

# HOS 2333 FIGHTING FOOD WASTE AND LOSS

## Quest 2

### I. Course Information

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5/12/25 - 6/20/25

Meeting Day/Time/Location:

**16705, 16727, 16737, 16738**

M, W, (F) | Period 6 (3:30 PM - 4:45 PM) |TUR L005

**Instructor**, Dr. Tie Liu – [tieliu@ufl.edu](mailto:tieliu@ufl.edu)

**16705, 16737**

T, R | Period 6 (3:30 PM - 4:45 PM) |TUR L1005

T, R | Period 7 (5:00 PM - 6:15 PM) |TUR L1005

**TA:** Brianna Haynes – [briannahaynes@ufl.edu](mailto:briannahaynes@ufl.edu)

**16727, 16738**

T, R | Period 6 (3:30 PM - 4:45 PM) |TUR L007

T, R | Period 7 (5:00 PM - 6:15 PM) |TUR L007

**TA:** Juliana Rubinatto – [julianarubinatto@ufl.edu](mailto:julianarubinatto@ufl.edu)

Primary General Education Designation: Biological Sciences

Secondary General Education Designation (if seeking): International (N)

A minimum grade of C is required for general education

### Instructor

Tie Liu – [tieliu@ufl.edu](mailto:tieliu@ufl.edu)

Office location: Fifield Hall Room 1213

Office hours: Tuesday, 2:30 – 4:30 PM (and by appointment)

Phone: 352-846-2638

**TA 1:** Brianna Haynes – [briannahaynes@ufl.edu](mailto:briannahaynes@ufl.edu)

Office location: Fifield Hall Room 1219

Office hours: Available by appointment only

**TA 2:** Juliana Rubinatto – [julianarubinatto@ufl.edu](mailto:julianarubinatto@ufl.edu)

Office location: Fifield Hall Room 1219

Office hours: Available by appointment only

## Course Description

Why should we care about Food Waste? In the United States, Americans throw away as much as 40% of all food at an estimated cost of \$165 billion every year. Worldwide, one-third of the world's food — some 1.3 billion tons — is lost or wasted every year. The facts of food loss and waste and the resulting consequences affect us in many ways, ranging from important economic and social issues to lasting and detrimental environmental problems. We need to work on these issues to develop a sustainable environment for global food security, population growth, and human health. This class is a biological science general education class designed for all students who are interested in learning and reflecting upon the major future challenges of food and agriculture. Students will learn about postharvest biology, environmental and food sciences, and communication technology in reducing food waste. Through active learning activities, group discussion, and field trips, students will gain knowledge on the interactions and interdisciplinary approaches among horticultural science, animal science, agronomy, environmental biology, food science & human nutrition, and public health as well as develop critical skills in the analysis of food waste problem. We will help students identify the current issues in food waste and loss, evaluate the economic problems of food waste, develop critical thinking, and identify strategies to reducing food waste and loss. The class include guest lectures, TED talks, group discussion and students' oral presentation. Assignments will include group discussions, report writings on selected topics, and oral presentation.

## Required & Recommended Course Materials (to purchase/rent)

### Required

- ***Postharvest handling***, Florkowski, 2009. (Textbook, Postharvest Waste and Loss)
- ***Postharvest, an introduction to the physiology and handling of fruit and vegetable***, Ron Wills and John Golding, 2016. (6<sup>th</sup> Edition, Textbook)

### Recommended Readings

- ***Taking a Bite out of Food Waste: A Closer Look at What We're Leaving on the Table***, Adrian Hertel, 2018. (Empower Stakeholders)
- ***Food Waste at Consumer Level: A Comprehensive Literature Review***, Ludovica Principato, 2018. (Communication Technology in Food Waste and Loss)
- ***Sustainable Food Waste-To-Energy Systems***, Thomas Trabold and Callie Babbitt, 2018. (Textbook, Sustainable energy)
- ***Postharvest Pathology***, Don Prusky, 2010. (Textbook, Food Safety)
- ***Postharvest Extension and Capacity Building for the Developing World***, Majeed Mohammed, Forwarded by Lisa Kitinoja. 2018. (International studies on Food Security)
- ***Characterization and Management of Food Loss and Waste in North America***, White Paper by CEC (Commission for Environmental Cooperation), 2017. (Case studies on Food Waste)
- ***Food and Agriculture Organization of the United Nations report***, FAO. 2011. (Food Safety)
- ***100 Under \$100: Tools for Reducing Postharvest Losses***, Betsy Teusch, 2019. (Textbook, Communication Technologies in Reducing Food Waste and Loss)

