

Term Information

Effective Term Spring 2023

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 3110
Course Title Alternative Packaging for a Greener Planet
Transcript Abbreviation AltPackagGrnPlanet
Course Description This Sustainability course focuses on the dependence of humans on earth and environmental systems through the lens of alternative packaging. Plastic packaging accounts for >30% of global plastic consumption. Sustainable alternatives to current packaging methods are urgently needed. This course addresses sustainability through the dimensions of engineering, technology, and design.
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? No
Grading Basis Letter Grade
Repeatable No
Course Components 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 Sophomore standing or above.
Exclusions
Electronically Enforced Yes

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 01.1001
Subsidy Level General Studies Course
Intended Rank Sophomore, Junior, Senior

Requirement/Elective Designation

Sustainability

Course Details

Course goals or learning objectives/outcomes

- Engage in critical and logical thinking about the complexity and shortcomings of sustainability in the current packaging industry, as well as sustainable packaging alternatives.
- In a team setting, propose new sustainable options for packaging to substitute into the current industry line while meeting producer and consumer expectations
- Identify, describe, and synthesize key challenges and hurdles to introducing sustainable materials from renewable sources into the packaging system, as well as key challenges of end-of-life materials.
- Justify packaging testing and analysis to achieve desired final properties.
- Determine biopolymer characteristics and describe the capabilities needed to meet the demands of specific packaging goals.

Content Topic List

- Challenges in producing sustainable materials with equivalent properties to those of petroleum based plastics
- Factors influencing scale up production of alternative packaging
- Key factors that play a role in life cycle analysis of packaging
- Economic barriers to current packaging replacement
- Policy hurdles to sustainable packaging solutions
- Consumer demands and expectations of sustainable packaging
- Waste utilization
- End of Life opportunities

Sought Concurrence

Yes

Attachments

- FDSCTE 3110 submission-sustainability.pdf: Sustainability Theme
(Other Supporting Documentation. Owner: Davis, Molly Jane)
- FDSCTE 3110_Ohio_State_Course_Review_Concurrence_Forms_Combined.pdf: Concurrence Forms Combined
(Concurrence. Owner: Davis, Molly Jane)
- Concurrence Contact List.docx: Concurrence Contact List
(List of Depts Concurrence Requested From. Owner: Davis, Molly Jane)
- FDSCTE 3110 Alternative Packaging for a Greener Planet Syllabus_10-24.docx: Syllabus
(Syllabus. Owner: Davis, Molly Jane)
- FDSCTE 3110 interdisciplinary-team-taught-inventory_10-28.pdf: Interdisciplinary Team Taught Inventory
(Other Supporting Documentation. Owner: Davis, Molly Jane)
- FDSCTE 3110 Responses to ASC Panel Recommendations.docx: Cover Letter
(Cover Letter. Owner: Davis, Molly Jane)

Comments

- revised response letter *(by Davis, Molly Jane on 11/02/2022 01:07 PM)*
- Revise Response letter

Attach correct syllabus

Revise as per COAA via email message 27 August 2022

Revise as per email message sent 15 July 2022 *(by Osborne, Jeanne Marie on 11/02/2022 12:41 PM)*

- Returned per request *(by Violet, Cynthia Alma on 10/28/2022 08:43 AM)*
- Please see Panel feedback email sent 10/13/2022. *(by Hilty, Michael on 10/13/2022 11:27 AM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Davis, Molly Jane	07/08/2022 12:54 PM	Submitted for Approval
Approved	Rodriguez-Saona, Luis Enrique	07/08/2022 12:55 PM	Unit Approval
Revision Requested	Osborne, Jeanne Marie	07/15/2022 10:52 AM	College Approval
Submitted	Davis, Molly Jane	07/18/2022 10:39 AM	Submitted for Approval
Approved	Rodriguez-Saona, Luis Enrique	07/18/2022 12:18 PM	Unit Approval
Revision Requested	Osborne, Jeanne Marie	08/26/2022 05:21 PM	College Approval
Submitted	Davis, Molly Jane	09/07/2022 04:02 PM	Submitted for Approval
Revision Requested	Osborne, Jeanne Marie	09/07/2022 04:15 PM	Unit Approval
Submitted	Davis, Molly Jane	09/07/2022 04:20 PM	Submitted for Approval
Approved	Rodriguez-Saona, Luis Enrique	09/07/2022 05:59 PM	Unit Approval
Approved	Osborne, Jeanne Marie	09/08/2022 11:18 AM	College Approval
Revision Requested	Hilty, Michael	10/13/2022 11:27 AM	ASCCAO Approval
Submitted	Davis, Molly Jane	10/24/2022 11:38 AM	Submitted for Approval
Approved	Rodriguez-Saona, Luis Enrique	10/24/2022 11:49 AM	Unit Approval
Revision Requested	Violet, Cynthia Alma	10/28/2022 08:43 AM	College Approval
Submitted	Davis, Molly Jane	10/28/2022 02:20 PM	Submitted for Approval
Approved	Rodriguez-Saona, Luis Enrique	10/31/2022 10:18 PM	Unit Approval
Revision Requested	Osborne, Jeanne Marie	11/02/2022 12:41 PM	College Approval
Submitted	Davis, Molly Jane	11/02/2022 01:08 PM	Submitted for Approval
Approved	Rodriguez-Saona, Luis Enrique	11/02/2022 02:27 PM	Unit Approval
Approved	Osborne, Jeanne Marie	11/02/2022 02:45 PM	College Approval
Pending Approval	Cody, Emily Kathryn Jenkins, Mary Ellen Bigler Hanlin, Deborah Kay Hilty, Michael Vankeerbergen, Bernadette Chantal Steele, Rachel Lea	11/02/2022 02:45 PM	ASCCAO Approval

November 2, 2022

Dear ASC Curriculum Committee,

We thank the Themes Panel of the ASC Curriculum Committee for reviewing FDSCTE 3110 – Alternative Packaging for a Greener Planet. The panel listed one item that they would like us to address. Below we list the actions (shown in green font) that we took to address this concern.

