



THE SCHOOL
FOR FIELD STUDIES

Ecosystems and Livelihoods

SFS 3810

Syllabus

The School for Field Studies (SFS)
Siem Reap, Cambodia

This syllabus may develop or change over time based on local conditions, learning opportunities, and faculty expertise.
Course content may vary from semester to semester.

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COURSE CONTENT SUBJECT TO CHANGE

Please note that this is a copy of a recent syllabus. A final syllabus will be provided to students on the first day of academic programming.

SFS programs are different from other travel or study abroad programs. Each iteration of a program is unique and often cannot be implemented exactly as planned for a variety of reasons. There are factors which, although monitored closely, are beyond our control. For example:

- Changes in access to or expiration or change in terms of permits to the highly regulated and sensitive environments in which we work;
- Changes in social/political conditions or tenuous weather situations/natural disasters may require changes to sites or plans, often with little notice;
- Some aspects of programs depend on the current faculty team as well as the goodwill and generosity of individuals, communities, and institutions which lend support.

Please be advised that these or other variables may require changes before or during the program. Part of the SFS experience is adapting to changing conditions and overcoming the obstacles that may be present. In other words, the elephants are not always where we want them to be, so be flexible!

Course Overview

The mighty Mekong (derived from *Mae Kongkea*, meaning 'big water'), one of Southeast Asia's most productive and influential rivers, originates high in the Tibetan plateau and weaves south through China, Burma, Thailand, Laos, and Cambodia, finally reaching its terminus in the delta of Vietnam. The Mekong drains an area larger than 310,000 square miles and sheds 110 cubic miles of water into the South China Sea every year.

By world standards, the Mekong catchment and the Tonle Sap Lake are immense, producing over 2.5 million tons of wild fish per year, or roughly two percent of the entire world's catch. The Mekong River is second only to the Amazon River in biodiversity, hosting hundreds of fish species as well as a plethora of bird, reptilian, and mammal species. As the lower Mekong Basin becomes increasingly populated by humans, the river's resources are constantly being stretched – very soon sustainability may no longer be viable, and the health and livelihoods of millions of people may be in jeopardy. As the extraction of natural resources by national and international actors intensifies in the region, the Mekong ecosystems must adapt to new conditions forced upon them by the growing human footprint.

This course focuses on the human landscape that envelops the natural ecosystems of the lower Mekong Basin. We examine the high levels of dependence upon natural resources by local populations and critical threats to various ecosystems. Students explore various rural livelihood strategies and discover a spectrum of adaptations to changing environmental conditions. This course also analyzes attempts by international and national actors to find a sustainable balance between human needs and preserving biodiversity, particularly in the fields of ecotourism and community-based natural resource management.

A variety of ecosystems will be visited in order to provide regional themes of learning in this course:

- The Tonle Sap Lake and various terrestrial sites in the Angkor Basin around Siem Reap, Cambodia, a moderately sized urban area in close proximity to the Angkor temple complex.
- The lowland evergreen forests on the sandstone massif of Phnom Kulen National Park.
- The Mekong River in Kratie province.
- The deciduous dipterocarp forests of northern Cambodia.
- The semi-evergreen rainforest complex of eastern Cambodia.
- The coastal plain and mangrove forests of southern Cambodia where freshwater tributaries from the Cardamom Mountains empty into the Gulf of Thailand.

Learning Objectives

Students will draw on observations, classes, and field study to recognize major ecosystems of the lower Mekong basin and detail the relationship of human communities with the natural environment. By the end of the course, students should be able to articulate answers to questions related to the following broad themes:

- The diverse ecosystems of Cambodia and the Mekong Delta of Vietnam.
- The critical challenges to regional ecosystems, such as natural resource conflicts, degradation and overuse (e.g. fisheries, forests).
- The spectrum of rural livelihoods in Cambodia, the primary drivers of change in livelihood strategies, and ongoing adaptations to changing environmental conditions.

