



Sustainable Food Systems & Tropical Agriculture

Course Details

Course Designator & Number: THAI 4xxx

Number of Credits: 4

Language of Instruction: English

Contact Hours: 60

Instructor: On-Site Faculty

Course Description

Food systems and sustainability are critical environmental and sustainability issues in understanding development. This course focuses on sustainable agriculture, both subsistence and cash crops, including but not limited to coffee and cacao (chocolate) growing and production, small scale tropical agriculture, sustainable and organic food production, and related topics. A key part of the course will be understanding the natural interconnectedness between the environment, where crops are cultivated, and the development of a sustainable food system on a local and/or international scale. The course will examine agricultural commodity production of coffee and chocolate, examining the growing, production, and selling as both a local production process, international commodity, and local consumption. We will also examine the production of medicinal plants and specialty crops, and their roles in small-scale agriculture. We will further explore spaces for innovation in sustainable food production, in particular the role of small-scale production in ensuring the resilience and sustainability of the global food supply.

This course encourages students to think critically about theories and practices. For the majority of examples and reading, the course will draw on case studies from Thailand and links to global issues. We will explore 'progresses' as a contested value and process on multiple scales—local, national, and global. Special emphasis will be placed on the practice: What does it mean to engage in this work in a cross-cultural setting? We will examine the roles of

outsiders and facilitators and how local communities and organizations can be empowered through this process.

Course Objectives

- Understand the challenges in sustainable food production for both consumption, subsistence, and commercial sale
- Examine in detail globally traded commodities from growing to processing to consumption, including field studies of subsistence of commercial cash crop production
- Focus on the challenges of small-scale tropical agriculturalists in both lowland and upland settings in Thailand
- Gain an understanding of the ethics, benefits, and challenges of sustainable and organic production, including fair trade and organic certification, and opportunities for small scale production
- Provide an overview of theories and its practices as well as current trends
- Give students the theoretical and conceptual tools to critically analyze specific problems, policy programs, and projects as they experience them in their host communities and internship placements

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.

Required Reading / Materials

- 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
- Gliessman, S. 2007. *Agroecology: The Ecology of Sustainable Food Systems*, 2nd ed. CRC Press (Chapter 1 & 2)
- Olson, Kristin, *The Soil Will Save Us: How Scientists, Farmers, and Foodies are Healing the Soil to Save the Planet*, Rodale Books, 2014. (Chapter 1 & 2)
- Ferguson, Rafter, "Why We Can't Separate Justice and Sustainability in the Food System," *Union of Concerned Scientists*, September 20, 2019
- 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.

- Shepard, M. 2013 Restoration Agriculture: Real World Permaculture for Farmers. Acres USA. 2013
- Srimongkol, Katin, and Gerald Marten, "Traditional Agriculture in Northern Thailand," Traditional Agriculture in Southeast Asia: A Human Ecology Perspective, Westview Press, 1986.
- Halwart, Matthias and Modadugu V. Gupta, eds., "The Rice Field Ecosystem," in Culture of fish in rice fields, FAO, 2004
- 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.
- 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.
- Coe, Sophie and Coe, Michael, The True History of Chocolate, Third Edition, Thames and Hudson, 2019. (Introduction and Chapter 1)
- Simms, Jessica, "Introduction" to "Environmental Conditions" (p.1-22) 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
- 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"
- Nantthasorn Zinboonyahgoon, et al. "Medicinal cannabis in Thailand: 1-year experience after legalization," PAIN 162 (2021) S105–S109
- 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
- Works of Center for Girls Foundation (CFG) WEE Center: food security & community forest, local women group
- Works of Kru Tee in conserving Khong River: environmental and local culture conservation
- Thorbecke and Dettling, "Carbon Footprint Evaluation of Regenerative Grazing at White Oak Pastures," Quantis Sustainability, February 25, 2019

