International Sustainable Development Studies Institute
สถาบันการศึกษาการพัฒนาที่ยั่งยืนนานาชาติ

Sustainable Food Systems: Social and Biological Factors in Sustainable Agriculture

Fall Semester, 2021

Instructor: Neil Ransom

Course Description

The course examines key issues in sustainable food production, with a special emphasis on field based studies of organic polycultures. Perhaps one of the most challenging topics in sustainability studies, sustainable food systems are critical to creating a sustainable future. This course will look at agroecology, regenerative agriculture, study both lowland and upland agriculture as practiced in Thailand, and learning in the fields and gardens of farmers and villagers. This course will focus on Southeast Asian smallholder agriculture, with a special emphasis on organic farming and agroecology. Students will be learning about both the biology of sustainable agriculture as well as the social and political issues surrounding sustainable agriculture and current commercial food systems.

Course Objectives

The objectives for this course are to:

- Understand the major issues in sustainable food systems.
- Understand the major ecological, biological and social challenges to sustainable agriculture.
- Have specific knowledge of agriculture and its ecological and social context in both upland and lowland Thailand and Southeast Asia.

Methodology

The course will integrate course lectures and readings with group discussions and seminars. Experiential field studies will be an important component of the course, both formal and informal. Guest lecturers will be a part of the course to share their experiences and perspective with students. Keeping up with readings, materials presented in class, and assignments is critical for success during this course.

Grading and Assessment

Course Component Details	Total
Participation	
In class participation: This means being an active participant in classes, contributing meaningfully to the discussions, questions, and ongoing learning.	5
Projects: Throughout the class participating in a meaningful way in projects and assignments in-class.	5
Field Studies: Participating in field studies outside of the classroom, both through asking questions in the field, engaging in activities, and being an active and engaged learner during field studies.	5
Total Participation	**15**
Writing	
Journal/Notes: An important component of learning to observe and analyze the issues during this course is taking notes in class as well as keeping an on-going journal of observations outside the classroom. This means writing daily in your journal, even if only for brief or signifiant observations.	10
Experiential Learning Workbook: A more structured way of taking notes and learning outside the classroom, ELWs will be assigned to specific field studies and experiential learning opportunities.	15
Essays: For this course essays are longer reflections and analysis. There are four (4) essays during the course, generally one each week. Essays should be 4-5 pages long in your journal, and cover the following points: • How this issue or topic links to the overall topic of the course. • Why you are interested in this specific issue or topic. • An analysis of a specific issue observed or learned about during that week — describe this and why it is important. • Reference to a reading either from the course reader or outside sources. • Other questions that this issue raises for you to explore further.	20
Total writing	**45**
Independent Research Project/Focused Inquiry	
Each student will choose an issue related to the course to study independently. This should be a combination of research, observations, and analysis of a topic that the student is interested in. The **emphasis is primarily on field observations** broadly defined, drawing on both class related field studies as well as independent observations in Thailand on your own time. This is not a book report or literature review, but a field study.	
Proposal: The IRP proposal will be a written outline and a short presentation to the class explaining a statement of intent, how data will be gathered, the feasibility of studying this during the course, and any potential challenges you may anticipate running into.	10
Progress update: This part of the IRP is a short update during the course (both an outline and a presentation) on what the student has discovered about their topic so far, what further questions this raises, any challenges they have faced and how they have overcome them, as well as further information they will be looking for during the second half of the field study.	10
Final Presentation: On the last day of the course each student will give a presentation on their topic, focusing on the initial question, methods, challenges, and the outcome of their focused inquiry. This should be presented with supporting slides. This will be followed by questions and comments from fellow students and instructors. **Rubric for final presentation** 1. Clarity and organization — is the issue clearly explained, linked to the topic and readings of the course, and well organized? 2. Experiential learning/field studies/observations — does the presentation link to specific examples of observations? 3. Interviews — does the presentation reflect discussions, interviews, and talks with local people and community members? 4. Depth — is the issue analyzed and explained well and thoroughly?	20
Total Independent Research Project	**40**