Based on the panel's recommendations, we revised the syllabus and Interdisciplinary Team-Taught Course Inventory for FDSCTE 3110. We believe that we have adequately addressed all the committee's feedback with the updates. 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

Good morning,

On Tuesday, September 27th, the Themes 2 Panel of the ASC Curriculum Committee reviewed a GEN Theme: Sustainability with High-Impact Practice: Interdisciplinary Team-Teaching proposal for Food Science and Technology 3110. Please see below for the Panel's feedback.

GEN Theme: Sustainability

The Panel unanimously approved the request for GEN Theme: Sustainability

High-Impact Practice: Interdisciplinary Team-Teaching

The Panel did not vote on the request, as they would like the following feedback items addressed:

- The reviewing faculty thank the department for a thoughtful proposal, but are unable to see how the instructors co-teaching the course will engage in Interdisciplinary Team-Teaching as defined by the High-Impact Practice forms created by the Office of Academic Affairs (see here: <https://oaa.osu.edu/sites/default/files/uploads/generaleducation-review/new-ge/interdisciplinary-team-courses-description-expectations.pdf>). They ask that the course proposer read through this document from the Office of Academic Affairs to see how a High-Impact Practice Interdisciplinary Team-Taught course is different from simply a co-taught course.
 - The course proposers have reviewed this document to better understand the difference between a co-taught course and a High-Impact Practice Interdisciplinary Team-Taught course. We revised the syllabus and the Interdisciplinary Team-Taught Course Inventory as indicated in the following bullets to better capture the interdisciplinary team-taught nature of the course.
- While the reviewing faculty acknowledge that the course is being co-taught by up to 6 instructors, in order to count within the Interdisciplinary Team-Teaching category, a

course must establish that an interdisciplinary coteaching style will be developed and introduced, as defined by the Office of Academic Affairs. For example:

- “In multidisciplinary courses, faculty present their individual perspectives one after another, leaving differences in underlying assumptions unexamined and integration up to the students. In interdisciplinary courses, whether taught by teams or individuals, faculty interact in designing a course, bringing to light and examining underlying assumptions and modifying their perspectives in the process. They also make a concerted effort to work with students in crafting an integrated synthesis of the separate parts that provides a larger, more holistic understanding of the question, problem or issue at hand. Smith’s iron law bears repeating: ‘Students shall not be expected to integrate anything the faculty can’t or won’t’ (quoted in Gaff, 1980, pp. 54-55). (Klein & Newall, 12).”
- In the Interdisciplinary Team-Taught Course Inventory and the syllabus, we clarified how faculty will integrate disciplines in course lectures by giving use cases and case studies based on real-world examples of how the discipline integrates into the topic of alternative packaging and integrates with the other disciplines presented. Faculty will integrate the content in class before students are asked to do so in their weekly reflection papers.
- The teaching partners are making a concerted effort to work with students to craft an integrated synthesis and holistic understanding of the development and challenges of developing alternative packaging. Multiple points of scaffolding have been called out in the syllabus on page 9 (Weekly Reflections), page 11 (Final Paper). A scaffolded review of the Final Paper is built into the syllabus. This review will include meaningful feedback from the faculty as well as recommendations for further integration and synthesis of the disciplines presented.
- “A team-taught course requires that two or more faculty from different disciplines, programs or departments develop and offer a course together. Team-taught courses must be taught collaboratively by faculty who integrate distinctly separate disciplines, model interdisciplinary academic exchange, and demonstrate the interdisciplinary nature of the course. This includes explicitly synthesizing across and between the disciplines that each instructor brings to the team-taught, interdisciplinary course.”
- The teaching team will deliver lectures as a team, typically Dr. Vodovotz and another teaching partner, in order to model collaborative intellectual work. The faculty teaching partners will explicitly synthesize across and between disciplines during lectures by providing use cases and case studies based on real-world examples of how the discipline integrates into the topic of alternative packaging and integrates with the other disciplines presented. These use cases will draw connections between how one discipline affects another and how real-world considerations need to be taken into account. These points of synthesis have been called out in the syllabus and throughout the Interdisciplinary Team-Taught Course Inventory.
- After the faculty have integrated these perspectives in lectures, students will then integrate these perspectives in their final papers. On page 11, we added an assessment category in the Final Paper rubric specifically for Synthesis of key disciplines.