- P Suksri - School of Business and Commerce, Keio University, 2008 - hondo.ynu.ac.jp. Sustainable Agriculture in Thailand. http://www.hondo.ynu.ac.jp/hiroki/sustainable_agriculture_E.pdf
- P Vandergeest - Berkeley Workshop on Environmental Politics, 2009 - academia.edu. Opening the green box: How organic became the standard for alternative agriculture in Thailand. https://www.academia.edu/download/33816062/Opening_the_Green_Box-2.pdf
- Pattanapant A., and Ganesh P. Shivakoti, 2009. Opportunities and Constraints of Organic Agriculture in Chiang Mai Province, Thailand
- P Mongsawad, The philosophy of sufficiency economy, as a new paradigm of development, aims at improving human well-being as a development goal. I. PAST THEORY AND CHALLENGES. 21 pages
- J Patrawart, S Sriurai - ... Regional Research Conference on Cooperatives ..., 2016 - dstats.net. The new challenges in the 2nd century of agricultural cooperatives development in Thailand. http://dstats.net/download/http://www.cai.ku.ac.th/article/Patrawart_J.pdf
- B Tanrattanaphong, 2015. Successful Cases of Agricultural Cooperatives Marketing Activities for improving Marketing Efficiency in Thailand. FFTC Agricultural Policy Platform. <https://ap.fttc.org.tw/article/951>
- Asian Inspirations, around the world. Welcome to Chiang Mai – The Charming Coffee Capital of Thailand <https://asianinspirations.com.au/food-knowledge/welcome-to-chiang-mai-the-charming-coffee-capital-of-thailand/>
- Citylife Chiang Mai by Tus Werayutwattana, Wed 1 Aug 2018. Coffee Camp – Chiang Mai's coffee cultivation <https://www.chiangmaicitylife.com/clg/business/agriculture/coffee-camp-chiang-mais-coffee-cultivation/>

Grading

Grading Rubric

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	
B	83–86	
B-	80–82	Achievement that meets the course requirements in every respect.
C+	77–79	
C	73–76	
C-	70–72	Achievement that is worthy of credit even though it fails to fully meet the course requirements.
D+	67–69	
D	60–66	
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 I.

Summary of How Grades Are Weighted

Assignments	Percentage of Grade
Participation in class	15%
Seminar and general observation notes	5%
Field study notes	20%
Essays	20%
Independent Field Study Proposal	10%
Independent Field Study Progress Update	10%
Final Presentation	20%
Overall grade	100%

Assessment Details

Participation

In class Participation: This means being an active participant in classes, contributing meaningfully to the discussions, questions, and ongoing learning.

Field Studies: Participating in field studies outside of the classroom, both through asking good questions in the field, engaging in activities, and being an active and engaged learner during field studies.

Seminar & General Observation 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 record of observations about Thailand. This means writing daily in your field notebook, even if only for brief or significant observations

Field Study Notes

A more structured way of taking notes and learning during a field study. Field Study Notes need to be structured as follows for each Field Study:

- “Field Study Notes” and the title / study and the date on the TOP of the page.
- “Where” — describe the location of the field study. If multiple locations note that as well.
- “When” — both the date as well as the time of day/duration.
- “Description” — describe the activities and learning during the field study. This should be detailed and clear about what the activities were.
- “Analysis” — write out what you learned during the Field Study. How did the field study help you understand Thailand’s culture and history, or other topics?
- “Questions” — write three (3) questions that you would like to learn more about based on this Field Study.

Essays

For this course essays are longer reflections and analysis. There are two (2) essays during the course, due on Monday of the third week and the last day of the course. Choose a topic that you studied during those weeks that you’re interested in and take some time to reflect on what you’ve learned. Essays should be 2 pages long when typed in a doc format using Font: Times New Roman, Size: 12 point, Spacing: Double and covering the following points (10 points total):

- How this issue or topic links to the overall topic of the course. (1)
- Why you are interested in this specific issue or topic. (1)
- An analysis of a specific issue observed or learned about during the two weeks — describe this and why it is important. (5)
- Reference to interviews or observations during the course. (2)
- Other questions that this issue raises for you to explore further. (1)

Independent Field Research Project

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.

Proposal: The IFRP proposal will be a 1 page long when typed in a doc format using Font: Times New Roman, Size: 12 point, Spacing: Double explaining what you are interested in studying, personal rationale, how data will be gathered, the feasibility of studying this during the course, and any potential challenges you may anticipate running into.