Seminar Week Topics and Schedule

Readings are in the course reader. The readings are a resource for the seminars, field studies, and for your final presentation. We are also reading Olson, Kristin, *The Soil Will Save Us: How Scientists, Farmers, and Foodies Are Healing the Soil to Save the Planet (TSWSU)*, Rodale Books, 2014. We have suggested a specific course of readings in the field, but feel free to read the book in full before leaving for the field. It is a quick read and will provide you with an excellent overview of the key issues in the course.

Monday - September 27
Agroecology and People's Movements
Agroecology is an approach to food production based on the idea of a farm as an ecosystem. More than that, it also represents a global people's movement for food sovereignty. We will examine some of the problems with industrial agriculture, but primarily focus on the approach of small holder agroecological farming, as well as the communities in the Global South using agroecology as a way to re-establish control over their food systems.

- Oehen, Bernadette, and Angelika Hilbeck, eds., *Feeding the People: Agroecology for Nourishing the World and Transforming the Agri-Food System.* IFOAM EU Group, Brussels, Belgium, 2015
  - "Introduction"
  - "Nourishing the World: The Role of Smallholders and Value Chains"
  - "Post-Industrial Agriculture: Competing Proposals for the Transformation of Agriculture"
- Ferguson, Rafter, "Why We Can't Separate Justice and Sustainability in the Food System," *Union of Concerned Scientists*, September 20, 2019
- Gliessman, S. *Agroecology: The Ecology of Sustainable Food Systems*, 2nd ed. CRC Press, 2007
  - "The Need for Sustainable Food Production Systems"
  - "The Agroecosystem Concept"

Tuesday - September 28
Regenerative Agriculture and Climate Change
Regenerative agriculture uses a similar approach to agroecology by looking to natural ecosystems as the model for sustainable food production. Regenerative agriculture is especially focused on restoration of natural ecosystems, building soil health, and sequestering carbon in the soil to help both mitigate climate change and in some cases help draw down more carbon than regenerative food production emits.

- TSWSU, Chapter 1 & 2
- Shepard, M. *Restoration Agriculture: Real World Permaculture for Farmers*. Acres USA. 2013
  - "Farming in Nature's Image"
  - "Livestock & Restoration Agriculture"
- Thorbecke and Dettling, "Carbon Footprint Evaluation of Regenerative Grazing at White Oak Pastures," Quantis Sustainability, February 25, 2019

Wednesday - September 29
Agriculture practicum at ECHO Demonstration Farm
We will spend a day at ECHO Asia's demonstration farm, learning about how this international NGO supports and works with farmers in Asia, especially small holders.

- Oehen, Bernadette, and Angelika Hilbeck, eds., *Feeding the People: Agroecology for Nourishing the World and Transforming the Agri-Food System*. IFOAM EU Group, Brussels, Belgium, 2015
  - "Reclaiming Food Systems: Local Food Systems and Access to Markets Linked to Territories", in
  - "Small Holders, Urban Farmers and Neo-Ruralism"
- TSWSU, Chapter 3
- Shepard, M. *Restoration Agriculture: Real World Permaculture for Farmers*. Acres USA. 2013
  - "Creating Permanent Agriculture: A Call for New Pioneers"

Thursday - September 30
Agriculture in Southeast Asia and Thailand
Agriculture in Southeast Asia is diverse, based on specific cultural and agronomic practices rooted in distinct ecosystems and bioregions. Most agriculture in mainland Southeast Asia, and Thailand in particular, can be divided into lowland paddy / "wet-rice" agriculture, and upland farming, often using long fallow shifting cultivation practices. We will be examining the specific practices of both upland and lowland agriculture, with an emphasis on both production methods and the social systems that have developed around these two practices.

