



SUSTAINABLE DEVELOPMENT STUDIES PROGRAM

International Sustainable Development Studies Institute

สถาบันการศึกษาการพัฒนาที่ยั่งยืนนานาชาติ

Sustainable Food Systems: Social and Biological Factors in Sustainable Agriculture

ECODEV (Biology/Sociology): 4 Credits

Spring Semester, 2018

Course description

The course examines the 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 commercial chemical intensive agriculture, study both lowland and upland agriculture as practiced in Thailand, and spend extended time in the fields and gardens of farmers and villagers. This course will examine comparisons between large scale agroindustry with smallholder agriculture, with special emphasis on organic farming and agroecology. Students will spend extended time in the field learning about both the biology of sustainable agriculture as well as the social and political issues surrounding sustainable agriculture and current commercial food systems.

Objectives

By the end of the course, students will have an understanding of the major issues in sustainable food systems, understand the major ecological, biological and social challenges to sustainable agriculture, and have specific knowledge of agriculture and its ecological and social context in both upland and lowland Thailand and Southeast Asia.

Learning Outcomes

Upon completing of the course, students will be able to:

- Understand the key issues and challenges to sustainably producing food
- Have specific knowledge about field research and experiential studies of food production
- Understand the sociological dynamics of food production in Northern Thailand
- Understand the ecological context and constraints on food production in Northern Thailand
- Be competent in both biological and sociological field research methods
- Understand the struggles of small holders in Northern Thailand
- Be able to articulate the key challenges facing small holder agriculture in Southeast Asia and how it applies to global food production

Grading and Assessment

Class participation and expedition skills: Class participation in this course means on-time attendance, active involvement in the classroom and during other activities, being responsive and active in peer teaching/learning, exhibiting culturally appropriate dress and behavior, and being an active member of the team, including leadership, active followership, and being able to safely travel and learn in the the environments where the course takes place. Participation requires that students ask questions in class and in the field, be active in seeking answers to their questions, and be actively involved in group discussions with both peers and farmer educators. 10%

Experiential Learning Workbook (ELW): Each student will fill out and complete assignments in the Experiential Learning Workbook, focused on field based studies of sustainable food systems, biological and ecological topics, as well as the broader social and cultural context. 15%

Species presentation: During seminar week students will sign up to lead a 10 minute presentation while in the field on a useful plant or animal integrated into smallholder agriculture in Northern Thailand, drawn from the course appendix. Students will complete independent research on their chosen species, and gather additional information in the field for presentation during the course.	5%
Analytical Field Essays (AFE) (3): Three times during the course students will write an AFE in their field notebook about a significant connection between culture, ecology and sustainable food systems. The AFE should have a thesis statement that connects field experiments to the course, analyze the issue drawing on both course readings and experience in the field, and discuss further questions to consider related to their chosen topic. AFEs need to be clearly labeled as such at the top of EACH page. 4 PAGES	15%
Reflection Essays (3): Three times during the course, students will write an essay reflecting on any challenging or interesting cross-cultural experiences related to their understanding of the course topic. Reflection Essays need to be clearly labeled as such at the top of EACH page. 2 PAGES	10%
Quizzes: Throughout the course, there will be short quizzes on the readings and lectures.	10%
Seminar Week Exam: This exam will evaluate students' understanding of the theories and context of the course, based on the material covered during the first week. There will be two short essays as well as one longer essay connecting ecology and culture in the context of sustainable food systems.	10%
Mid-Course Exam: This exam will consist of short essays analyzing sustainable food systems studied during the first part of the field expedition, based on both readings and field experience and studies.	10%
Final Exam: This exam will cover lectures, readings, experiential field studies and other topics covered during the course. This will be an in-class short essay based exam.	15%
TOTAL	100%

Expectations

The Expedition Field Courses (EFCs) at ISDSI are challenging. The first week is primarily seminar based, with the remaining weeks a combination of field-based experiential learning, group discussions, learning from local instructors, as well as travel into and through sometimes remote locations. Students need to master both the readings as well as the field studies to succeed on an EFC. A critical part of doing well on an EFC is managing your time (readings, essays, etc.) and not waiting until the last minute. Direct, field-based experiential learning can be difficult, and taking good notes and clarifying with questions and reviewing reading materials is an important skill.

Grading: Essays and exam answers will be evaluated on their clarity, evidence, and thoroughness. Arguments need to be clearly structured and supported. Since your work is hand written, please write clearly. Late assignments will drop a grade for each day they are late, and anything over four days late will receive a zero. If you need extra time for an assignment please see an instructor **before** the assignment is due.

Field Notes: Field notes are detailed daily records of observations and interpretations of observations. Clearly separate your observations (biological/cultural/etc.) from your interpretations of what you think it all means. Becoming proficient in taking notes in the field is a critical skill, and requires that you take notes regularly throughout the course.