Progress Update: This part of the IFRP is a short update during the course delivered both oral and a doc format (1 page long when typed in a doc format using Font: Times New Roman, Size: 12 point, Spacing: Double) 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.

Final Presentation

On the last day of the course each student will give a five minute presentation on their research. Focus on clarity, field observations, interviews/discussions with community members, and analytical depth. 5-10 slides in PDF format.

Course Content

Unit 1

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.

Readings:

- 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, Chapter 1 & 2)
- Gliessman, S. 2007. *Agroecology: The Ecology of Sustainable Food Systems*, 2nd ed. CRC Press (Chapter 1 & 2)

Unit 2

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.

Readings:

- Olson, Kristin, *The Soil Will Save Us: How Scientists, Farmers, and Foodies are Healing the Soil to Save the Planet*, Rodale Books, 2014. (Chapter 1 & 2)
- Ferguson, Rafter, "Why We Can't Separate Justice and Sustainability in the Food System," Union of Concerned Scientists, September 20, 2019
- 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. (Chapter 3)

Unit 3

Field Trip - ECHO Demonstration Farm

We will spend the afternoon at ECHO Asia's demonstration farm, learning about how this international NGO supports and works with farmers in Asia, especially small holders. We will also learn how regenerative agriculture principles are applied here.

Readings:

- 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.
- Shepard, M. 2013 *Restoration Agriculture: Real World Permaculture for Farmers*. Acres USA. 59-68. (Chapter 6, 9 & 18)
- 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 (Chapter 8)

Unit 4

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.

Readings:

- Srimongkol, Katin, and Gerald Marten, "Traditional Agriculture in Northern Thailand," *Traditional Agriculture in Southeast Asia: A Human Ecology Perspective*, Westview Press, 1986.
- Halwart, Matthias and Modadugu V. Gupta, eds., "The Rice Field Ecosystem," in *Culture of fish in rice fields*, FAO, 2004
- 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.
- Plews-Ogan, Erin, et al. "Polyculture, Autonomy, and Community: the Pursuit of Sustainability in a Northern Thai Farming Village." *International Journal of Agricultural*

Unit 5

AM: Independent Field Research Project Proposal Presentations

- Present your proposed focused inquiry, and discuss both challenges and opportunities in gathering data in the field.
- Explanation of Field Research Notebooks
- Introduction to Field Expedition (Field Instructors)

Assignments: IFRP Presentation and submit typed proposal to Ajaan Cash Crop Foundations and Cacao Seminar

Readings:

- Coe, Sophie and Coe, Michael, *The True History of Chocolate*, Third Edition, Thames and Hudson, 2019. (Introduction and Chapter 1)

Unit 6

Holistic Approach and Gender Equity for Sustainable Natural Resource Management

Guest speaker: Mrinalini Rai director of Women for Biodiversity (W4B), an international expert on biodiversity and gender, having worked several years in advocating for the rights of indigenous peoples and local communities and women and youth in various local to global dialogues. Before joining W4B, she served as an indigenous advisor and gender expert for different organizations. Women for Biodiversity (W4B) network was established to advocate for a right to a healthy environment for all. W4B believes that Living in harmony with Nature needs to take into account the roles and contributions of women and girls to achieve transformative change. This requires addressing gender equity and needs to embrace the holistic solutions and the recognition of women's human rights to achieve it.

Unit 7

Coffee, Cacao, Cannabis and Tea Foundations

Readings

- Simms, Jessica, "Introduction" to "Environmental Conditions" (p.1-22) 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
- 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”
- Nantthasorn Zinboonyahgoon, et al. “Medicinal cannabis in Thailand: 1-year experience after legalization,” *PAIN* 162 (2021) S105–S109
- 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

Unit 8

Field Study at Rimping Best Flower Cannabis, Lamphun

Unit 9

Field study in Chiang Khong District, Chiang Rai

- Works of Center for Girls Foundation (CFG) WEE Center: food security & community forest, local women group
- Works of Kru Tee in conserving Khong River: environmental and local culture conservation

