

Sustainable Agriculture Section 10

ENVS 154

Spring 2024 4 Unit(s) 01/24/2024 to 05/13/2024 Modified 02/27/2024

Contact Information

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Contact me to arrange a time to meet. I am typically available on campus every Thursday from 11:45 to 1:30 and available to chat online much of the week. So, just reach out and we will figure out what works best.

Course Information

Please note that ENVS 154-01 (Thursday 1:30 – 4:15) is taught in conjunction with ENVS 154-10 (4:15 – 7:15). We will begin class in WSQ 111 and then move to the SJSU Environmental Studies Garden behind WSQ.

Course Description and Requisites

Analysis of and practicum in environmentally sustainable methods of food production, emphasizing biological diversity, water conservation, air quality, social equity and economic justice. Special focus on primary research in natural and social sciences for sustainable agriculture. Field trips and labs.

Prerequisite: ENVS 001 and GE B2 course, or instructor consent.

Misc/Lab: Lecture 3 hours/lab 2 hours.

Letter Graded

Classroom Protocols

ENVS 154 Classroom and Field Policy:

- **Active Participation in Fieldwork:** Feel free to get as dirty as possible and make the most out of our fieldwork in the garden. Hands-on learning is essential to understanding sustainable agriculture principles, so embrace the opportunity to engage in practical activities.
- **Encouraged Inquiry and Debate:** Ask probing questions and feel free to challenge the instructor. Environmental Studies and Sustainable Agriculture are interdisciplinary subjects that often deal with controversial topics. Our discussions will benefit from your enthusiastic participation and critical thinking.
- **Regular Attendance:** Maintain regular attendance as this class is largely based on your participation in both classroom discussions and fieldwork. Since the class meets once a week for only 16 sessions, please ensure you show up and make the most of our time together.
- **Ownership of Learning:** Enjoy this class and make it your own. I am hopeful that you will not only learn a lot about Sustainable Agriculture but also find this class exciting and perhaps even a bit unorthodox. Take ownership of your learning experience and actively contribute to our shared exploration of the subject matter.

By adhering to these guidelines, we can create a collaborative and enriching learning environment where everyone feels valued, respected, and empowered to explore sustainable agriculture in depth.

Program Information

The Environmental Studies Department offers three Environmental Studies [Undergraduate Degrees](https://www.sjsu.edu/envs/undergraduate/undergraduate-programs.php) (<https://www.sjsu.edu/envs/undergraduate/undergraduate-programs.php>):

Bachelor of Science Degree

The Bachelor of Science degree in Environmental Studies is designed to prepare students for career opportunities in water resource management, biological resource protection, sustainable agriculture, renewable energy, environmental health and safety, environmental impact assessment, environmental restoration, and wilderness, park, and open space resource management.

Bachelor of Arts Degree

The Bachelor of Arts degree is designed to prepare students for career opportunities in environmental resource management, environmental communications, environmental design, environmental regulation and policy, integrated waste management, human ecology, government agencies, non-governmental organizations, environmental planning and environmental advocacy.

Bachelor of Arts Degree, Preparation for Teaching

This major is designed for students interested in teaching in elementary school or middle school. Students who wish to pursue a high school teaching career should complete a BA or BS in Environmental Studies in consultation with the advisor.

These programs share the following program learning objectives:

PLO 1 Write a logical analytical paper using good writing style and construction supported by appropriate research.

PLO 2 Determine, apply and interpret appropriate basic statistical or other quantitative analyses to environmental data.

PLO 3 Develop proficiency in the interdisciplinary sustainability principles that are the foundations of environmental studies; they will know the key environmental challenges facing the planet, know relevant interdisciplinary information about these challenges, and be able to develop/identify feasible solutions.

PLO 4 Productively conduct group/team work to deliver professional quality presentations and reports and also engage in community service and democratic participation.

PLO 5 Demonstrate in-depth knowledge and skills in a science or technical field (BS) or non-science field (BA and Preparation for Teaching).