## II. Coursework & Schedule

### 1. List of Graded Work

Assignment	Description	Requirements	Points
<b>Weekly quizzes</b>	A 10-question quiz will be available in Canvas on Tuesday or Thursday. Quizzes will consist mostly of multiple-choice questions. Each quiz will be worth 4 points, and there will be 10 quizzes during the semester. The objective of this assignment is to understand the concepts of food waste and loss and to recognize the global food wastage footprint.	Each quiz will be timed to 10 minutes, and it can only be taken once. Students must bring a web-enabled device (laptop computer, tablet computer, phone) to take the quiz in class.	<b>40 points, 40%</b>
<b>Group study: Website development Video recording</b>	<p>The objective of this assignment is to document postharvest fruits or vegetables deterioration and its associated composting to create an informative website including a video about the process of senescence and degradation for a fresh produce. Experience the technologies to reduce food waste and loss through communication with family and local community.</p> <p>Students will work in teams to design a website through Google Site and make two videos. One of the videos is to demonstrate the fruit or vegetable decay; the other is to describe the composting process.</p> <p>Students will give 5 min explanation on how fresh produces are deteriorated and what biological events associated with the observations. The website and video will be peer-evaluated one week before the final exam.</p>	Students will share the website and videos with classmates and make PowerPoint for the case study of composting. Then, based on their case study information and feedback, students will prepare and record a 5-minute video and upload to their website where they introduce postharvest handling, process and storage of their vegetables and fruits as well as strategies for composting to reduce food waste and loss. Additional guidelines and grading rubrics for each submission will be provided via Canvas.	<b>Group study: 10 points, 10% (Website development 7 points, 7%, Video: 3 points, 3%)</b>
<b>Mid-Term Exam</b>	The mid-term exam will be given on campus at the 3 <sup>rd</sup> class week on the canvas website.	Students must bring a laptop for the exam which will contain 20 questions. Students must bring a web-enabled device (laptop	<b>10 points each, 10%</b>

		computer, tablet computer, phone) to take the exam. If there is an issue with attending the exam at this time, it should be discussed with the Dr. Tie Liu at least one week before the exam.	
<b>Final Exam</b>	The final exam will be given on campus at the final week.	Students must bring a laptop for the exam which will contain 20 questions. Students must bring a web-enabled device (laptop computer, tablet computer, phone) to take the exam. If there is an issue with attending the exam at this time, it should be discussed with the Dr. Tie Liu at least one week before the exam.	<b>10 points each, 10%</b>
<b>Oral Presentation</b>	Students will prepare and present an 10-15 minute oral presentation followed by a 5-10 minute feedback section and discussion. The objective of this assignment is to explore the cultural, economic, political, and/or social systems and beliefs mediate people's understanding of an increasingly connected world.	Additional guidelines and grading rubrics will be provided via Canvas.	<b>20 points, 20%</b>
<b>Class discussion</b>	Comments always insightful & constructive; uses appropriate terminology. Comments balanced between general impressions, opinions & specific, thoughtful criticisms, or contributions.	Students should ask two or more questions per week to receive the credits. Excellent (100% participation, 5 points), good (90% participation, 4 points), average (80% participation, 3points), below average (70% participation, 1 points).	<b>2.5 points, 2.5%</b>
<b>Class participation</b>	Students will participate in five in-class assignments, including two case studies and three literature reviews.	Students will write a summary for each case study or literature review and are required to turn it in during class to receive credit. Each in-class assignment is worth 1.5 points.	<b>7.5 points, 7.5%</b>