Field Notebook: Students will be given a field notebook for each EFC. All of your field notes, essays and other assignments should be written in this field notebook. Please write in waterproof ink (pencil will smudge and some ink is not waterproof). You can request an additional notebook if you run out of space.

Citations for Essays: Essays should have in-text citations of both readings and other sources. You do not need to specify page numbers, but do need to specify your source. For example, you can cite readings in the format of (Last Name, Year) and reference your Field Notebook with (FN Page #/Date).

Schedule

The schedule for the Expedition Field Course is below. There are three sections to the course:

- Seminar Week
- Field Expedition to Mid-Course Seminar
- Field Expedition to Final Seminar

Seminar is 1 PM to 4 PM unless otherwise announced. Class will be all day on Friday.

Readings are listed on the day they are due. A reader will be distributed along with the key texts for the course

Olson, Kristin, *The Soil Will Save Us: How Scientists, Farmers, and Foodies Are Healing the Soil to Save the Planet*, Rodale Books, 2014 (referenced in the syllabus as TSWSU along with assigned chapters and/or pages)

Experiential Learning Workbook (referenced in the syllabus as ELW): This contains field studies and activities to be filled out by students during the field portion of the course.

SEMINAR WEEK: CONTEXT AND KEY ISSUES IN FOOD SYSTEMS AND SUSTAINABLE AGRICULTURE

Monday: Global Food Systems

TSWSU: pages vii-22 (including Chapter 1: Where Did All the Carbon Go?)

Kimbrell, A. 2002. "Seven Deadly Myths of Industrial Agriculture." *The Fatal Harvest*. Foundation for Deep Ecology. pp. xi-12

Pollan, M. 2006. "Big Organic." *The Omnivore's Dilemma: a Natural History of Four Meals*. Penguin. 134-73

Michel, D. 2016. "Beyond Vegetarian: One Man's Journey from Tofu to Tallow in Search of the Moral Meal." *Dustin's View* [personal blog] January 31, 2016. <http://dustinsview.com/all/beyond-vegetarian-one-mans-journey-from-tofu-to-tallow-in-search-of-the-moral-meal-interview/>. pp. 1-14

Tuesday: Thai and Intermontane Food Systems

Tanabe, Shigeharu. "The Intermontane Basin Farming System." *Ecology and Practical Technology: Peasant Farming Systems in Thailand*. White Lotus, 1994. pp. 23-46

Royal Project. 2007. "Sustainable Agricultural Development." *The Peach and the Poppy: The Story of Thailand's Royal Project*, Bangkok: Allied Printers. pp. 16-42

Poapongsakorn, Nipon, et al. "Problems and Outlook of Agriculture in Thailand ." *TDR Quarterly Review*, vol. 13, no. 2, June 1998, pp. 3-14.

Thawat, W. (undated) King Bhumiphol's New Theory on land and water management. thaiwaysmagazine.com. pp.1-2

Wednesday: Biology and Science of Food Crops

Gliessman, S. 2007. "The need for sustainable food production systems." In: *Agroecology: The Ecology of Sustainable Food Systems*, 2nd ed. Boca Raton, FL: CRC Press, 3-21.

"Maejo University Declares Itself the First Organic Agriculture University in Thailand." *Green Net*, 25 June 2013, www.greennet.or.th/en/news/1517. pp. 1-2

Thursday: Sustainable Agriculture and Agroecology

Halweil, B. 2006. "Can Organic Farming Feed the World?" *World Watch Magazine*, May/June 2006, Volume 19, No. 3. pp. 1-5

Gliessman, S. 2007. "The agroecosystem concept." In: *Agroecology: The Ecology of Sustainable Food Systems*, 2nd ed. Boca Raton, FL: CRC Press, 23-31.

Shepard, M. 2013 "Farming in Nature's Image." *Restoration Agriculture*. Acres USA. 59-68.

Pollan, M. 2006. "The Animals: Practicing Complexity." *The Omnivore's Dilemma: A Natural History of Four Meals*. New York: Penguin Press. 185-225.

Friday: Exam and Stakeholder Activity

Morning: SEMINAR WEEK EXAM @ 9 AM

Afternoon: Stakeholder Activity

Allen, Will and Margaret Kilvington. "Chapter 25: Hatched." *Stakeholder Analysis*. Landcare Research, 2009, pp. 251–253.

Background reading: use as a reference

Ellis, Wyn, et al. Strengthening the Export Capacity of Thailand's Organic Agriculture. Asia Trust Fund, 2006, pp. 6–54.

