

## **CURE: Food Waste and the Circular Bioeconomy**

ABE 4932 Section: 19461

**Class Periods:** M Period 4, 10:40-11:30 AM, W Period 4-5, 10:40-12:35 PM

**Location:** Frazier Rogers Hall Rm. 211 (and Lab 166)

**Academic Term:** Spring 2026

### ***Instructor:***

Dr. Ana Martin-Ryals

[admartin@ufl.edu](mailto:admartin@ufl.edu)

(352) 294-6708

Office Hours: Friday 10:30-11:30 am or by appointment.

### ***Course Description***

This is a Course-based Undergraduate Research Experience (CURE) open to undergraduates of any major that provides hands-on research training focused on improving anaerobic digestion of food waste to support a circular bioeconomy. The course is a combination of lectures, readings, group discussions, field trips, experimental work, modelling, and data analysis. Student will get an introduction to concepts of sustainability, circular bioeconomy, and resource recovery from organic waste. As a class, we will develop a research question, review literature, design and carry-out an experiment, and analyze and interpret results. Students will learn necessary laboratory, modelling, and data analysis techniques, and present their work as a team poster presentation at the UF Undergraduate Research Symposium. (3 credits.)

### ***Course Pre-Requisites / Co-Requisites***

None

### ***Course Objectives***

After completing this course students will be able to:

- Describe challenges related to circular bioeconomy, food waste management, and anaerobic digestion.
- Explain what anaerobic digestion is and how it works.
- Describe and carry-out the steps of a research project.
- Analyze, interpret, and communicate experimental results via a poster presentation and written report.

### ***Materials and Supply Fees*** - N/A

### ***Required Textbooks and Software***

There is no required textbook for this course. Access to all readings and course materials will be provided to students on Canvas.

### ***Required Computer***

Recommended Computer Specifications: <https://it.ufl.edu/get-help/student-computer-recommendations/>

HWCOE Computer Requirements: <https://www.eng.ufl.edu/students/advising/fall-semester-checklist/computer-requirements/>

### ***Academic Policies & Resources***

To support consistent and accessible communication of university-wide student resources, instructors must include this link to academic policies and campus resources: <https://go.ufl.edu/syllabuspolices>. Instructor-specific guidelines for courses must accommodate these policies.

## Course Schedule

<u>Week</u>	<u>Topic</u>	<u>Due</u>
1	Course Overview, Lab Safety, Core Concepts	--
2	Food Waste Collection 1	Assign. 1 – Lab Safety Training
3	Biomethane Potential Test 1	Assign. 2 – Core Concepts Summary
4	Sample Analysis 1	Assign. 3 – Literature Review
5	Research Objectives and Hypothesis	Assign. 4 – Draft Materials & Methods
6	Data Analysis, Draft Results and Discussion	Assign. 5 – Problem Statement
7	Food Waste Collection 2	Assign. 6 – Draft Results & Discussion
8	Biomethane Potential Test 2	Assign. 7 – Poster Abstract
9	Sample Analysis 2	--
10	-- <i>Spring Break</i> --	--
11	Data Analysis, Update Results and Discussion	Assign. 8 – Updated Materials & Methods
12	Prepare Research Poster	Assign. 9 – Updated Results & Discussion
13	Undergraduate Research Symposium	Research Poster
14	Field Trip to Waste Transfer Station	Assign. 10 – Class Reflection
15	Finalize Report	Final Report

## Evaluation of Grades

Assignment	Total Points	Percentage of Final Grade
Assignments (10)	100	33%
Research Poster	100	33%
Final Report	100	33%
	300	100%

## Grading Policy

Percent	Grade	Grade Points
93.4 - 100	A	4.00
90.0 - 93.3	A-	3.67
86.7 - 89.9	B+	3.33
83.4 - 86.6	B	3.00
80.0 - 83.3	B-	2.67
76.7 - 79.9	C+	2.33
73.4 - 76.6	C	2.00
70.0 - 73.3	C-	1.67
66.7 - 69.9	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	D-	0.67
0 - 59.9	E	0.00

## Commitment to a Positive Learning Environment

The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University's core values.

If you feel like your performance in class is being impacted, please contact your instructor or any of the following:

- Your academic advisor or Undergraduate Coordinator
- HWCOE Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
- Pam Dickrell, Associate Dean of Student Affairs, 352-392-2177, pld@ufl.edu