- Halwart, Matthias and Modadugu V. Gupta, eds., “The Rice Field Ecosystem,” in *Culture of fish in rice fields,* FAO, 2004
- Marten, Gerald G., “Small-Scale Agriculture in Southeast Asia,” In M.A. Altieri and S. Hecht (eds.), Agroecology and Small Farm Development (CRC Press. 1990), p. 177-194.
- Plews-Ogan, Erin, et al. “Polyculture, Autonomy, and Community: the Pursuit of Sustainability in a Northern Thai Farming Village.” International Journal of Agricultural Sustainability, vol. 15, no. 4, Nov. 2017, pp. 418–431., doi:10.1080/14735903.2017.1335044.
- Srimongkol, Katin, and Gerald Marten, “Traditional Agriculture in Northern Thailand,” *Traditional Agriculture in Southeast Asia: A Human Ecology Perspective*, Westview Press, 1986.

Friday - October 1
Independent Research Project Proposal Presentations
It will be set aside for students to present their proposed focused inquiry, and discuss both challenges and opportunities in gathering data in the field.

- IRP PROPOSAL PRESENTED IN CLASS, OUTLINE HANDED IN AFTER CLASS
- ESSAY #1 DUE

Field Schedule

Monday - October 4
Travel to Chiang Kong, Chiang Rai/Village Study and Meeting
- TSWSU, Chapter 4

Tuesday - October 5
Agricultural Practicum
- TSWSU, Chapter 5

Wednesday - October 6
Agricultural Practicum
- TSWSU, Chapter 6

Thursday - October 7
Agricultural Practicum with Women's Group
- TSWSU, Chapter 7

Friday - October 8
Agricultural Practicum with Women's Group / School Activity
- TSWSU, Chapter 8
- ESSAY #2 DUE

Saturday - October 9
Travel to UHDP/Background and Field Activity
- Burnette, Richard R., *Agroforestry Options for Small Upland Farms*, Upland Holistic Development Project April 2006.
- Prasit W., et al. 2010. "Fallow to Forest: Applying indigenous and scientific knowledge of swidden cultivation to tropical forest restoration." *Forest Ecology and Management* 260: 1399-1406.

Sunday - October 10
UHDP Field Agroforestry Activity
- Bruun, Thilde Bech, et al. "Intensification of Upland Agriculture in Thailand: Development or Degradation?" Land Degradation & Development, vol. 28, no. 1, 9 Sept. 2016
- Food and Agriculture Organization of the UN.. "Ban Mae Sa Mai Field Trip Info" from Inception Workshop: Applying Assisted Natural Regeneration (ANR) for Restoring Forest Ecosystem Services in Southeast Asia (TCP/RAS/3307). Baan Mae Sa Mai, Chiang Mai, 9-12, 2012

Monday - October 11
Travel to Chiang Mai/Midcourse Preparations

Tuesday - October 12
Midcourse/Coffee Foundations
- Simms, Jessica, "Introduction" to "Environmental Conditions" (p.1-22) from *I Know Coffee: Harvesting, Blending, Roasting, Brewing, Gridding & Tasting Coffee*, Skinny Bottle, 2017
- IRP PROGRESS UPDATE DURING CLASS, OUTLINE HANDED IN AT END OF CLASS

Wednesday - October 13
Travel to 91 Coffee/Farm Survey
- Simms, Jessica, "Farming Methods" to "Growing Regions" (p.23-39) from *I Know Coffee: Harvesting, Blending, Roasting, Brewing, Gridding & Tasting Coffee*, Skinny Bottle, 2017.
- Pendergrast, Mark, "The Speciality Revolution" in *Uncommon Grounds: The History of Coffee and How it Transformed the World*, Basic Books, 2010

Thursday - October 14
Coffee Harvesting and Processing
- Simms, Jessica, "Pest Control" to "No Harvest? No Problem!" (p.40-52) in *I Know Coffee: Harvesting, Blending, Roasting, Brewing, Gridding & Tasting Coffee*, Skinny Bottle, 2017