## 2. Weekly Course Schedule

Week	Topic Area	Weekly SLO Description	Assignment and Weekly Readings
<b>1. Introduction: Food Waste and Loss</b>			
<b>5/12</b> <b>Mon</b>	<b>Lecture:</b> Food Waste and Loss: Why Should We Care? (Part I) (Overview of food loss and waste)	Recognize the global challenge of postharvest loss reduction in South America, Europe, and Asia	<b><i>Reducing Food Loss and Waste, 2019, WRI</i></b> <i>Page 3-15</i> (13 pages) FAO website: <a href="http://www.fao.org/food-loss-and-food-waste/flw-data">http://www.fao.org/food-loss-and-food-waste/flw-data</a> ) TED talk: A Recipe for Cutting Food Waste: Peter Lehner: <a href="https://www.youtube.com/watch?v=UwOHpWTRsbE">https://www.youtube.com/watch?v=UwOHpWTRsbE</a>
<b>5/13</b> <b>Tue</b>	<b>Discussion 1:</b>  <b>Introductions:</b> <ul style="list-style-type: none"> <li>- Syllabus and class expectations</li> <li>- Group Study overview and website design</li> <li>- Oral presentations overview</li> </ul> <b>Doodle poll:</b> Assign Oral Presentation Papers (Selections due by following discussion period)  <b>Quiz 1</b>		
<b>5/14</b> <b>Wed</b>	<b>Lecture:</b> Food Waste and Loss: Why Should We Care? (Part II) Guest lecture, Rachael Jackson, EatOrToss.com		
<b>5/15</b> <b>Thu</b>	<b>Discussion 2:</b>  <b>Mini Lecture:</b> How to read and present scientific papers.  <b>Quiz 2</b>		
<b>5/16</b> <b>Fri</b>	Field trip: HOS teaching garden		

2. Postharvest Biology and Technology			
5/19 Mon	<b>Lecture:</b> Postharvest Biology and Technology of Vegetables and Fruits	Understand postharvest physiology of fruit and vegetable. Explore cultural, historical, sociopolitical, and geographical aspects on food waste	<b>Postharvest</b> <i>Ron Wills: Chapt. 1. Page 1-15 (15 pages)</i> Poore, J., and T. Nemecek. “Reducing Food’s Environmental Impacts through Producers and Consumers.” <i>Science</i> 360, no. 6392 (June 1, 2018): 987–92. <a href="https://doi.org/10.1126/science.aag0216">https://doi.org/10.1126/science.aag0216</a> . Links to presentation articles: Presentation 1: <a href="https://doi.org/10.1016/j.scienta.2019.03.020">https://doi.org/10.1016/j.scienta.2019.03.020</a> Presentation 2: <a href="https://doi.org/10.1016/j.lwt.2021.113031">https://doi.org/10.1016/j.lwt.2021.113031</a>
5/20 Tue	<b>Discussion 3:</b> <b>Presentation 1:</b> A multiple volatile oil blend prolongs the shelf life of peach fruit and suppresses postharvest spoilage <b>Presentation 2:</b> Solid- and vapor-phase antifungal activities of six essential oils and their applications in postharvest fungal control of peach ( <i>Prunus persica</i> L. Batsch) <b>Quiz 3</b>		Links to presentation articles:  Presentation 3: <a href="https://doi.org/10.1016/j.postharvbio.2024.112916">https://doi.org/10.1016/j.postharvbio.2024.112916</a> Presentation 4: <a href="https://doi.org/10.1016/j.postharvbio.2024.112852">https://doi.org/10.1016/j.postharvbio.2024.112852</a> Presentation 5: <a href="https://www.sciencedirect.com/science/article/pii/S0925521421000600">https://www.sciencedirect.com/science/article/pii/S0925521421000600</a>  <i>Ron Wills, 2007, Chapt. 2, Page 16-33 (16 pages)</i>
5/21 Wed	<b>Lecture:</b> Innovative Biological Approaches to Reduce Food Waste and Loss		
5/22 Thu	<b>Discussion 4:</b> <b>Presentation 3:</b> $\gamma$ -Aminobutyric acid delays fruit softening in postharvest kiwifruit by inhibiting starch and cell wall degradation <b>Presentation 4:</b> Melatonin delays softening of postharvest pepper fruits ( <i>Capsicum annuum</i> L.) by regulating cell wall degradation, membrane stability and antioxidant systems <b>Presentation 5:</b> “Benefit of modified atmosphere packaging on the overall environmental impact of packed strawberries” (Matar et al., 2021). <b>Quiz 4</b>		
5/23 Fri	Increasing Food Security by Optimizing Consumption <b>Invited Speaker:</b> Dr. Jeff Brecht, Professor, Department of Horticultural Sciences		