- “Teaching partners are expected to collaborate on defining the objectives for the course, putting together the course materials, conducting the formal instruction of students, and evaluating student performance. *Note that courses in which one faculty member of record convenes the course and invites one or more guest speakers to take part in the class are not considered team-taught courses.*”
- The teaching partners have collaborated on the objectives and course materials. After course approval, the teaching partners will collaborate on the formal instruction of students and evaluation and assessment. Further, there will be regular touch-point meetings of the faculty teaching partners throughout the course to discuss progress, needs, and hurdles.
- The reviewing faculty request a cover letter that details all changes made in response to this feedback.
 - Cover letter provided herein.

Alternative Packaging for a Greener Planet Syllabus

FDSCTE 3110 Spring 2023

Course Information

- **Course times and location:** Two 110-minute lectures; one 55-minute recitation per week
- **Credit hours:** 4
- **Mode of delivery:** In person

Instructors

Name: Yael Vodovotz Food Science and Technology (FST) (CFAES)

Email: Vodovotz.1@osu.edu

Phone: 614-247-7696

227 Parker Food Science Bldg.

Office hours: TBD

- For general course matters or emergencies, please contact Dr. Vodovotz. Preferred means of communication:
 - My preferred method of communication for questions is **email**.
 - My class-wide communications will be 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

David Nagib, Chemistry and Biochemistry

Email: nagib.1@osu.edu

Phone: 614-688-1060

283 CBEC Building

Office hours: TBD

Chris Simons, FST

Email: simons.103@osu.edu

Phone: 614-688-1489

315 Parker Food Science and Technology Building

Office hours: TBD

Katrina Cornish, Horticulture and Crop Science

Email: cornish.19@osu.edu

Phone: 330-263-3982

108A Williams Hall, Wooster Campus

Office hours: TBD

Emmanouil Chatzakis, FST

Email: chatzakis.1@osu.edu

Phone: 614-688-2731

233 Parker Food Science and Technology Building

Office hours: TBD



Ajay Shah, Food Agricultural and Biological
Engineering
Email: shah.971@osu.edu
Phone: 330-263-3858
110 FABE
Office hours: TBD

Teaching Assistant

- **Name:** TBD
- **Email:** TBD
- **Recitation times:** TBD

Course Prerequisites

Sophomore standing or above.

Course Description

This Sustainability course focuses on the dependence of humans on earth and environmental systems through the lens of alternative packaging. Plastic packaging accounts for >30% of global plastic consumption. Sustainable alternatives to current packaging methods are urgently needed. This course addresses sustainability through the dimensions of engineering, technology, and design.

Currently, more than 99% of plastic packages are made from petroleum-based polymers and persist in the environment for hundreds of years. More than 50% of these plastic packages are used only once before disposal. Plastic recycling faces many challenges, such as pigmented plastics, multilayered and mixed plastics, hard-to-remove residues, and marginal markets. As a result, less than 10% of plastics are recycled, ~ 10% are incinerated, and ~80% end up in landfills. Around 3% of all the plastics on the market end up in the ocean, with up to 36% of these being microplastics. By now, over 6 billion metric tonnes (Mt) of plastic waste in total has accumulated worldwide, causing great environmental concerns.

These staggering statistics will paint the background for this course. Students will learn about the environmental burden of current packaging practices as well as the challenges and key parameters required to meet more sustainable solutions. Such alternatives face various hurdles that transcend science, policy, and human factors. A team of faculty experts will integrate their distinctly separate areas of expertise, model a diverse academic exchange, and demonstrate the interdisciplinary nature of the course.

This course will address the following interdisciplinary topics that will be synthesized by faculty during lectures and will be required to be combined in assignments throughout the course:

1. Challenges in producing sustainable materials with equivalent properties to those of petroleum based plastics (Yael Vodovotz, David Nagib)
2. Factors influencing scale up production of alternative packaging (Katrina Cornish)
3. Key factors that play a role in life cycle analysis of packaging (Ajay Shah)
4. Economic barriers to current packaging replacement (Ajay Shah)
5. Policy hurdles to sustainable packaging solutions (Ajay Shah)
6. Consumer demands and expectations of sustainable packaging (Chris Simons)
7. Waste utilization (Katrina Cornish, Emmanouil Chatzakis)
8. End of Life opportunities (Katrina Cornish, Yael Vodovotz)

As part of the course, students will work in groups to propose viable more sustainable alternatives to specific current packaging uses where they will integrate knowledge learned in class with independent research and personal experiences. A keen appreciation of the challenges and rewards of finding feasible, economically viable solutions will enhance the students' perspective of plastics and packaging.

Faculty Team and Expertise

This course is set to understand the large, complex issues that are involved in shifting to more sustainable packaging options. Students will examine this problem from multiple disciplinary perspectives, including various STEM fields such as engineering, chemistry, microbiology, and food science, as well as through the lenses of policy, human factors, consumer behavior, and legislation. The topics that will be covered and the faculty experts teaching those sections and their respective departments include: challenges in producing sustainable materials with equivalent properties to those of petroleum-based plastics (Yael Vodovotz (FST), David Nagib (Chem)); factors influencing scale up production of alternative packaging (Katrina Cornish (HCS)); key factors that play a role in life cycle analysis of packaging (Ajay Shah (FABE)); economic barriers to current packaging replacement (Ajay Shah (FABE)); policy hurdles to sustainable packaging solutions (Ajay Shah (FABE)); consumer demands and expectations of sustainable packaging (Chris Simons (FST)); waste utilization (Katrina Cornish (HCS), Emmanouil Chatzakis (FST)); and end of life opportunities (Katrina Cornish (HCS), Yael Vodovotz (FST)).