FIELD SCHEDULE

INTERMONTANE FOOD SYSTEMS: FOOD AND PLACE

Day 1: Monday 19/2 – Travel to Don Jieng

Village Study / Village Meeting

Don Jieng is a lowland Northern Thai (*khon müang*) community. The occupation of the villagers is primarily subsistence farming, with the surplus being sold in Chiang Mai. Farmers will grow rice, soybeans, vegetables, and fruit. The village has a small organic farming group that an outside organization, the Institute of Sustainable Agriculture Community (ISAC), helped to start more than 10 years ago.

Students will do an informal walking survey of the village and learn about the community and lives of the villagers. This will be followed by a meeting with community members.

TSWSU: Chapter 2: The Marriage of Life and Dark

Kwankam, Donlakorn, and Pusanisa Hechatakerng. "Production process and management of Thai farmers in Community Enterprise for Organic farming: Some Changing." 2nd International Conference on Education and Management Technology. IPEDR , 2011. pp. 352-356

Day 2: Tuesday 20/2 – Agriculture Practicum

Students will study and participate in different agricultural techniques used by the villagers of Don Jieng.

ELW: Field Activity 2: Biodiversity and Microclimate Survey

TSWSU: Chapter 3: Send in the Cows

Day 3: Wednesday 21/2 – Agriculture Practicum

Students will study and participate in different agricultural techniques used by the villagers of Don Jieng.

TSWSU: Chapter 4: Letting Nature Do Its Job; and Chapter 5: Cashing In on Carbon

Day 4: Thursday 22/2 – Travel to Ban Dang Nai

Village Study / Village Meeting

Ban Dang Nai village is a Dara'ang village near Chiang Dao. The Dara'ang people migrated to Thailand from Myanmar and have met much difficulty in securing land rights to their homes and fields. Many people grow corn or work with the local Royal Project. Some community members have also developed an agroforest. Students will look at the impacts of agricultural extension efforts on village livelihood, culture, and environment.

Anderson, E. 1993. "Farming in the hills." In: *Plants and People of the Golden Triangle: Ethnobotany of the Hill Tribes of Northern Thailand*. Chiang Mai, Thailand: Silkworm Books, 47-52.

Burnette, R. 2006. Agroforestry options for small upland farmers. Upland Holistic Development Project. www.uhdp.org, 8-26.

Burnette, R. and C. Page. 2007. Chiang Dao Agroforestry Trail. pp. 1-8

Day 5: Friday 23/2 – Study of Farm and Agroforest Plots

Students will study different farm and agroforest plots to learn about different agricultural management strategies. Students will learn about the impact of microclimate and soil on agriculture and vice versa.

Key issues will be the economic, social, cultural, and ecological impacts of alternative agricultural practices such as agroforestry. A comparison study with conventional farming plots will highlight key differences between chemical intensive agriculture and organic agroforestry.

ELW: Field Activity 2: Agricultural Biodiversity and Microclimate Survey

TSWSU: Chapter 6: Why Don't We Know This Stuff?

Bruun, Thilde Bech, et al. "Intensification of Upland Agriculture in Thailand: Development or Degradation?" *Land Degradation & Development*, vol. 28, no. 1, 9 Sept. 2016, pp. 83–94., doi:10.1002/ldr.2596.

Day 6: Saturday 24/2 – Animal Integrated Agriculture

Students will learn about an important source of protein and income for upland farmers – domesticated pigs. Students will learn from the villagers about the importance of raising pigs in various highland cultures and will assist the village in slaughtering and processing a pig for village consumption.

Community meeting

In the evening we will meet with the villagers and learn more about their community, cultural practices, the importance of pigs in highland culture, and village history.

Butler, K. 2010. "Bacon lovers vs. soy huggers: The smackdown." *Mother Jones* July 19, 2010. <http://www.motherjones.com/environment/2010/07/vegetarianism-worse-for-the-environment>. pp 1-6
Review: Pollan, M. 2006. Ch. 11. "The Animals: Practicing Complexity." *The Omnivore's Dilemma*.

Day 7: Sunday 25/2 – Travel to Mae Sa Mai

Village Study / Village Meeting

Mae Sa Mai is a Hmong community that was founded in its current location in 1967, with a mix of Animist/Buddhist and Christian families. The Royal Project Development center was founded in 1974 after His Majesty King Bhumibol visited the village and set up one of the first crop substitution projects to eradicate opium production. The area was included in the boundaries of Doi Suthep National Park in 1981 but villagers have been able to continue agricultural practices due to the involvement of the Royal project.

Food and Agriculture Organization of the UN. 2012. "Field Trip Info." *In: 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.

Sutthi, Chantaboon. *Highland Agriculture: From Better to Worse*. pp. 107–139.

Day 8: Monday 26/2 – Community Agriculture

Students will learn about the different crops and farming techniques that are important to the community. Students will also learn about different cultural practices that the community integrates into their farming.