3. Food Waste on Livestock Products			
5/26 Mon	Holiday		
5/27 Tue	<b>Lecture:</b> Postharvest Procedures for the Maintenance of Food Quality Reduce Food Waste on Livestock Products	Identify the best practices to keep meat fresh	<i>Postharvest handling, Florkowski, 2009</i> <i>Chapt. 4, Page 43-52 (10 pages)</i>
5/28 Wed	<b>Discussion 5:</b>  <b>Presentation 6:</b> “Food system by-products upcycled in livestock and aquaculture feeds can increase global food supply” (Sandström et al., 2022). <b>Presentation 7:</b> “Food Waste in Primary Production: Milk Loss with Mitigation Potentials” (March et al., 2019). <b>Presentation 8:</b> “Fish processing waste: a novel source of non-conventional functional proteins” (Rana et al., 2022)  <b>Quiz 5</b>		Links to presentation articles:  Presentation 6: <a href="https://www.nature.com/articles/s43016-022-00589-6">https://www.nature.com/articles/s43016-022-00589-6</a> Presentation 7: <a href="https://www.frontiersin.org/articles/10.3389/fnut.2019.00173/full">https://www.frontiersin.org/articles/10.3389/fnut.2019.00173/full</a> Presentation 8: <a href="https://ifst.onlinelibrary.wiley.com/doi/full/10.1111/ijfs.16104">https://ifst.onlinelibrary.wiley.com/doi/full/10.1111/ijfs.16104</a>
5/29 Thu	<b>Lecture:</b> Impossible Burger: Future of Meat and Its Impact to Reduce Food Waste		
5/30 Fri	<b>Discussion 6:</b> <b>Presentation 9:</b> “Smart packaging with temperature-dependent gas permeability maintains the quality of cherry tomatoes” (Kim et al., 2021).  <b>Presentation 10:</b> “Freshness indicator for monitoring changes in quality of packaged kimchi during storage” (Baek et al., 2020).  <b>Midterm</b>		Links to presentation articles: Presentation 9: <a href="https://www.sciencedirect.com/science/article/pii/S221242922100122X#:~:text=The%20relatively%20low%20concentrations%20of,content%2C%20firmness%2C%20and%20color.">https://www.sciencedirect.com/science/article/pii/S221242922100122X#:~:text=The%20relatively%20low%20concentrations%20of,content%2C%20firmness%2C%20and%20color.</a> Presentation 10: <a href="https://www.sciencedirect.com/science/article/pii/S2214289418304253">https://www.sciencedirect.com/science/article/pii/S2214289418304253</a>

4. Food Technology			
6/2 Mon	<b>Lecture:</b> Food Technology I CRISPR gene editing	Postharvest technology to reduce food waste and loss	<b><i>Postharvest Pathology</i>, Don Prusky. Chapt.1, Page 1-12 (12 pages)</b>
6/3 Tue	<b>Discussion 7:</b> <b>Presentation 11:</b> “Machine learning can guide food security efforts when primary data are not available” (Marini et al., 2022). <b>Presentation 12:</b> “Multiscale modeling of RQ-DCA storage of different pear cultivars using a hybrid physics-based stochastic approach” (Verreydt et al., 2022). <b>Presentation 13:</b> “Preliminary study on the use of near infrared hyperspectral imaging for quantitation and localisation of total glucosinolates in freeze-dried broccoli” (Hernández-Hierro et al., 2014). <b>Quiz 6</b>		Links to presentation articles: Presentation 11: <a href="https://www.nature.com/articles/s43016-022-00587-8">https://www.nature.com/articles/s43016-022-00587-8</a> Presentation 12: DOI: <a href="https://doi.org/10.1016/j.postharvbio.2022.112083">10.1016/j.postharvbio.2022.112083</a>  Presentation 13: <a href="https://www.sciencedirect.com/science/article/pii/S0260877413005736">https://www.sciencedirect.com/science/article/pii/S0260877413005736</a>
6/4 Wed	<b>Lecture:</b> Food technology II Urban Farming		
6/5 Thu	<b>Discussion 8:</b> <b>Presentation 14:</b> “A precision compost strategy aligning composts and application methods with target crops and growth environments can increase global food production” (Zhou et al., 2022). <b>Presentation 15:</b> “Comparing the carbon footprints of urban and conventional agriculture” (Hawes et al., 2024). <b>Presentation 16:</b> “Current status and future challenges in implementing and upscaling vertical farming systems” (Delden et al., 2024). <b>Quiz 7</b>		Links to presentation articles: Presentation 14: <a href="https://doi.org/10.1038/s43016-022-00584-x">https://doi.org/10.1038/s43016-022-00584-x</a> Presentation 15: <a href="https://www.nature.com/articles/s44284-023-00023-3">https://www.nature.com/articles/s44284-023-00023-3</a> Presentation 16: <a href="https://www.nature.com/articles/s43016-021-00402-w">https://www.nature.com/articles/s43016-021-00402-w</a>
6/6 Fri	<b>Lecture:</b>	Identify small scale postharvest handling technology.	<b><i>Sustainable Food Waste-To-Energy Systems</i>, Thomas Trabold and Callie Babbitt, 2018.</b>