Course Goals

In our Sustainable Agriculture course (ENVS 154-01 & 154-10), our overarching aim is to deepen your comprehension of Agroecology and Sustainable Agriculture, with a special emphasis on:

- **Diversification:** We delve into the significance of diversity in crops, livestock, and ecological processes within sustainable agriculture. This encompasses practices such as crop rotation, intercropping, and polyculture systems, which bolster resilience against pests, diseases, and environmental pressures.
- **Enhancing soil health:** Through techniques like organic matter addition, reduced tillage, and agroforestry, we prioritize the promotion of soil fertility, structure, and microbial diversity. Healthy soils are fundamental for sustaining plant growth, nutrient cycling, and water retention.
- **Conservation of natural resources:** Our focus extends to minimizing environmental impacts by conserving water, reducing erosion, and preserving biodiversity. This includes the adoption of water-saving irrigation methods, erosion control measures, and habitat preservation strategies for beneficial organisms.
- **Promotion of agroecosystem resilience:** We aim to fortify agricultural systems by understanding and leveraging natural processes. This involves actions such as incorporating native vegetation for habitat and pollinator support, maintaining ecological corridors, and fostering beneficial interactions among organisms.
- **Community engagement and empowerment:** Recognizing the integral role of local communities and cultural traditions, we emphasize stakeholder engagement, support for small-scale farmers, and the promotion of equitable access to resources. These efforts are crucial for ensuring the long-term viability of agricultural systems while fostering environmental justice. We strive for the just treatment and meaningful involvement of all people, irrespective of race, color, national origin, income, or ability, in the development, implementation, and evaluation of sustainable agriculture laws, regulations, programs, and policies.
- **Economic viability:** Sustainable agriculture endeavors to be economically viable for farmers while considering the broader societal costs and benefits. Strategies may include advocating for alternative marketing channels, promoting value-added products, and advocating for fair trade practices.

Throughout the course, we take an interdisciplinary approach to unraveling complex issues, spanning from food security to food policy to practical crop cultivation on a farm. You will engage in both analysis and practicum, integrating insights from the natural and social sciences to conduct primary research in sustainable agriculture. By the course's end, you will not only have a deeper understanding of sustainable agriculture principles but also be equipped to address real-world (local and global) challenges in agriculture.

Course Materials

Our textbook, "**Farming While Black: Soul Fire Farm's Practical Guide to Liberation on the Land**" by **Leah Penniman**, is an ideal textbook for our Sustainable Agriculture course (ENVS 154-01 & 154-10) due to its important exploration of agroecology and sustainable agriculture principles as well as the importance of understanding environmental justice when studying agriculture. Penniman's work not only provides practical guidance on farming techniques but also addresses systemic issues of racial inequality and discrimination within the agricultural sector. This book aligns perfectly with our course goals, as it emphasizes the importance of diversification, soil health enhancement, conservation of natural resources, promotion of agroecosystem resilience, community engagement, and economic viability—all while advocating for equitable participation and involvement of people of all backgrounds in sustainable agriculture practices.

Course Requirements and Assignments

Week	Date	Class Lecture Topic	Field Activities	Assignments
1	Jan. 25	Introduction & Course Overview	Garden Orientation, Pruning, and Preparation	Purchase Book (Farming While Black, by L. Penniman) Purchase Field Notebook

2	Feb. 1	History of Conventional Agriculture & History of Sustainable Agriculture Defining Agroecology Gliessman Video & Discussion	Discussion - Garden Interactions (Weeds, Allelopathy, Climate, Nutrition, etc.) Group Assignments & Soil Preparation	Textbook: Intro and Chapter 1 (Finding Land & Resources)
3	Feb. 8	Scientific Foundations of Agroecology Intercropping, Crop Rotation, and Cover Cropping Allelopathy in our Garden Technology	Weeding & Soil Preparation Discussion - Family Roots in Agriculture	Chapter 3 (Honoring the Spirits of the Land)
4	Feb. 15	Land Acknowledgement Indigenous Methods Three Sisters	Germination (Greenhouse, Beds, & Containers) Weed Seed Bank Assessment	Family History Assignment (present Feb. 22) Textbook: Chapter 6 (Crop Planning) Journal Writing
5	Feb. 22	Crop Selection Water & Microclimates Insects, Herbivory, & The Market	Irrigation Seed Germination Race Family Roots Presentations	Textbook: Chapter 11 (Urban Farming) Urban Farm Assignment (due before Feb. 29) Journal Writing