TSWSU: Chapter 7: New Bedfellows

Day 9: Tuesday 27/2 – Royal Project Study

The stated goal of the Royal Project is to improve the livelihood of rural communities and support rural society and the poor. There are a number of Royal Projects throughout Thailand, especially in the North, with each one specializing in specific research and agricultural experiments, different crops, and agricultural production.

Royal Project. 2007. "The History of the Royal Project." *The Peach and the Poppy: The Story of Thailand's Royal Project*, Bangkok: Allied Printers. pp. 126-154

Field Study: Muang Mai Market

Muang Mai Market is Chiang Mai's central wholesale market, where many middlemen bring fresh produce and agricultural products to a central location to sell to the many vendors, restaurateurs, and smaller markets of the city. Students will study both what is being sold, as well as the people involved in the buying and selling in the market.

ELW: Field Activity 8: Muang Mai Market

Review readings in preparation for midcourse exam.

Day 10: Wednesday 28/2 – Midcourse Exam / Midcourse Seminar

Students will go to the Queen Sirikit Botanical Garden for the midcourse exam and seminar.

ALTERNATIVE AGRICULTURAL STRATEGIES AND THE PEOPLE BEHIND THE FOOD

Day 11: Thursday 1/3 – Rural-Urban Interface and Travel to Mae Ta

Students will study the places where the rural farmers and urban peoples intersect using Muang Mai Market as a case study. Muang Mai Market is Chiang Mai's central wholesale market, where many middlemen bring fresh produce and agricultural products to a central location to sell to the many vendors, restaurateurs, and smaller markets of the city. Students will study both what is being sold, as well as the people involved in the buying and selling in the market.

Students will then travel to Mae Ta. Mae Ta is a lowland Northern Thai (*khon müang*) community. Students will be living with families that have made the transition from conventional chemical intensive contract farming for export to sustainable agroecological farming.

ELW: Field Activity 8: Muang Mai Market

Spector, R. 2002. "Fully integrated food systems: Regaining connections between farmers and consumers." In: Andre Kimbrell (ed.), *The Fatal Harvest Reader: The Tragedy of Industrial Agriculture*. Washington: Island Press, 288-294.

Day 12: Friday 2/3 – Mae Ta Organic Coop and TAO Meeting

Students will meet with the Mae Ta Organic Coop and the TAO to learn about how Mae Ta subdistrict has organized itself politically and socially to meet its needs.

Mae Ta Cooperative Limited. 1999. "Mae Ta Community Resource Management." pp. 1-13
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.

Day 13: Saturday 3/3 – Family Day

Students will spend the day in the fields and gardens with their host families to learn about the agricultural practices of people in this village.

Mae Ta Village History with Paw Pat

Paw Pat is a leader in the sustainable agriculture movement in Northern Thailand, and is one of the key individuals involved in helping create a farmers group interested in sustainable agriculture, and educating members about how to move from chemical/capital intensive cash cropping to organic polycultures. He is a farmer philosopher, with a unique and compelling personal story linked to some of the most important issues in sustainable agriculture.

Day 14: Sunday 3/3 – "Organic" vs. "Conventional" Agriculture

Students will meet with two different local instructors in Mae Ta community to learn about why they farm the way they do. One local instructor will be Paw Pat and the other will be a baby corn farmer who uses a mix of different agricultural techniques.

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Day 15: Monday 5/3 – Conserving Traditional Agricultural Knowledge and the Development of New Ideas

Students will spend the morning learning about seed saving with Pi Pui. Pi Pui works with Green Net Organic and her primary work is operating a seed bank. Students will study practical knowledge regarding seed saving, as well as why it is important for farmers and small holder agriculture.

In the afternoon, students will meet Pi An and other youth in the community. As Thai society and the market changes, the younger generation of farmers in Mae Ta is experimenting with various innovations to make organic agriculture viable going forward. Students will meet with Mae Ta's young generation of farmers to learn about their personal experiences, including their Community Supported Agriculture (CSA) and their participation in the Mae Ta farming cooperative.

Note: This is a good day to follow up with host families and complete Seed Chat in the ELW.

ELW: Field Activity 7: Seed Chat

Smith, Bren. 2014. "Don't Let Your Children Grow Up to Be Farmers." The New York Times, August 9, 2014. http://www.nytimes.com/2014/08/10/opinion/sunday/dont-let-your-children-grow-up-to-be-farmers.html?_r=1. pp. 1-3

Siebert, C. 2011. "Food ark." National Geographic 220(1):108-43.

Day 16: Tuesday 6/3 – Community Service and Farewell Ceremony

Students will spend the day in community service with the local community and families. The specific service will be decided on by the community members.

Family Dinner / Farewell Ceremony

Day 17: Wednesday 7/3 – Travel from Mae Ta to Chiang Mai

Day 18: Thursday 8/3 – Final Exam and Seminar

09:00 - 11:00 Final Exam
11:00 - 12:00 Final Seminar