5. Sustainable Food Waste-to-Energy Systems			
6/9 Mon	Plant and Environment <b>Invited Speaker:</b> Dr. Samuel Martin, Assistant Professor, Department of Plant Pathology	Summary of solutions to reduce food waste and loss	<i><b>Sustainable Food Waste-To-Energy Systems</b></i> , Thomas Trabold and Callie Babbitt, 2018. Page 238-250 (12 pages).
6/10 Tue	<b>Discussion 9:</b> <b>Presentation 17:</b> “Life cycle assessment to compare the environmental impact of seven contemporary food waste management systems” (Edwards et al., 2018). <b>Presentation 18:</b> “Greenhouse Gas Emission Estimates of U.S. Dietary Choices and Food Loss” (Keller and Keoleian, 2014). <b>Presentation 19:</b> “Overnutrition is a significant component of food waste and has a large environmental impact” (Franco et al., 2022). <b>Quiz 8</b>		Links to presentation articles: Presentation 17: <a href="https://www.sciencedirect.com/science/article/pii/S0960852417309744">https://www.sciencedirect.com/science/article/pii/S0960852417309744</a> Presentation 18: <a href="https://onlinelibrary.wiley.com/doi/full/10.1111/jiec.12174">https://onlinelibrary.wiley.com/doi/full/10.1111/jiec.12174</a> Presentation 19: <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9114125/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9114125/</a>
6/11 Wed	<b>Lecture:</b> New Technology in Reducing Food Waste and Loss Feeding Food with Food (Food Waste Composting) Sustainable Waste-to-energy System	Identify the best practices to keep meat fresh.	TED talk: The Global Waste Scandal; (15 min) <a href="https://www.ted.com/talks/tristram_s_tuart_the_global_food_waste_scandal?language=en#t-268769">https://www.ted.com/talks/tristram_s_tuart_the_global_food_waste_scandal?language=en#t-268769</a>
6/12 Thu	<b>Discussion 10:</b> <b>Presentation 20:</b> “Policy framing, design and feedback can increase public support for costly food waste regulation” (Fesenfeld et al., 2022). <b>Presentation 21:</b> "Global food loss and waste estimates show increasing nutritional and environmental pressures" (Gatto and Chepeliev, 2023). <b>Presentation 22:</b> “Simple dietary substitutions can reduce carbon footprints and improve dietary quality across diverse segments of the US population” (Grummon et al., 2023). <b>Quiz 9</b>		Links to presentation articles: Presentation 20: <a href="https://www.nature.com/articles/s43016-022-00460-8">https://www.nature.com/articles/s43016-022-00460-8</a> Presentation 21: <a href="https://www.nature.com/articles/s43016-023-00915-6">https://www.nature.com/articles/s43016-023-00915-6</a> Presentation 22: <a href="https://www.nature.com/articles/s43016-023-00864-0">https://www.nature.com/articles/s43016-023-00864-0</a>
6/13 Fri	<b>Guest lecture:</b> Amanda Wabble (Zero Food Waste in Gainesville). Relate the food waste in the local community.	Relate the food waste in the local community.	Food Recall: <a href="https://edis.ifas.ufl.edu/fs108">https://edis.ifas.ufl.edu/fs108</a>

