ELO). Courses may be accepted into more than one Foundation, but ELOs for each Foundation must be met. It may be helpful to consult your Director of Undergraduate Studies or appropriate support staff person as you develop and submit your course.

This form contains sections outlining the ELOs of each Foundation category. You can navigate between them using the Bookmarks function in Acrobat. Please enter text in the boxes to describe how your class meets the ELOs of the Foundation(s) to which it applies. Because this document will be used in the course review and approval process, you should use language that is clear and concise and that colleagues outside of your discipline will be able to follow. Please be as specific as possible, listing concrete activities, specific theories, names of scholars, titles of textbooks etc. Your answers will be evaluated in conjunction with the syllabus submitted for the course.

## Accessibility

If you have a disability and have trouble accessing this document or need to receive the document in another format, please reach out to Meg Daly at [daly.66@osu.edu](mailto:daly.66@osu.edu) or call 614-247-8412.

## GE Rationale: Foundations: Race, Ethnicity, and Gender Diversity (3 credits)

Requesting a GE category for a course implies that the course fulfills **all** the expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Race, Ethnicity, and Gender Diversity, please answer the following questions for each ELO.

### A. Foundations

Please explain in 50-500 words why or how this course is introductory or foundational for the study of Race, Ethnicity and Gender Diversity.

Course Subject & Number: \_\_\_\_\_

**B. Specific Goals of Race, Ethnicity, and Gender Diversity**

GOAL 1: Successful students will engage in a systematic assessment of how historically and socially constructed categories of race, ethnicity, and gender, and possibly others, shape perceptions, individual outcomes, and broader societal, political, economic, and cultural systems.

**Expected Learning Outcome 1.1: Successful students are able to describe and evaluate the social positions and representations of categories including race, gender, and ethnicity, and possibly others.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**Expected Learning Outcome 1.2: Successful students are able to explain how categories including race, gender, and ethnicity continue to function within complex systems of power to impact individual lived experiences and broader societal issues.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**Expected Learning Outcome 1.3: Successful students are able to analyze how the intersection of categories including race, gender, and ethnicity combine to shape lived experiences.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**Expected Learning Outcome 1.4: Successful students are able to evaluate social and ethical implications of studying race, gender, and ethnicity.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

GOAL 2: Successful students will recognize and compare a range of lived experiences of race, gender, and ethnicity.

**Expected Learning Outcome 2.1: Successful students are able to demonstrate critical self- reflection and critique of their social positions and identities.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**Expected Learning Outcome 2.2: Successful students are able to recognize how perceptions of difference shape one’s own attitudes, beliefs, or behaviors.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**Expected Learning Outcome 2.3: Successful students are able to describe how the categories of race, gender, and ethnicity influence the lived experiences of others.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met.

**GE Rationale: Foundations: Social and Behavioral Sciences (3 credits)**

Requesting a GE category for a course implies that the course **all** expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Social and Behavioral Sciences, please answer the following questions for each ELO.

**A. Foundations**

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Social and Behavioral Sciences.

Course Subject & Number: \_\_\_\_\_

**B. Specific Goals of Social and Behavioral Sciences**

GOAL 1: Successful students will critically analyze and apply theoretical and empirical approaches within the social and behavioral sciences, including modern principles, theories, methods, and modes of inquiry.

**Expected Learning Outcome 1.1: Successful students are able to explain basic facts, principles, theories and methods of social and behavioral science.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**Expected Learning Outcome 1.2: Successful students are able to explain and evaluate differences, similarities, and disparities among institutions, organizations, cultures, societies, and/or individuals using social and behavioral science.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)



Course Subject & Number: \_\_\_\_\_

GOAL 2: Successful students will recognize the implications of social and behavioral scientific findings and their potential impacts.

**Expected Learning Outcome 2.1: Successful students are able to analyze how political, economic, individual, or social factors and values impact social structures, policies, and/or decisions.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**Expected Learning Outcome 2.2: Successful students are able to evaluate social and ethical implications of social scientific and behavioral research.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**Expected Learning Outcome 2.3: Successful students are able to critically evaluate and responsibly use information from the social and behavioral sciences.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**GE Rationale: Foundations: Historical or Cultural Studies (3 credits)**

Requesting a GE category for a course implies that the course fulfills the expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Historical and Cultural Studies, please answer the following questions for each ELO. Note that for this Foundation, a course need satisfy either the ELOs for Historical Studies or the ELOs for Cultural Studies.