Our interdisciplinary faculty team includes experts from multiple disciplines:

Faculty Member, Department	Relevant Area of Expertise
Dr. Yael Vodovotz, FST	Material properties of biopolymers and bioplastics
Dr. David Nagib, Chemistry and Biochemistry	Organic chemistry applications for streamlined synthesis of improved medicines, materials, and biofuels
Dr. Katrina Cornish, HCS	Domestic natural rubber production and sustainability; Alternative uses for waste materials

Dr. Ajay Shah, FABE	Improving the efficiency, economics and emissions of plant-based food, material, and energy production systems; life and economic cycles assessments
Dr. Chris Simons, FST	Neural and physiological underpinnings of sensation, reward, and consumer decision
Dr. Emmanouil Chatzakis, FST	Utilization of coffee waste for alternative uses such as plasticizers, adhesives, coatings and biopolymers.

General Education Expected Learning Outcomes

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

- **Goal 1: Successful students will analyze sustainability at a more advanced and in-depth level than in the Foundations component.**
 - 1.1 Engage in critical and logical thinking about the topic or idea of sustainability.
 - 1.2 Engage in an advanced, in-depth, scholarly exploration of the topic or idea of sustainability.
- **Goal 2: Successful students will integrate approaches to sustainability by making connections to out-of- classroom experiences with academic knowledge or across disciplines and/or to work they have done in previous classes and that they anticipate doing in future.**
 - 2.1 Identify, describe and synthesize approaches or experiences as they apply to sustainability.
 - 2.2 Demonstrate a developing sense of self as a learner through reflection, self-assessment and creative work, building on prior experiences to respond to new and challenging contexts.
- **Goal 3: Successful students will analyze and explain how social and natural systems function, interact and evolve over time; how human well-being depends on these interactions; how actions have impacts on subsequent generations and societies globally; and how human values, behaviors and institutions impact multifaceted potential solutions across time.**
 - 3.1 Describe elements of the fundamental dependence of humans on Earth and environmental systems, and on the resilience of these systems.
 - 3.2 Describe, analyze and critique the roles and impacts of human activity and technology on both human society and the natural world, in the past, present and future.
 - 3.3 Devise informed and meaningful responses to problems and arguments in the area of sustainability based on the interpretation of appropriate evidence and an explicit statement of values.

This course fulfills the General Education learning objectives for the Sustainability Theme by:

- Engaging in critical and logical thinking about sustainability by exposing students to the global issue of how to dispose of plastic packaging.
- Engaging in a scholarly exploration by examining sustainability through multiple dimensions, including material science, policy, human factors, economics, and life cycle assessments.
- Identify, describe, and synthesize approaches or experiences by utilizing problem solving techniques through a team approach to propose a sustainable solution to a current packaging issue.
- Describing, analyzing, critiquing, and assessing the impact of the plastics problem by exploring the human impact on the environment and economic implications.
- Devising informed and meaningful potential solutions by assessing all aspects of a successful alternative packaging, thus learning to approach these problems from various disciplines.

Learning Outcomes

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

- Engage in critical and logical thinking about the complexity and shortcomings of sustainability in the current packaging industry, as well as sustainable packaging alternatives.
- In a team setting, propose new sustainable options for packaging to substitute into the current industry line while meeting producer and consumer expectations.
- Identify, describe, and synthesize key challenges and hurdles to introducing sustainable materials from renewable sources into the packaging system, as well as key challenges of end-of-life materials.
- Justify packaging testing and analysis to achieve desired final properties.
- Determine biopolymer characteristics and describe the capabilities needed to meet the demands of specific packaging goals.

How This Course Works

Mode of delivery: This course is 100% in-person.

Credit hours and work expectations: This is a 4 credit-hour course. According to [Ohio State bylaws on instruction](https://www.osu.edu/credit-hours) (go.osu.edu/credithours), students should expect around 4 hours per week of time spent on direct instruction in addition to 8 hours of homework (reading and assignment preparation, for example) to receive a grade of C average.

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:

- **Participating in class activities for attendance: Attend all lectures and be prepared for in class discussion.** If an emergency (illness, death in the family, job interview, etc.) prevents you from attending class, please contact Dr. Vodovotz as soon as possible via email.
- **Office hours: optional**
Questions and concerns should be brought to office hours. If the office hours times don't work, appointments may be requested by email.

Course Materials, Fees and Technologies

Required Materials

- Guillard, V., Gaucel, S., Fornaciari, C., Angellier-Coussy, H., Buche, P., Gontard, N. (2018). The Next Generation of Sustainable Food Packaging to Preserve Our Environment in a Circular Economy Context. *Frontiers in Nutrition* (5), 10.3389/fnut.2018.00121.
- Jedlicka, W. (2009). *Packaging Sustainability: Tools, Systems and Strategies for Innovative Package Design*. John Wiley & Sons.
- Reichert, C. L., Bugnicourt, E., Coltelli, M.-B., Cinelli, P., Lazzeri, A., Canesi, I., Braca, F., Martínez, B. M., Alonso, R., Agostinis, L., Verstichel, S., Six, L., Mets, S. D., Gómez, E. C., Ißbrücker, C., Geerinck, R., Nettleton, D. F., Campos, I., Sauter, E., ... Schmid, M. (2020). Bio-based packaging: Materials, modifications, industrial applications and Sustainability. *Polymers*, 12(7), 1558. <https://doi.org/10.3390/polym12071558>
- Rosenboom, JG., Langer, R. & Traverso, G. (2022). Bioplastics for a circular economy. *Nat Rev Mater* 7, 117–137, <https://doi.org/10.1038/s41578-021-00407-8>
- Van Roijen, E. C., Miller, S. A. (2022). A review of bioplastics at end-of-life: Linking experimental biodegradation studies and life cycle impact assessments, *Resources, Conservation and Recycling*, (181), 106236, <https://doi.org/10.1016/j.resconrec.2022.106236>.
- Class lectures will be posted on CarmenCanvas