6. Food Safety and Communication Technology of Food Waste Reduction			
6/16 Mon	<b>Lecture:</b> Traceability and Communication Technology in reducing food waste		<b>100 Under \$100, Betsy Teusch.</b> <i>Section 1, Page 15-60 (34 pages)</i> <i>Video:</i> TED talk: Stop Wasting Food: Selina Juul (15 min) <a href="https://www.youtube.com/watch?v=dIIhbjY4s8A">https://www.youtube.com/watch?v=dIIhbjY4s8A</a>  Links to presentation articles: Presentation 23: <a href="https://www.sciencedirect.com/science/article/pii/S221242922100122X#:~:text=The%20relatively%20low%20concentrations%20of,content%2C%20firmness%2C%20and%20color.">https://www.sciencedirect.com/science/article/pii/S221242922100122X#:~:text=The%20relatively%20low%20concentrations%20of,content%2C%20firmness%2C%20and%20color.</a>
6/17 Tue	<b>Discussion 11:</b>  <b>Presentation 23:</b> “Carbohydrate-based films containing pH-sensitive red barberry anthocyanins: Application as biodegradable smart food packaging materials” (Sani et al., 2021).  <b>Group Study Presentations</b>  <b>Quiz 10</b>		
6/18 Wed	<b>Discussion 12:</b>  <b>Final Exam</b>		
6/19 Thu	<b>Juneteenth Holiday</b>		
6/20 Fri	Field Trip: The Field and Food Pantry, UF campus Effects of Waste on the Public Wallet	Identify economic impact of food waste and loss. Explore the connections between food waste and culture, and food and science.	<b>100 Under \$100, Betsy Teusch.</b> <i>Section 4, Page 152-197 (45 pages)</i>

## III. Grading

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### 3. Statement on Attendance and Participation

Attendance and Participation:

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

- **Participation:** Consistent informed, thoughtful, and considerate class participation is expected and will be evaluated using the rubric below. The instructor will inform you of your participation grade to date when mid-term exams are returned and schedule a conference if you are earning below 70% of the possible points.
- **NOTE:** If you have personal issues that prohibit you from joining freely in class discussion, e.g., shyness, language barriers, etc., see the instructor as soon as possible to discuss alternative modes of participation.

Participation Grading Rubric (5 points, 5%):

	High Quality	Average	Needs Improvement
Informed: Shows evidence of having done the assigned work.	9-10	6-8	1-5
Thoughtful: Shows evidence of having understood and considered issues raised.	9-10	6-8	1-5
Considerate: Takes the perspective others into account.	9-10	6-8	1-5

### 4. Grading Scale

For information on how UF assigns grade points, visit: <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

A	95 – 100% of possible points		C	74 – 76%
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A-	90 – 94%		C-	70 – 73%
B+	87 – 89%		D+	67 – 69%
B	84 – 86%		D	64 – 66%
B-	80 – 83%		D-	60 – 63%
C+	77 – 79%		E	<60

## IV. Quest Learning Experiences

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### 5. Details of Experiential Learning Component

- The experiential learning component will be achieved through the examination of postharvest issues, energy-to-waste system, food safety and education to find solutions to reduce food waste and loss. Each week, students will study lecture concepts on the topics of the four core areas. During the class on Wednesday, the case studies and discussion on the topics will be brought by practicing critical thinking. An oral presentation on Friday will be summarized the research-based articles for evidence of application activities in the four core areas and reinforced critical evaluation for discussion.

### 6. Details of Self-Reflection Component

- In weekly class lectures, students will be required to participate in group discussion about the TED talks on Reducing Food Waste and Loss. A video recording assignment on Food Composting was designed to give students opportunity to learn and practice food recovery system at home and local community. Students will present their videos to the class and participate peer evaluation. Students were also required to submit the final written assignment to discuss global food security and present their ideas and hypotheses on developing potential strategies to reduce food waste and loss to maintain food quality for environmentally sustainable methods.

## V. General Education and Quest Objectives & SLOs

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### 7. This Course's Objectives—Gen Ed Primary Area and Quest

Quest 2 courses are grounded in the modes of inquiry and analysis characteristic of the social and/or biophysical sciences, Quest 2 courses invite students to address pressing questions facing human society and the planet—questions that outstrip the boundaries of any one discipline and that represent the kind of open-ended, complex issues they will face as critical, creative, and thoughtful adults navigating a complex and interconnected world.