**A. Foundations**

Please explain in 50-500 words why or how this course is introductory or foundational in the study of History **or** Cultures.

Course Subject & Number: \_\_\_\_\_

**B. Specific Goals of Historical *or* Cultural Studies**

**Historical Studies (A) Goal:** Successful students will critically investigate and analyze historical ideas, events, persons, material culture and artifacts to understand how they shape society and people.

**Expected Learning Outcome 1.1A:** Successful students are able to identify, differentiate, and analyze primary and secondary sources related to historical events, periods, or ideas. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**Expected Learning Outcome 1.2A:** Successful students are able to use methods and theories of historical inquiry to describe and analyze the origin of at least one selected contemporary issue. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**Expected Learning Outcome 1.3A: Successful students are able to use historical sources and methods to construct an integrated perspective on at least one historical period, event or idea that influences human perceptions, beliefs, and behaviors.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**Expected Learning Outcome 1.4A: Successful students are able to evaluate social and ethical implications in historical studies.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

Cultural Studies (B) Goal: Successful students will evaluate significant cultural phenomena and ideas to develop capacities for aesthetic and cultural response, judgment, interpretation, and evaluation.

**Expected Learning Outcome 1.1B: Successful students are able to analyze and interpret selected major forms of human thought, culture, ideas or expression.** Please link this ELO to the course goals and topics and identify the *specific* activities/assignments through which it will be met. (50-700 words)

**Expected Learning Outcome 1.2B: Successful students are able to describe and analyze selected cultural phenomena and ideas across time using a diverse range of primary and secondary sources and an explicit focus on different theories and methodologies.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**Expected Learning Outcome 1.3B: Successful students are able to use appropriate sources and methods to construct an integrated and comparative perspective of cultural periods, events or ideas that influence human perceptions, beliefs, and behaviors.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**Expected Learning Outcome 1.4B: Successful students are able to evaluate social and ethical implications in cultural studies.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met.

### **GE Rationale: Foundations: Writing and Information Literacy (3 credits)**

Requesting a GE category for a course implies that the course fulfills **all** expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Writing and Information Literacy, please answer the following questions for each ELO.

Course Subject & Number: \_\_\_\_\_

### A. Foundations

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Writing and Information Literacy.

### B. Specific Goals of Writing and Information Literacy

GOAL 1: Successful students will demonstrate skills in effective reading, and writing, as well as oral, digital, and/or visual communication for a range of purposes, audiences, and context.

**Expected Learning Outcome 1.1: Successful students are able to compose and interpret across a wide range of purposes and audiences using writing, as well as oral, visual, digital and/or other methods appropriate to the context.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. Explain how the course includes opportunities for feedback on writing and revision. Furthermore, please describe how you plan to insure sufficiently low instructor-student ratio to provide efficient instruction and feedback. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**Expected Learning Outcome 1.2: Successful students are able to use textual conventions, including proper attribution of ideas and/or source, as appropriate to the communication situation.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. Is an appropriate text, writing manual, or other resource about the pedagogy of effective communication being used in the course? (50-700 words)

**Expected Learning Outcome 1.3: Successful students are able to generate ideas and informed responses incorporating diverse perspectives and information from a range of sources, as appropriate to the communication situation.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)



Course Subject & Number: \_\_\_\_\_

**Expected Learning Outcome 1.4: Successful students are able to evaluate social and ethical implications in writing and information literacy practices.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

GOAL 2: Successful students will develop the knowledge, skills, and habits of mind needed for information literacy.

**Expected Learning Outcome 2.1: Successful students are able to demonstrate responsible, civil, and ethical practices when accessing, using, sharing, or creating information.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**Expected Learning Outcome 2.2: Successful students are able to locate, identify and use information through context appropriate search strategies.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**Expected Learning Outcome 2.3: Successful students are able to employ reflective and critical strategies to evaluate and select credible and relevant information sources.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**GE Rationale: Foundations: Literary, Visual, or Performing Arts (3 credits)**

Requesting a GE category for a course implies that the course fulfills **all** expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Literary, Visual, and Performing Arts, please answer the following questions for each ELO.

**A. Foundations**

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Literary, Visual, or Performing Arts.

**B. Specific Goals**

Goal 1: Successful students will analyze, interpret, and evaluate major forms of human thought, cultures, and expression; and demonstrate capacities for aesthetic and culturally informed understanding.

