

OEST/OCN 441: Principles of Sustainability Analysis
Fall 2017, T. Th. 3:00 – 4:15 PM POST 126
University of Hawaii at Manoa

Instructor: Dr. Michael Cooney (956-7337); mcooney@hawaii.edu). Office hours @ POST 104B, T. Th. 2:00 – 3:00 or by appointment.

Course Description: This course will introduce students to the principles of sustainability and how to quantitate it through various approaches including Systems Analyses, Target Plots, and Life Cycle Analyses. Emphasis will be placed upon the initial identification, description, and boundaries of the product, process or system to be analyzed, as well as the need to calculate inventories in terms of material and energy input/ouputs. Students will then gain experience with Life Cycle Analysis software to calculate environmental impacts (e.g., Carcinogens, Ozone Layer Depletion, Aquatic Ecotoxicity, Global Warming, Aquatic Eutrophication...) relative to footprint of a typical person in North America or Europe over one year. Finally, students will be introduced to how these analyses fit into Environmental Impact Assessments and Environmental Management Systems.

Alignment with Manoa ILO's. This course is particularly aligned with ILO 3c: Stewardship of the national environment (respect for natural resources and sustainability). Also, ILO 3a: Continuous learning and personal growth (life-long learning, ethical behaviors and judgements). Also ILO 2a: Think critically and creatively (applying questioning and reasoning, generating and exploring new questions, being information literate).

Structure: Two 95 minute classroom sessions per week comprised of lectures and software labs. One midterm, one final, and three projects.

Requirements: PC or Laptop with Windows (MAC's not supported by software).

Assessments: The course will provide the following opportunities for points:

Midterm exam	10%
Homework 1	10%
Homework 2	10%
Homework 3	10%
Homework 4	10%
LCA Project – WWTP	10%
LCA Project - Coffee Maker	10%
LCA Project – Simple Shed	10%
Final exam	15%
Course Survey	5%

Grading: Letter grades will be assigned on an absolute scale as follows:

96 – 100	A+
86 – 95%	A
76 – 85%	A-
71 - 75%	B+
66 - 70%	B
61 - 65%	B-
56 - 60%	C+
51 – 55%	C

45 – 50% C-
 41 – 45 D
 0 – 40 F

OEST/OCN 441 Course Outline

<u>Class</u>	<u>Due (+/-)</u>	<u>Topics</u>
8/22		Course Summary
8/24		Introduction to Sustainability
8/29		Introduction to Sustainability
8/31		Target Plot Analysis
9/5		Systems Analysis
9/7	Homework 1	Systems Analysis
9/12		Systems Analysis
9/14		Systems Analysis
9/19		Introduction to Life Cycle Analysis
9/21	Homework 2	Introduction to Life Cycle Analysis
9/26		Introduction to WWTP Example
9/28		Review
10/3		Midterm
10/5	Homework 3	SimaPro Example: Evaluation of Wastewater Treatment Process
10/10		SimaPro Example: Evaluation of Wastewater Treatment Process
10/12		SimaPro Example: Evaluation of Wastewater Treatment Process
10/17		SimaPro Example: Evaluation of Wastewater Treatment Process
10/19	Homework 4	SimaPro Example: Coffee Maker
10/24		SimaPro Example: Coffee Maker
10/26		SimaPro Example: Coffee Maker
10/31	Project 1	SimaPro Example: Coffee Maker
11/2		SimaPro Example: Coffee Maker
11/7		SimaPro Example: Simple Shed
11/9		SimaPro Example: Simple Shed
11/14	Project 2	SimaPro Example: Simple Shed
11/16		SimaPro Example: Simple Shed
11/21		Study Break
11/23		Thanksgiving
11/28		Introduction to Environmental Impact Assessment
11/30	Project 3	Introduction to Environmental Management Systems
12/5		Study Break
12/7		Study Break
12/11-12/15		Exam Week