Fees and/or Additional Requirements

- None

Required Equipment

- **Computer:** current Mac (MacOS) or PC (Windows 10) with high-speed internet connection to access CarmenCanvas
- **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](http://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](http://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](http://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

- Basic computer and web-browsing skills
- [Navigating CarmenCanvas](http://go.osu.edu/canvasstudent) (go.osu.edu/canvasstudent)

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
- **Phone:** [614-688-4357 \(HELP\)](tel:614-688-4357)
- **Email:** servicedesk@osu.edu



Grading and Faculty Response

How Your Grade is Calculated

Assignment Category	Points
Weekly Reflections (10)	120 (12 points each)
Team Participation	50
Oral Presentation	30
Final Paper	400
Total	600

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

Descriptions of Major Course Assignments

Weekly Reflections

Description: Weekly one-page written reflection describing how the content taught in class that week will be integrated into the team project. Each team member must submit their own assessment. The following will need to be included in each written assignment:

- Title of team
- Brief description of integration of lecture content into team project
- Expected outcomes
- Potential pitfalls

Student teams will receive feedback on their reflections each week from the faculty teaching each topic that will be integrated into the final paper. This feedback should be incorporated into the final paper. The table below details the weekly topics to be addressed in the Weekly Reflections:

Weekly Reflection Topic	Points	GE ELOs addressed
Introduction to plastics and packaging and the	10	1.1, 1.2, 2.1, 3.1



effects of their disposal on sustainability		
Introduction to plastics and packaging and sustainable alternatives	10	1.2, 2.1, 3.2
Challenges in producing sustainable materials with equivalent properties to those of petroleum based plastics	10	1.2, 2.1, 3.2
Factors influencing scale up production of alternative packaging	10	1.2, 2.1, 3.2
Key factors that play a role in life cycle analysis of packaging	10	1.2, 2.1, 3.2
Economic barriers to current packaging replacement	10	1.1, 3.1
Consumer demands and expectations of sustainable packaging	10	1.1, 3.2
Waste utilization for improved sustainability	10	1.1, 3.2
End of life opportunities for improved sustainability	10	1.1, 3.2
Industry speakers	10	3.2

Academic integrity and collaboration: Your written assignments must be your own original work. 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.

Team Participation

Each student is expected to contribute to the team project from initial ideation and throughout the semester. When the teams are established, students will discuss and define each member's meaningful contribution to the team. Each team will develop a team charter that will be turned in and assessed for 10 participation points. The team captain will assess participation from each team member (40 points) and the team members will rate the team captain as far as participation (40 points).

Academic integrity and collaboration: You must attend class and participate as outlined in your team charter to receive these points.

Oral Presentation

Prior to the presentation, the class will discuss what makes a successful/meaningful presentation. Based on this discussion, the class will develop a rubric for assessing the oral

presentations. Each student will assess each team's presentation based on this rubric. The instructor will compile the student assessment and will include this input in the final grade given by the instructor. Universal design is built into Oral Presentation as well. Students have the opportunity to choose how they would like to present their project. The presentation does not have to be a traditional lecture and slideshow presentation. Students can utilize other methods, such as making a video, flyer, infographic, or digital media to use in the presentation. If a team has another idea, please discuss with the lead instructor.

Each team will present their project. All members of the team will be presenting as outlined in the team charter. The details of the content of the presentation will be discussed in class and posted in CarmenCanvas.

Academic integrity and collaboration: You must participate in the presentation as outlined in your team charter to receive these points.

Final Paper

Description: The final paper will be structured as a proposal and will include all aspects of the team solution for a specific packaging sustainable alternative. Each team will submit one project paper (up to 15 pages). The final paper will require students to integrate the approaches to sustainability presented in the class. Students will analyze sustainability of their packaging alternative from multiple perspectives and will devise an informed and meaningful response to sustainability problems in the form of their sustainable packaging alternative.

Midway in the semester, each team will submit a draft of the final paper for instructor review. The instructor will review the paper using the rubric below and offer suggestions and comments, as well as opportunities for further integration of topics. Each team will have an opportunity to reflect on the feedback and revise the paper after the instructor review. Details of what to include in the paper and its structure will be handed out in class and posted on CarmenCanvas.