#### General Education, Biological Sciences (B) Description:

Biological science courses provide instruction in the basic concepts, theories and terms of the scientific method in the context of the life sciences. Courses focus on major scientific developments and their impacts on society, science and the environment, and the relevant processes that govern biological systems. Students will formulate empirically testable hypotheses derived from the study of living things, apply logical reasoning skills through scientific criticism and argument, and apply techniques of discovery and critical thinking to evaluate outcomes of experiments.

#### Accomplishing Objectives:

After taking Fighting Food Waste and Loss course, students will be able to:

1. Explain the global issue of food loss and waste.
2. Analyze current food loss and waste issues and the relationships among food safety, nutrition and public health as well as the related environmental, social, and economic impacts.
3. Summarize and evaluate research-based articles for evidence of anthropogenic activities altering biodiversity and, subsequently, ecosystem services.

### 8. This Course's Student Learning Outcomes (SLOs)—Gen Ed Primary Area and Quest

#### Quest 2 Student Learning Outcomes:

1. Identify, describe, and explain the cross-disciplinary dimensions of a pressing societal issue or challenge as represented by the

- social sciences and/or biophysical sciences incorporated into the course. **(Content)**
2. Critically analyze quantitative or qualitative data appropriate for informing an approach, policy, or praxis that addresses some dimension of an important societal issue or challenge. **(Critical Thinking)**
  3. Develop and present, in terms accessible to an educated public, clear and effective responses to proposed approaches, policies, or practices that address important societal issues or challenges **(Communication)**
  4. Connect course content with critical reflection on their intellectual, personal, and professional development at UF and beyond. **(Connection)**

#### General Education, Biological Sciences Student Learning Outcomes:

1. Identify, describe, and explain the basic concepts, theories and terminology of natural science and the scientific method; the major scientific discoveries and the impacts on society and the environment; and the relevant processes that govern biological and physical systems. **(Content)**
2. Formulate empirically testable hypotheses derived from the study of physical processes or living things; apply logical reasoning skills effectively through scientific criticism and argument; and apply techniques of discovery and critical thinking effectively to solve scientific problems and to evaluate outcomes. **(Critical thinking)**
3. Communicate scientific knowledge, thoughts, and reasoning clearly and effectively. **(Communication)**

#### Accomplishing Objectives:

After taking Fighting Food Waste and Loss, students will be able to:

1. Evaluate the environmental and economic impacts of food waste and food loss. Discuss global food security.
2. Develop potential strategies to reduce food waste and loss to maintain food quality and to develop environmentally sustainable methods.
3. Identify and communicate the strategies to reducing food loss and waste to create a sustainable food future.

## **9. Secondary Objectives and SLOs**

#### General Education, International (I) Description:

International courses promote the development of students' global and intercultural awareness. Students examine the cultural, economic, geographic, historical, political, and/or social experiences and processes that characterize the contemporary world, and thereby comprehend the trends, challenges, and opportunities that affect communities around the world. Students analyze and reflect on the ways in which cultural, economic, political, and/or social systems and beliefs mediate their own and other people's understanding of an increasingly connected world.

General Education, International Student Learning Outcomes:

1. The general education objects will be accomplished through the identification of the global issue of food waste and loss in the aspects of the environment, economy, food safety, and ethics to discuss the potential solutions to reduce the food waste and to develop a sustainable agriculture globally. (**Content**)
2. Students will understand the food waste and loss has become a worldwide topic of interests and study the postharvest biology and technology to reduce food waste and loss. (**Critical thinking**)
3. Each week, a lecture and a TED talk followed by a discussion will be provided to discuss the topics from worldwide problem to household solutions of reducing food waste and loss. Students will make assessment and discuss the potential solution through critical thinking and group discussions. (**Communication**)

## VI. Required Policies

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### 10. Students Requiring Accommodation

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

### 11. UF Evaluations Process

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

### 12. University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

### 13. Counseling and Wellness Center

Contact information for the Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

### 14. The Writing Studio

The writing studio is committed to helping University of Florida students meet their academic and professional goals by becoming better writers. Visit the writing studio online at <http://writing.ufl.edu/writing-studio/> or in 2215 Turlington Hall for one-on-one consultations and workshops.