- The opportunities and challenges posed by community-based natural resource management and ecotourism initiatives.

Assessment

Assessment Item	Value (%)
1. Comparative livelihoods FEX	25
2. Mid-term exam 1	25
3. Nature field journal	15
4. Ecotourism analysis Atlas-TI FEX	10
5. Final exam	25
TOTAL	100

Assessment Descriptions

Field Notebook: You will develop a comprehensive *program field notebook* that documents and captures your on-the-ground learning experiences. This notebook should accompany you at all times in the field. Field notes and data from field exercises for our various courses can all be recorded in this notebook, in separate sections. We recommend you use a separate notebook for class lectures.

For papers you are requested to use the APA citation system and a formal writing style. When referencing field notes and field observations use the following format--this includes an in-text citation in brackets but no entry in your bibliography:

Field notes: (Field interview with boat association representative, 2 February 2016)

Field observation: (Field observation in Jrei village, 7 March 2016)

Livelihood Investigation FEXs: On a number of our field trips, you will have the opportunity to question various community members about their livelihood strategies and levels of dependence upon natural resources. Before the first of these visits, we will discuss various themes to investigate while in the field. Some of the data may be gleaned through observation, but much of it will require interviewing community members. You will be assigned groups and will design and conduct various livelihood interviews, working with our Khmer translators. Regardless of which student group takes the lead, all students are responsible for recording interview data in field notebooks. You will use the data from two of these field interviews to write a comparative livelihood case study. You will also learn to do analysis using qualitative data analysis software.

Ecotourism field exercise and qualitative data analysis FEX: This assignment will have both field and written components. Before class field trips to two ecotourism sites, you will review Cambodian ecotourism case studies and identify the primary challenges and opportunities these programs face. You will use this data to prepare questions and points to observe while visiting the ecotourism sites.

During the field trips, you will be both a tourist and an analyst—there will be an opportunity to interview assorted community members involved with the projects. Your field notes will be the basis of the data you will use in your analysis.

You will learn to use the qualitative data analysis software program Atlas-TI, and you will thematically code the interview data. The coded data will then be used to make comparative conclusions. You will have the skills to design and code your own qualitative research after this exercise.

Nature journal: We take many field trips to various ecosystems. You will learn to draw diagnostic sketches of birds, butterflies, and medicinal plants. You will document your wildlife sightings and plant observations in a field journal and attempt to identify species using field guides. The journal will be collected and graded.

Exams: Each exam must be completed in around 2 hours. They will be writing intensive. All exams are closed-book and conducted under normal exam conditions. You will be given time to study for these exams, including a review class period. You will be examined on what you have been taught in class and what you have been asked to read, so make sure you attend all lectures/field sessions, and understand works from the required reading section.

Grading Scheme

A	95.00-100.00%	B+	86.00 – 89.99%	C+	76.00 – 79.99%	D	60.00-69.00%
A-	90.00 – 94.99%	B	83.00 – 85.99%	C	73.00 – 75.99%	F	59.99 - 0.00%
		B-	80.00 – 82.99%	C-	70.00 – 72.99%		

General Reminders

Readings: You are expected to have read all the required articles and book chapters prior to each class. Information from required readings will be part of the course assessments. All readings are available as PDFs or from internet hyperlinks. It is encouraged that “optional readings” be reviewed by students. The reading list might be updated or changed during the course of the semester and some readings that are initially listed as optional may be changed to required.

Plagiarism: Using the ideas and material of others without giving due credit is cheating and will not be tolerated. A grade of zero will be assigned if anyone is caught cheating or aiding another person to cheat actively or passively (e.g., allowing someone to look at your exam). All assignments unless specifically stated should be individual pieces of work.

Deadlines: Deadlines for written and oral assignments are instated for several reasons: They are a part of working life to which students need to become accustomed and promote equity among students. Deadlines allow faculty ample time to review and return assignments before others are due. Late assignments will incur a 10% penalty for each day that they are late. No assignment will be accepted after three days. Assignments will be handed back to students after a one-week grading period.