Assessment category	Percentage
Introduction of product to be replaced	10
Alternative packaging proposed	15
Key factors considered	30
Synthesis of key disciplines	10
Possible challenges, limitations	10
Waste utilization/end-of-life opportunities	10
Clarity of proposal	10
Format, references	5
Total	100

Academic integrity and collaboration: Your final paper must be your team's own original work. Students are encouraged to use peer-reviewed sources in justifying and explaining their proposed solutions. References must be clearly indicated in the text and a reference list must

be included at end of the paper. Follow [APA](#) style for citations and the reference list. The team is encouraged to ask a trusted person to proofread the final paper before turning it in, but no one else should revise or rewrite your work. Students can also utilize the OSU Writing Center as a resource for feedback (see: <https://cstw.osu.edu/our-programs/writing-center>).

Late Assignments

Please refer to Carmen for due dates. Due dates are set to help you stay on pace and to allow timely feedback that will help you complete subsequent assignments. In case of emergencies and other circumstances that prevent you from turning in an assignment on time, please contact Dr. Vodovotz as soon as possible by email. Official documentation (e.g., from a doctor's office or hospital or interviewer) must be provided. Accommodations will be made at Dr. Vodovotz's discretion.

Instructor Feedback and Response Time

Please see below how to contact me for questions/concerns related to this course:.

- **Preferred contact method:** If you have a question, please contact me at vodovotz.1@osu.edu. I will reply to emails within **24 hours on days when class is in session at the university**.
- **Class announcements:** I will send all important class-wide messages through the Announcements tool in CarmenCanvas. Please check [your notification preferences](https://go.osu.edu/canvas-notifications) (go.osu.edu/canvas-notifications) to ensure you receive these messages.
- **Discussion board:** I will check and reply to messages in the discussion boards once mid-week and once at the end of the week.
- **Grading and feedback:** For assignments submitted before the due date, I will try to provide feedback and grades within **seven days**. Assignments submitted after the due date may have reduced feedback and grades may take longer to be posted.

Grading Scale

93–100: A	73–76.9: C
90–92.9: A-	70–72.9: C-
87–89.9: B+	67–69.9: D+
83–86.9: B	60–66.9: D
80–82.9: B-	Below 60: E
77–79.9: C+	



Other Course Policies

Discussion and Communication Guidelines

I expect significant debate and discussions during our class periods but please remember to be respectful and thoughtful.

Team Communication: It is imperative that clear and timely communication take place between team members to assure the project progresses throughout the semester. Each team member is expected to fully participate in ideation through selection and characterization of the sustainable packaging alternative. A team captain will be selected who will assure proper progress is made but allow all team members equal participation. The Team captain will be responsible for final upload of project and assuring all team members have engaged in this assignment by assuring open communication.

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), 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.

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,
2. Call 614-247-5838 or TTY 614-688-8605,
3. Or Email 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."

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://studentlife.osu.edu/bias/report-a-bias-incident.aspx>.

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's Counseling and Consultation Service (CCS) by visiting 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 by dialing 988 to reach the Suicide and Crisis Lifeline.

For students in the College of Food, Agricultural, and Environmental Sciences, David Wirt, wirt.9@osu.edu, is the CFAES embedded mental health counselor on the Columbus campus. To contact David, please call 614-292-5766. Students should mention their affiliation with CFAES if interested in speaking directly with David.

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
- Email: slds@osu.edu
- In person: [Baker Hall 098, 113 W. 12th Avenue](#)

Course Schedule

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

Week	Topics, Readings, Assignments, Due Dates	GE ELOs
1	<p>Explanation of course/Introduction to plastics and packaging and the effects of their disposal on sustainability</p> <p>Readings: Bioplastics for a circular economy; assigned reading from Packaging Sustainability TBD</p> <p>Assignments: Weekly Reflection, Team Charter</p>	1.1, 2.1
2	<p>Introduction to plastics and packaging and sustainable alternatives/Team selection</p> <p>Readings: Bio-Based Packaging: Materials, Modifications, Industrial Applications and Sustainability; assigned reading from Packaging Sustainability TBD</p> <p>Assignments: Weekly Reflection</p>	1.1, 2.1
3	<p>Challenges in producing sustainable materials with equivalent properties to those of petroleum-based plastics; case study: meat wrap.</p> <p>Readings: assigned reading from Packaging Sustainability TBD</p> <p>Assignments: Weekly Reflection</p>	1.1, 1.2, 2.1, 3.1
4	<p>Factors influencing scale up production of alternative packaging; case study: compostable food tray ...</p> <p>Readings: assigned reading from Packaging Sustainability TBD</p>	1.2, 2.1, 3.2



Week	Topics, Readings, Assignments, Due Dates	GE ELOs
	Assignments: Weekly Reflection	
5	<p>Key factors that play a role in life cycle analysis of packaging; Case study on LCA of compostable food package.</p> <p>Readings: A review of bioplastics at end-of-life: Linking experimental biodegradation studies and life cycle impact assessments; assigned reading from Packaging Sustainability TBD</p> <p>Assignments: Weekly Reflection</p>	1.2, 2.1, 3.2
6	<p>Economic barriers to current packaging replacement; case study of compostable cosmetic tube.</p> <p>Readings: assigned reading from Packaging Sustainability TBD</p> <p>Assignments: Weekly Reflection</p>	1.2, 2.1, 3.2
7	<p>Consumer demands and expectations of sustainable packaging; Use case on consumer expectations</p> <p>Readings: assigned reading from Packaging Sustainability TBD</p> <p>Assignments: Weekly Reflection</p>	1.1, 3.1
8	<p>Waste utilization for improved sustainability; Case study of eggshells.</p> <p>Readings: The Next Generation of Sustainable Food Packaging to Preserve Our Environment in a Circular Economy Context; assigned reading from Packaging Sustainability TBD</p> <p>Assignments: Weekly Reflection</p>	1.1, 3.2
9	End of life opportunities for improved	1.1, 3.2