Unit 10

Regenerative Agriculture and Climate Change

Readings

- 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

Assignments

- Essay #1 due
- IFRP Progress Update

Unit 11

Organic and Sustainable Agriculture

- Sustainable agricultural development in Thailand
 - Background and classification of sustainable agriculture
 - New theory farming system
- Organic practice as an alternative agriculture in Thailand
 - Different boundaries: alternative development, commercial agriculture; government
- Organic agriculture movement in Chiang Mai Province, Northern Thailand
 - Production and marketing
 - Impacts on local farmers

Readings

- P Suksri - School of Business and Commerce, Keio University, 2008 - hondo.ynu.ac.jp. Sustainable Agriculture in Thailand. http://www.hondo.ynu.ac.jp/hiroki/sustainable_agriculture_E.pdf
- P Vandergeest - Berkeley Workshop on Environmental Politics, 2009 - academia.edu. Opening the green box: How organic became the standard for alternative agriculture in Thailand. https://www.academia.edu/download/33816062/Opening_the_Green_Box-2.pdf
- Pattanapant A., and Ganesh P. Shivakoti, 2009. Opportunities and Constraints of Organic Agriculture in Chiang Mai Province, Thailand

Unit 12

Field Study at Monsoon tea and Siamaya Chocolate Factory

Unit 13

Field Study at Baan Huay E-Kaang, Mae Wang District, Chiang Mai

- Empowering Women's Leadership: Traditional Weaving, Natural Dyeing, and Vegetable Cultivation in Rural community in Mae Wang, Chiang Mai

Unit 14

Sufficiency Economy Philosophy

- Empowering Women's Leadership: Traditional Weaving, Natural Dyeing, and Vegetable Cultivation in Rural community in Mae Wang, Chiang Mai

Readings

- P Mongsawad, The philosophy of sufficiency economy, as a new paradigm of development, aims at improving human well-being as a development goal. I. PAST THEORY AND CHALLENGES. 21 pages

Unit 15

Agriculture cooperatives development in Thailand

- Empowering Women's Leadership: Traditional Weaving, Natural Dyeing, and Vegetable Cultivation in Rural community in Mae Wang, Chiang Mai

Readings

- J Patrawart, S Sriurai - ... Regional Research Conference on Cooperatives ..., 2016 - dstats.net. The new challenges in the 2nd century of agricultural cooperatives development in Thailand.
http://dstats.net/download/http://www.cai.ku.ac.th/article/Patrawart_J.pdf
- B Tanrattanaphong, 2015. Successful Cases of Agricultural Cooperatives Marketing Activities for improving Marketing Efficiency in Thailand. FFTC Agricultural Policy Platform. <https://ap.fttc.org.tw/article/951>

Unit 16

Field Study on coffee business: Akha Ama Coffee

Field study for local food production/business at Baan Nok Kok Na Farm, San Sai, Chiang Mai

- Alternative safe agriculture products - the middle path

- A farm and a coffee place in the outskirts of Chiang Mai City

Readings

- Asian Inspirations, around the world. Welcome to Chiang Mai – The Charming Coffee Capital of Thailand
<https://asianinspirations.com.au/food-knowledge/welcome-to-chiang-mai-the-charming-coffee-capital-of-thailand/>
- Citylife Chiang Mai by Tus Werayutwattana, Wed 1 Aug 2018. Coffee Camp – Chiang Mai's coffee cultivation
<https://www.chiangmaicitylife.com/clg/business/agriculture/coffee-camp-chiang-mais-coffee-cultivation/>

Unit 17

Final Wrap Up

- Final Presentations
- Essay #2 Due
- Field Study Notes Due

Policies

Attendance Policy

Students are expected to be on time and attend all classes while abroad. Many instructors assess both attendance and participation when assigning a final course grade. Attendance alone does not guarantee a positive participation grade; the student should be prepared for class and engage in class discussion. See the on-site syllabus for specific class requirements.

University of Minnesota Policies & Procedures

Academic integrity is essential to a positive teaching and learning environment. All students enrolled in University 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. The University Student Conduct Code defines scholastic dishonesty as follows:

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 a University 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.

Student Conduct

The University of Minnesota has specific policies concerning student conduct. This information can be found [on the Learning Abroad Center website](#).