Participation: Since we offer a program that is likely more intensive than what you might be used to at your home institution, missing even one lecture can have a proportionally greater effect on your final grade simply because there is little room to make up for lost time. Participation in all components of the program is mandatory because your actions can significantly affect the experience you and your classmates have while at SFS. Therefore, it is important that you are prompt for all land and water-based activities, bring the necessary equipment for field exercises and Directed Research, and simply get involved.

Course Content

<i>Lecture Topics</i>	<i>Hours</i>	<i>Readings</i>	<i>Field Trips/ Assignments</i>
Course introduction <ul style="list-style-type: none"> Ecosystems, natural resources & rural livelihoods in transition 	Lecture (1.5)	Readings in bold font are required, others are optional.	
Cambodia's forests: past, present & future			
-Cambodian forest ecosystem types -Watershed: the sacred rivers of Phnom Kulen -Traditional Khmer perceptions of forest -A history of forest exploitation -Illegal logging & threats to Kulen	Lecture & field components (6)	<ul style="list-style-type: none"> le Billon Fletcher et al Gaughan et al Arensen News article (various) Wildlife Alliance 	Visit to Phnom Kulen's sacred carvings <i>-Nature journal entry: butterflies</i>
Species identification skills			
Basics of birding: observation & diagnostic skills Diagramming & identifying insects	Lecture & field components (2)	<ul style="list-style-type: none"> Law 	Visit to Angkor Thom wall <i>-Nature journal entries: birds & insects</i>
Ecotourism in Cambodia: the search for sustainable livelihood alternatives			
Ecotourism & community-based ecotourism	Lecture & field components (6)	<ul style="list-style-type: none"> Tegelberg Reimer & Walter Miura 	Visit Popel trail on Phnom Kulen <i>-Ecotourism FEX interview 1</i> <i>-Nature journal entry: medicinal plants</i>
Cambodia's dry ecoregion			
Characteristic flora & fauna of the deciduous dipterocarp forest (DDF) ecosystem	Lecture & field components (3.5)	<ul style="list-style-type: none"> Clements et al 	Visit the Phnom Tnaot CPA ecotourism site <i>Ecotourism FEX part 2</i> <i>Nature journal entry: birds</i>
The Mekong River			

Mekong river hydrology & fish ecology Dams & environmental activism in Cambodia	Lecture (2.5)	<ul style="list-style-type: none"> • Defenders of the earth • Milne • Ziv et al 	Short film: <i>Fight for Areng Valley</i> by Kalyanee Mam
Livelihoods in transition I: traditional medicine			
Traditional medicine in Cambodia: use, collection & trade	(1.5)	<ul style="list-style-type: none"> • Ashwell & Walston 	
Highland Cambodia: forests & indigenous livelihoods			
Highland livelihoods: threatened ecosystems and livelihood challenges for the Bunong indigenous people Guest workshop by Bunong community development organization	Lecture & workshop (3)	<ul style="list-style-type: none"> • Fox et al • Scott 	Short film: <i>The Other Cambodia</i>
Livelihoods field trip to a Bunong farm: <ul style="list-style-type: none"> • Observation of highland farming techniques 	Lecture & field components (2)	<ul style="list-style-type: none"> • Mahanty & Milne • Mertz et al • Fox 	Half day visit to Bunong farm
The Cambodian coast			
<ul style="list-style-type: none"> • Coastal mangrove ecosystems & fishing livelihoods 	Lecture (2)	<ul style="list-style-type: none"> • Rizvi & Singer 	Short film: <i>Lost World</i> by Kalyanee Mam
<ul style="list-style-type: none"> • Community-based natural resource management (CBNRM): opportunities & challenges • Guest speaker: Sim Himm, head of Trapeang Sangker community fishery 	Lecture & field components (4)	<ul style="list-style-type: none"> • CBNRM Learning Institute • Bloomberg • Van Acker 	Visit to Cham community mangrove conservation site Livelihood interview with Cham fishers <i>Comparative Livelihoods FEX Part I</i>
Midterm exam review	(1.5)		
Tonle Sap Lake: ecosystems and livelihoods on the Great Lake			