Week	Topics, Readings, Assignments, Due Dates	GE ELOs
	sustainability; Case study recycled PET. Readings: Bioplastics for a circular economy; assigned reading from Packaging Sustainability TBD Assignments: Weekly Reflection	
10	Industry speakers Readings: assigned reading from Packaging Sustainability TBD Assignments: Weekly Reflection	2.1, 3.2
11	Team project and preparing paper and presentation	1.2, 2.1, 2.2, 3.2, 3.3
12	Individual work sessions with team	1.2, 2.1, 2.2, 3.2, 3.3
13	Team presentations Assignments: Oral Presentation	1.2, 2.1, 2.2, 3.2, 3.3
14	Team presentations Assignments: Oral Presentation; Final Paper	1.2, 2.1, 2.2, 3.2, 3.3

GE THEME COURSES

Overview

Courses that are accepted into the General Education (GE) Themes must meet two sets of Expected Learning Outcomes (ELOs): those common for all GE Themes and one set specific to the content of the Theme. This form begins with the criteria common to all themes and has expandable sections relating to each specific theme.

A course may be accepted into more than one Theme if the ELOs for each theme are met. Courses seeing approval for multiple Themes will complete a submission document for each theme. Courses seeking approval as a 4-credit, Integrative Practices course need to complete a similar submission form for the chosen practice. It may be helpful to consult your Director of Undergraduate Studies or appropriate support staff person as you develop and submit your course.

Please enter text in the boxes to describe how your class will meet the ELOs of the Theme to which it applies. Please use language that is clear and concise and that colleagues outside of your discipline will be able to follow. You are encouraged to refer specifically to the syllabus submitted for the course, since the reviewers will also have that document. Because this document will be used in the course review and approval process, you should be as specific as possible, listing concrete activities, specific theories, names of scholars, titles of textbooks etc.

Course subject & number

General Expectations of All Themes

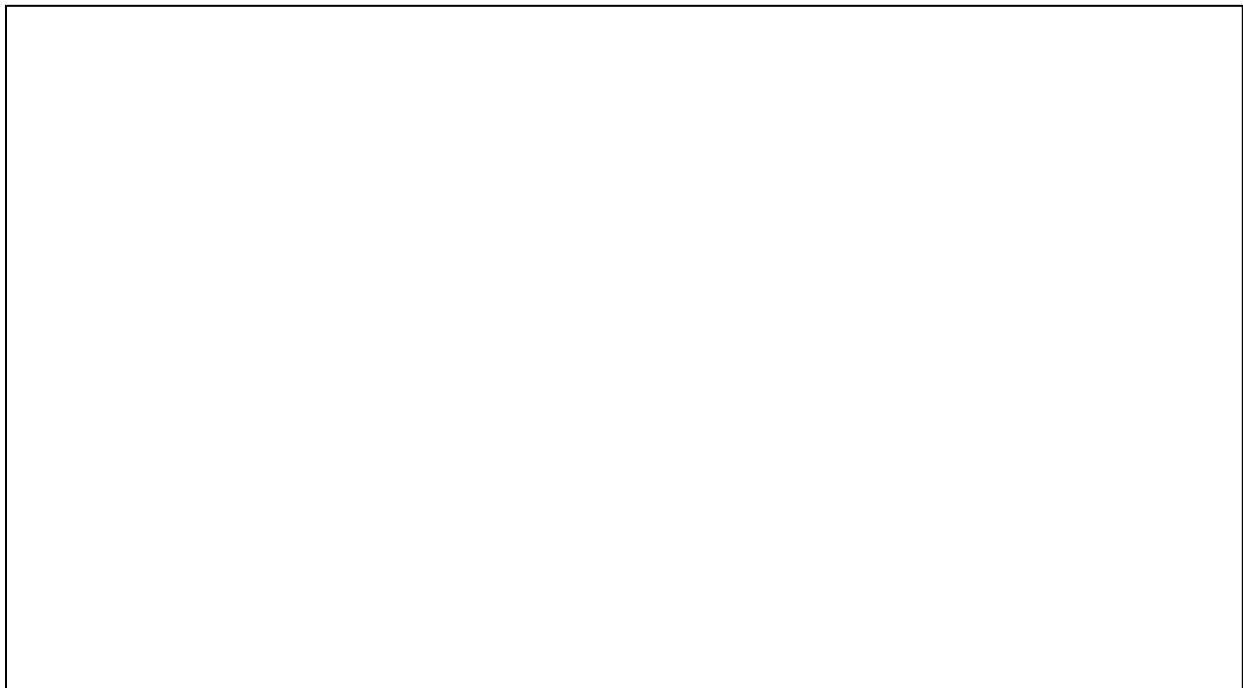
GOAL 1: Successful students will analyze an important topic or idea at a more advanced and in-depth level than the foundations.