Friday - October 15
Coffee Training & Roasting/Tea and Cannabis Foundations

- ESSAY #3 DUE

Saturday - October 16
Dara Tea Farm Study

- Wijeratne ,Thushari Lakmini, "Assessing and reducing the environmental impact of tea cultivation" from Sharma, V. S. and Gunasekare, M. T. K. (ed.), Global tea science: Current status and future needs, Burleigh Dodds Science Publishing, Cambridge, UK, 2018

Sunday - October 17
Cannabis Farm Study in Lampang

- Nantthasorn Zinboonyahgoon, et. al. "Medicinal cannabis in Thailand: 1-year experience after legalization," PAIN 162 (2021) S105–S109

Monday - October 18
Cacao Foundations/Majeo University Study

- Coe, Sophie and Coe, Michael, "Introduction" and "The Tree of The Food of The Gods" in *The True History of Chocolate*, Third Edition, Thames and Hudson, 2019
- Edoh Adabe, K. Ngo-Samnick, E. *Cocoa Production and Processing,* 2014
  - "Harvest and Post-Harvest Operations"
  - "Use of Byproducts"

Tuesday - October 19
Cacao Farm Study

- Walters, Dale, *Chocolate Crisis: Climate Change and Other Threats to the Future of Cacao*, University of Florida Press, 2021
  - "Cacao, Shade, and Agroforestry"
  - "Cacao in a Changing Climate"
  - "Chocolate"

Wednesday - October 20
Chocolate Factory Study and Workshop

- Edoh Adabe, K. Ngo-Samnick, E. *Cocoa Production and Processing,* 2014
  - "Cocoa Processing Methods"

Thursday - October 21
Presentation Preparation Day

Friday - October 22
Final Presentations in Class

- IRP PRESENTATION IN CLASS: Please note — students are responsible for collecting all presentations before class and loading them into a SINGLE computer for presentations.

Saturday - October 23

- EXPERIENTIAL LEARNING WORKBOOK DUE
- JOURNAL DUE
- ESSAY #4 DUE

Attendance Policy
Students are expected to be on time and attend all classes. If you are ill or otherwise need to miss a class, please inform your instructor or teaching assistant.

Academic Integrity
Academic integrity is essential to a positive teaching and learning environment. All students enrolled in ISDSI courses are expected to complete coursework responsibilities with fairness and honesty. Failure to do so by seeking unfair advantage over others or misrepresenting someone else's work as your own can result in disciplinary action.

Scholastic Dishonesty
Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering forging, or misusing an academic record; or fabricating or falsifying data, research procedures, or data analysis. Within this course, a student responsible for scholastic dishonesty can be assigned a penalty up to and including an "F" or "N" for the course. If you have any questions regarding the expectations for a specific assignment or exam, ask.

Grading Standards

Letter grade	Score or percentage	Description
A	93–100	Achievement that is outstanding relative to the level necessary to meet course requirements.
A-	90–92	Achievement that is significantly above the level necessary to meet course requirements.
B+	87–89	Achievement that is significantly above the level necessary to meet course requirements.
B	83–86	Achievement that is significantly above the level necessary to meet course requirements.
B-	80–82	Achievement that meets the course requirements in every respect.
C+	77–79	Achievement that meets the course requirements in every respect.
C	73–76	Achievement that meets the course requirements in every respect.
C-	70-72	Achievement that is worthy of credit even though it fails to meet fully the course requirements.
D+	67-69	Achievement that is worthy of credit even though it fails to meet fully the course requirements.
D	60-66	Achievement that is worthy of credit even though it fails to meet fully the course requirements.
F	0-59	Represents failure (or no credit) and signifies that the work was either (1) completed but at a level of achievement that is not worthy of credit or (2) was not completed and there was no agreement between the instructor and the student that the student would be awarded an Incomplete.