<ul style="list-style-type: none"> Vegetation habitats of a flood pulse ecosystem Livelihoods on the lake Guest speaker: Osmose on alternative lake livelihoods 	Lecture & field components (6)	<ul style="list-style-type: none"> Weeratunge Deap, Degan & Zalimbe Joffrey et al Nuorteva et al Sneddon & Fox 	Interview with family at the floating village of Prek Toal <i>Comparative Livelihoods FEX Part II (Due Oct. 31)</i>
<ul style="list-style-type: none"> Wetland birding observations 	Field (1)		Field trip to Phnom Krom wetlands <i>Nature journal entry: waterbirds</i>
Vietnam's Mekong Delta: intensive landscape adaptation & its consequences			
<ul style="list-style-type: none"> Guest lecture on the Mekong Delta landscape and livelihoods Agricultural reconstruction lecture for Cambodia & Vietnam 	Lecture & field components (5.5)	<ul style="list-style-type: none"> Biggs Kakonen Keskinen Ives Schmitt et al 	
Livelihoods in transition II: agricultural shifts			
From subsistence to cash crops: rice, corn & cassava in Cambodia	Lecture & field components (3.5)	<ul style="list-style-type: none"> Hought et al A River Changes Course 	Village visit to learn about local farming practices
Migration & wage labor	Lecture (1.5)	<ul style="list-style-type: none"> Bylander 2013 & 2014 Kearney Malkki 	Readings will be assigned to 2 groups
Qualitative research analysis tutorial <ul style="list-style-type: none"> Using ATLAS.ti to code data Turning codes into comparative themes 	Lecture (2.5)	<ul style="list-style-type: none"> ATLAS.ti 7 Quick Tour 	<i>Atlas-TI FEX (due Nov. 4)</i>
Global agriculture & local consequences	(1.5)	<ul style="list-style-type: none"> Baird & Fox 	
Final exam review session	(1.5)		
Total course hours:	61.5		

Required Readings

Ashwell, D. & Walston, N. (2008). An overview of the use and trade of plants and animals in traditional medicine systems in Cambodia. Hanoi: TRAFFIC Southeast Asia, Greater Mekong Programme.

Arensen, L. (2012). Displacement, diminishment, and ongoing presence: the state of local cosmologies in Northwest Cambodia in the aftermath of war. *Asian Ethnology* 71(2), 159-178.

Baird I. and J. Fox (2015). How land concessions affect places elsewhere: Teleconnections and large-scale plantations in Southern Laos and Northeastern Cambodia. Unpublished conference paper No. 6. From Land grabbing, conflict and agrarian-environmental transformations: perspectives from East and Southeast Asia conference, 5-6 June 2015, Chiang Mai University.

Bloomberg, M. (2018). Mega developments get to transform a tranquil Cambodian bay. *Mongabay* (31 January).

Bylander, M. (2013). Depending on the sky: environmental distress, migration and coping in rural Cambodia. *International Migration*, 1-13. International Organization of Migration.

Bylander, M. (2015). Contested mobilities: Gendered migration pressures among Cambodian youth. *Gender, Place & Culture: A Journal of Feminist Geography* 8, 1124-1140.

Clements, T, Suon, S., Wilkie, D, and Milner-Gulland, E.J. (2014). Impact of protected areas on local livelihoods in Cambodia. *World Development* 64, S125–S134.

Fox et al. (2009). Policies, political-economy, and swidden in Southeast Asia. *Human Ecology* 37, 305-322.