6	Feb. 29	Urban Farming Biocontrol Tools & Technology	Insect Identification & Beneficial Insect Introduction Urban Farm Presentations	Insects, ecology, and agroecology assignment (due Mar. 7) Chapter 10 (Plant Medicine) Journal Writing
7	Mar. 7	Guest Speaker – Dr. Moreno Systemic Inequalities and Injustices Plant Medicine	Medicinal Plant Bed Potluck	Chapter 5 (Feeding the Soil) Read Article (provided) Journal Writing
8	Mar. 14	Taxonomy & Botany Seeds	Edible Plant Walk Plant Identification	Chapter 12 (Cooking & Preserving) Journal Writing
9	Mar. 21	Global Agricultural Practices & Issues Cooking, Preserving, & the Science of Fermentation	Fermentation Experiment	Chapter 11 (Urban Farming) Textbook pp. 88-94 (soil analysis) Journal Writing
10	Mar. 27	Field Trip: Urban Farm	Field Trip	Chapter 9 (Raising Animals) Field Trip
11	Apr. 4	Spring Break	Spring Break	Spring Break

12	Apr. 11	Animals in Sustainable Agriculture Farming as a Business Guest Speaker - Avocado Farmer (D. Ruiz – Michoacan, Mexico)	Field Work: Pest Damage, Collection & Identification Soil Analysis (reference pp. 87-93)	Read Food Security Article (provided) Chapter 2 (Your Farm Business) Farm Business Assignment (due by Apr. 18) Journal Writing
13	Apr. 18	Guest Speaker – Dr. Sliter (IAEA) Food Security Global Conflict & Food as a Weapon	Farming as a Business Presentations Potluck II	Read: Agriculture and Conflict Article (provided) Journal Writing
14	Apr. 25	Careers in Ecology and Sustainable Agriculture Panel Discussion	Garden Upgrades	Chapter 15 (Movement Building) Assignment: Movement Paper (due by May 2) Journal Writing
15	May 2	Guest Speaker – TBD/Environmental Justice Environmental Justice & Community Empowerment	Movement Presentations Garden Upgrades	Presentation Preparation (present May 9) Journal Writing

16	May 9	Individual Presentations	Presentations Cont. Group Presentations Cont. Dinner in the Garden (provided) Fermentation Tasting Garden Cleanup	Group Presentation Preparation (present May 16)
17	May 16	Finals Week/Group Presentations	Garden Cleanup	

✓ Grading Information

In our classroom and field-based exploration of sustainable agriculture, your performance will be assessed using a standard grading scale. However, I encourage you to immerse yourself deeply in the material, allowing it to resonate both personally and academically.

As we engage in hands-on gardening activities, conduct field research in sustainable agriculture, and collaborate on group projects, your active involvement is paramount. Your perspectives on these topics carry significant weight, and I value independent thinking and thoughtful analysis over strict correctness. Whether you're new to gardening or already well-versed in sustainable agriculture practices, this course provides an opportunity for critical reflection and the expression of diverse viewpoints.

Throughout our discussions, environmental issues will be explored from scientific, practical, historical, political, and community-oriented perspectives. By the end of the course, my goal is for you to feel confident in applying sustainable agriculture principles to your own gardening practices and contributing to a broader agricultural understanding well into the future.

A+ (97–100), A (93–96), A- (90–92), B+ (87–89), B (83–86), B- (80–82), C+ (77–79), C (73–76), C- (70–72), D+ (67–69), D (65–66), D- (below 65).

University Policies

Per [University Policy S16-9 \(PDF\)](http://www.sjsu.edu/senate/docs/S16-9.pdf) (<http://www.sjsu.edu/senate/docs/S16-9.pdf>), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance,

counseling, and other resources) are listed on the [Syllabus Information](https://www.sjsu.edu/curriculum/courses/syllabus-info.php) (<https://www.sjsu.edu/curriculum/courses/syllabus-info.php>) web page. Make sure to visit this page to review and be aware of these university policies and resources.