Please briefly identify the ways in which this course represents an advanced study of the focal theme. In this context, “advanced” refers to courses that are e.g., synthetic, rely on research or cutting-edge findings, or deeply engage with the subject matter, among other possibilities. *(50-500 words)*

Course subject & number

ELO 1.1 Engage in critical and logical thinking about the topic or idea of the theme. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

ELO 1.2 Engage in an advanced, in-depth, scholarly exploration of the topic or idea of the theme. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

A large, empty rectangular box with a thin black border, intended for the student to write their response to the ELOs. It occupies the lower half of the page.

Course subject & number

GOAL 2: Successful students will integrate approaches to the theme by making connections to out-of-classroom experiences with academic knowledge or across disciplines and/or to work they have done in previous classes and that they anticipate doing in future.

ELO 2.1 Identify, describe, and synthesize approaches or experiences as they apply to the theme.

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

ELO 2.2 Demonstrate a developing sense of self as a learner through reflection, self-assessment, and creative work, building on prior experiences to respond to new and challenging contexts. 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

Specific Expectations of Courses in Sustainability

GOAL 1: Students analyze and explain how social and natural systems function, interact, and evolve over time; how human wellbeing depends on these interactions; how actions have impacts on subsequent generations and societies globally; and how human values, behaviors, and institutions impact multi-faceted, potential solutions across time.

1.1 Describe elements of the fundamental dependence of humans on Earth and environmental systems and on the resilience of these systems. 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

1.2 Describe, analyze and critique the roles and impacts of human activity and technology on both human society and the natural world, in the past, currently, and in the future. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

1.3 Devise informed and meaningful responses to problems and arguments in the area of sustainability based on the interpretation of appropriate evidence and an explicit statement of values. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Interdisciplinary Team-Taught Course Inventory

Overview

The GE allows students to take a single, 4+ credit course to satisfy a particular GE Theme requirement if that course includes key practices that are recognized as integrative and high impact. Courses seeking one of these designations need to provide a completed Integrative Practices Inventory at the time of course submission. This will be evaluated with the rest of the course materials (syllabus, Theme Course submission document, etc). Approved Integrative Practices courses will need to participate in assessment both for their Theme category and for their integrative practice.

Please enter text in the boxes below to describe how your class will meet the expectations of Interdisciplinary Team-Taught courses. It may be helpful to consult the Description & Expectations document for this pedagogical practice or to consult your Director of Undergraduate Studies or appropriate support staff person as you complete this Inventory and submit your course.

Please use language that is clear and concise and that colleagues outside of your discipline will be able to follow. You are encouraged to refer specifically to the syllabus submitted for the course, since the reviewers will also have that document. Because this document will be used in the course review and approval process, you should be as specific as possible, listing concrete activities, specific theories, names of scholars, titles of textbooks etc.

Accessibility

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

Pedagogical Practices for Interdisciplinary Team-Taught Courses

Course subject & number

Performance expectations set at appropriately high levels (e.g. Students investigate large, complex problems from multiple disciplinary perspectives). Please link this expectation to the course goals, topics and activities and indicate *specific* activities/assignments through which it will be met. (50-500 words)

Interdisciplinary Team-Taught Course Inventory

Significant investment of time and effort by students over an extended period of time (e.g., engage the issue iteratively, analyzing with various lenses and seeking to construct an integrative synthesis). Please link this expectation to the course goals, topics and activities and indicate *specific* activities/assignments through which it will be met. (50-500 words)

Interactions with faculty and peers about substantive matters including regular, meaningful faculty mentoring and peer support about conducting interdisciplinary inquiry. Please link this expectation to the course goals, topics and activities and indicate *specific* activities/assignments through which it will be met. (50-500 words)

Interdisciplinary Team-Taught Course Inventory

Students will get frequent, timely, and constructive feedback on their work, scaffolding multiple disciplinary perspectives and integrative synthesis to build over time. Please link this expectation to the course goals, topics and activities and indicate *specific* activities/assignments through which it will be met. (50-500 words)

Periodic, structured opportunities to reflect and integrate learning (e. g. students should work to integrate their insights and construct a more comprehensive perspective on the issue). Please link this expectation to the course goals, topics and activities and indicate *specific* activities/assignments through which it will be met. (50-500 words)

Interdisciplinary Team-Taught Course Inventory

Opportunities to discover relevance of learning through real-world applications and the integration of course content to contemporary global issues and contexts. Please link this expectation to the course goals, topics and activities and indicate *specific* activities/assignments through which it will be met. (50-500 words)

Public Demonstration of competence, such as a significant public communication of their integrative analysis of the issue. Please link this expectation to the course goals, topics and activities and indicate *specific* activities/assignments through which it will be met. (50-500 words)

Interdisciplinary Team-Taught Course Inventory

Experiences with diversity wherein students demonstrate intercultural competence and empathy with people and worldview frameworks that may differ from their own. Please link this expectation to the course goals, topics and activities and indicate *specific* activities/assignments through which it will be met. (50-500 words)

Explicit and intentional efforts to promote inclusivity and a sense of belonging and safety for students, e.g. universal design principles, culturally responsive pedagogy, structured development of cultural self-awareness. Please link this expectation to the course goals, topics and activities and indicate *specific* activities/assignments through which it will be met. (50-500 words)

Interdisciplinary Team-Taught Course Inventory

Clear plans to promote this course to a diverse student body and increase enrollment of typically underserved populations of students. Please link this expectation to the course goals, topics and activities and indicate *specific* activities/assignments through which it will be met. (50-500 words)