Gaughan, A. E., Binford, M.W., & J. Southworth. (2008). Tourism, forest conversion, and land transformations in the Angkor basin, Cambodia. *Applied Geography*, 29(2), 212-223

Global Witness. (2016). Defenders of the earth: Global killings of land and environmental defenders in 2016.

Hought, J., Birch-Thomsen, T., Petersen, J., de Neergaard, A., & M. Oelofse. (2012). Biofuels, land use change and smallholder livelihoods: A case study from Banteay Chhmar, Cambodia. *Applied Geography*, 34, 525-532.

Kakonen, M. (2008). Mekong Delta at the crossroads: More control or adaptation? *Ambio* 37(3), 205-212.

Keskinen, M. (2008). Population, natural resources & development in the Mekong: Does high population density hinder development? In M. Kummu, M. Keskinen, & O. Varis, (Eds.) *Modern myths of the Mekong: A critical review of water and development concepts, principles and policies* (pp. 107-121). Helsinki: Water and Development Publications, Helsinki University of Technology.

Mahanty, S. and Milne, S. (2016). Anatomy of a boom: Cassava as a 'gateway' crop in Cambodia's north eastern borderland. *Asia Pacific Viewpoint* 57(2), 180-193.

Marschke, M. & F. Berkes. (2005). Local level sustainability planning for livelihoods: A Cambodian experience. *International Journal of Sustainable Development & World Ecology* 12, 21–33.

Milne, S. (2017). On the perils of resistance: Local politics and environmental struggle in Cambodia. *The Network: The Newsletter* 78, 32-33.

Navy, H., Chuenpagdee, R., & Kurien, J. (2006). Livelihood importance and values of Tonle Sap Lake fisheries. http://www.worldfishcenter.org/resource_centre/Livelihood.policy%20review%20-%20English.pdf.

Non-Timber Forest Products Exchange Programme (NTFP-EP) for South and Southeast Asia. (2009). Case study project report. On the Cusp of Start-up and Build-up: Enterprise Development Assistance to Emerging Community-based NTFP Enterprises (Forest Honey and Indigenous Crafts) in Northeast Cambodia - Memorandum of Understanding [PP-A/43-232]. Phnom Penh: NTFP-EP.

Reimer, J. K. & P. Walter. (2012). How do you know it when you see it? Community-based ecotourism in the Cardamom Mountains of southwestern Cambodia. *Tourism Management* 34, 122-132.

Tegelberg, M. (2010). Hidden sights: Tourism, representation and Lonely Planet Cambodia. *International Journal of Cultural Studies* 13: 491-509.

Nireka Weeratunge, Katherine A Snyder & Choo Poh Sze (2010). Gleaner, fisher, trader, processor: understanding gendered employment in fisheries and aquaculture. *Fish and Fisheries* 11, 405–420.

Optional Readings

AtlasTI user manual (2018). Retrieved from http://atlasti.com/wp-content/uploads/2018/05/QuickTour_a7_en_07.pdf

Berdick, C. (2014). The giving flood. *VQR*, 90(3). <http://www.vqronline.org/reporting-articles/2014/06/giving-flood>.

Biggs, D. (2010). *Quagmire: Nation-building and nature in the Mekong Delta*. Washington: University of Washington Press.

le Billon, P. (2002). Logging in muddy waters: The politics of forest exploitation in Cambodia. *Critical Asian Studies*, 34(4), 563-586.

Community-Based Natural Resource Management (CBNRM) Learning Institute. (2008). Unpublished briefing note on CBNRM perceptions research. Phnom Penh: CBRNM.

Deap, L., Degen, P. & van Zalinge, N. (2003). *Fishing gears of the Cambodian Mekong*. Inland Fisheries Research and Development Institute of Cambodia (IFReDI). Phnom Penh: Cambodia Fisheries Technical Paper Series (Volume IV).