**Expected Learning Outcome 1.1: Successful students are able to analyze and interpret significant works of design or visual, spatial, literary or performing arts.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**Expected Learning Outcome 1.2: Successful students are able to describe and explain how cultures identify, evaluate, shape, and value works of literature, visual and performing art, and design.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**Expected Learning Outcome 1.3: Successful students are able to evaluate how artistic ideas influence and shape human beliefs and the interactions between the arts and human perceptions and behavior.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**Expected Learning Outcome 1.4: Successful students are able to evaluate social and ethical implications in literature, visual and performing arts, and design.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Goal 2: Successful students will experience the arts and reflect on that experience critically and creatively.

**Expected Learning Outcome 2.1: Successful students are able to engage in informed observation and/or active participation within the visual, spatial, literary, or performing arts and design.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**Expected Learning Outcome 2.2: Successful students are able to critically reflect on and share their own experience of observing or engaging in the visual, spatial, literary, or performing arts and design.**

Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

### **GE Rationale: Foundations: Natural Science (4 credits)**

Requesting a GE category for a course implies that the course fulfills **all** expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Natural Sciences, please answer the following questions for each ELO.

#### **A. Foundations**

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Natural Science.

Course Subject & Number: \_\_\_\_\_

## **B. Specific Goals for Natural Sciences**

GOAL 1: Successful students will engage in theoretical and empirical study within the natural sciences, gaining an appreciation of the modern principles, theories, methods, and modes of inquiry used generally across the natural sciences.

**Expected Learning Outcome 1.1: Successful students are able to explain basic facts, principles, theories and methods of modern natural sciences; describe and analyze the process of scientific inquiry.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**Expected Learning Outcome 1.2: Successful students are able to identify how key events in the development of science contribute to the ongoing and changing nature of scientific knowledge and methods.** Please link this ELO to the course goals and topics and indicate specific activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**Expected Learning Outcome 1.3: Successful students are able to employ the processes of science through exploration, discovery, and collaboration to interact directly with the natural world when feasible, using appropriate tools, models, and analysis of data.** Please explain the 1-credit hour equivalent experiential component included in the course: e.g., traditional lab, course-based research experiences, directed observations, or simulations. Please note that students are expected to analyze data and report on outcomes as part of this experiential component. *(50-1000 words)*



Course Subject & Number: \_\_\_\_\_

GOAL 2: Successful students will discern the relationship between the theoretical and applied sciences, while appreciating the implications of scientific discoveries and the potential impacts of science and technology.

**Expected Learning Outcome 2.1: Successful students are able to analyze the inter-dependence and potential impacts of scientific and technological developments.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**Expected Learning Outcome 2.2: Successful students are able to evaluate social and ethical implications of natural scientific discoveries.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**Expected Learning Outcome 2.3: Successful students are able to critically evaluate and responsibly use information from the natural sciences.** Please link this ELO to the course goals and topics and indicate *specific* activities/ assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**GE Rationale: Foundations: Mathematical and Quantitative Reasoning (or Data Analysis) (3 credits)**

Requesting a GE category for a course implies that the course fulfills **all** expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Mathematical and Quantitative Reasoning (or Data Analysis), please answer the following questions for each ELO.

**A. Foundations**

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Mathematical & Quantitative Reasoning (or Data Analysis).

**B. Specific Goals for Mathematical & Quantitative Reasoning/Data Analysis**

Goal: Successful students will be able to apply quantitative or logical reasoning and/or mathematical/statistical analysis methodologies to understand and solve problems and to communicate results.

**Expected Learning Outcome 1.1: Successful students are able to use logical, mathematical and/or statistical concepts and methods to represent real-world situations.** Please link this ELO to the course goals and topics and indicate *specific* activities/ assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**Expected Learning Outcome 1.2: Successful students are able to use diverse logical, mathematical and/or statistical approaches, technologies, and tools to communicate about data symbolically, visually, numerically, and verbally.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**Expected Learning Outcome 1.3: Successful students are able to draw appropriate inferences from data based on quantitative analysis and/or logical reasoning.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**Expected Learning Outcome 1.4: Successful students are able to make and evaluate important assumptions in estimation, modeling, logical argumentation, and/or data analysis.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**Expected Learning Outcome 1.5: Successful students are able to evaluate social and ethical implications in mathematical and quantitative reasoning.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)