Fletcher, R., Penny, D., Evans, D., Pottier, C., Barbetti, M., Kummu, M., T. Lustig & Authority for the Protection and Management of Angkor and the Region of Siem Reap (APSARA) Department of Monuments and Archaeology Team (2008). The water management network of Angkor, Cambodia. *Antiquity* 82, 650-670.

Fox, J. (2000). How blaming 'slash and burn' farmers is deforesting mainland Southeast Asia. *Analysis from the East-West Center* 47, 1-7.

Global Witness. (2013). Rubber barons: How Vietnamese companies and international financiers are driving a land grabbing crisis in Cambodia and Laos.

https://www.globalwitness.org/documents/10525/rubber_barons_lores_0_1.pdf

Global Witness. (2013). Deadly environment: The dramatic rise in killings of environmental and land defenders.

Hart, E., & DuBasky, V. (Eds.). (2015). *The illustrated guide to the wildlife of Cambodia*. New York: Heron on Hudson Press.

Hayes et al. (2013). A biodiversity assessment of Phnom Kulen National Park, with recommendations for management. www.rufford.org/files/11488-1%20Detailed%20Final%20Report_0.pdf.

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Ives, M. (2013). In Mekong Delta, rice boom has steep environmental cost.

http://e360.yale.edu/feature/in_mekong_delta_rice_boom_has_steep_environmental_cost/2670/

Joffre, O., Kura, Y., Pant, J. & S. Nam. (2010). Aquaculture for the poor in Cambodia – lessons learned. Phnom Penh: The WorldFish Center.

Kearney, M. (1986). From the invisible hand to visible feet: Anthropological studies of migration and development. *Annual Review of Anthropology*, 15, 331-361.

Killeen, T. (2012). *The Cardamom conundrum: Reconciling development and conservation in the*

Kingdom of Cambodia. NUS Press: Singapore.

Law, J.M. (2016). *The Laws guide to nature drawing and journaling*. Heyday Books: Berkeley.

Malkki, L. (1992). National geographic: The rooting of peoples and the territorialization of national identity among scholars and refugees. *Cultural Anthropology* 7(1), 24-44.

Marschke, M. & F. Berkes. (2006). Exploring strategies that build livelihood resilience: A case from Cambodia. *Ecology and Society* 11(1), 42.

Marschke, M. & A.J. Sinclair. (2009). Learning for sustainability: Participatory resource management in Cambodian fishing villages. *Journal of Environmental Management* 90, 206-216.

McKenney, B., Chea, Y., Tola, P., & T. Evans. (2004). Focusing on Cambodia's high value forests: Livelihoods and management. Phnom Penh: Cambodia Development Resource Institute and Wildlife Conservation Society.

Mertz et al. (2009). Swidden change in Southeast Asia: Understanding causes and consequences. *Human Ecology* 37, 259-264.

Millennium Ecosystem Assessment. (2005). *Ecosystems and Human Well-being: Synthesis*. Washington, D.C.: Island Press.

Miura, K. (2000). Social anthropological research on the people of Angkor: Living with a world heritage site. *Sikhsacakr* 2, 15-21.

Mekong River Commission. (2010). Social impact monitoring and vulnerability assessment: Report on a regional pilot study for the Mekong Corridor. Mekong River Commission Technical Paper, No. 30.

Nuorteva, P., Keskinen, M., & O. Varis. (2010). Water, livelihoods and climate change adaptation in the Tonle Sap Lake area, Cambodia: Learning from the past to understand the future. *Journal of Water and Climate Change* 1(1), 87-101.

Persson, L. et al. (2010). *Ecosystem services supporting livelihoods in Cambodia*. Stockholm: Stockholm Environment Institute.

Pye, D. & T. May. (2014, October 10). The calculus of logging. *The Phnom Penh Post*.

<http://www.phnompenhpost.com/national/calculus-logging>.

Rizvi, A.R. & U. Singer. (2011). Cambodia coastal situational analysis. *Building resilience to climate change impacts, coastal Southeast Asia No. 6*. IUCN.

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