



THE SCHOOL
FOR FIELD STUDIES

Ecosystems and Livelihoods

SFS 3810

Lisa Arensen, Ph.D.
Resident Lecturer

The School for Field Studies (SFS)
Center for Conservation and Development Studies
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.



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.
- The Mekong River delta around the city of Can Tho, a large urban area in southern Vietnam.

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 and Vietnam, 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 (%)
Livelihood investigation reports	25 (total)
Ecotourism analysis paper	20
Mid-term exam 1	20
Nature field journal	10
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 (25% total): 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 livelihood case studies. You will learn to do analysis using qualitative data analysis software. You will also be uploading climate change-related data from one of these interviews to the World Wildlife Fund's database, Climate Crowd (<https://www.wwfclimatecrowd.org/form>).

Ecotourism field exercise and analysis paper (20%): 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 your analysis in the paper you will write.

Your paper should assess the strengths and challenges of the Popel or Phnom Tnaot CPA ecotourism project and issue a set of recommendations. Using your field observations and data gathered from interviews, you will conduct a SWOT analysis for each site. You will compare your findings to our other case studies and make recommendations as to how these projects could improve their current programs.

Nature journal (10%): 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 at the end of the semester.

Exams (20% midterm / 25% final): 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+	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 to 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

Key: **L** = lecture, **FC** = field component, **W** = workshop

*Readings in **Bold** are required

<i>Lecture Topics</i>	<i>Type</i>	<i>Time (hrs)</i>	<i>Readings</i>	<i>Field Trips/ Assignments</i>
Course introduction Ecosystems, natural resources & rural livelihoods in transition	L	1.5		
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	L / FC	6	Arensen le Billon Fletcher et al Gaughan et al Pye & May Wildlife Alliance	Visit to Phnom Kulen's sacred carvings <i>Nature journal entry: butterflies</i>
Community-based natural resource management (CBNRM)				
Community forestry & non- timber forest product (NTFP) use	L / FC	1.5	NTFP-EP McKenney et al Sunderlin Winrock	Guest speaker on sustainable agroforestry techniques
Species identification skills				
Basics of birding: observation & diagnostic skills Diagramming & identifying insects	L / FC	1.5	Laws	Visit to Angkor Thom wall Urban birding <i>Nature journal entries: birds & insects</i>
Ecotourism in Cambodia: the search for sustainable livelihood alternatives				

Ecotourism & community-based ecotourism	L / FC	6	Reimer & Walter Miura Tegelberg	Visit Popel CPA nature trail on Phnom Kulen <i>Ecotourism FEX Part I</i> <i>Nature journal entry: traditional medicinal plants</i>
Livelihoods in transition I: agricultural shifts				
From subsistence to cash crops: rice, corn & cassava in Cambodia	L / FC	3.5	Hought et al Global Witness <i>Rubber Barons</i> A River Changes Course	Resource origin market survey Village visit to learn about local farming practices
Migration & wage labor	L	1.5	Bylander Mills Kearney	
Qualitative research analysis tutorial Using ATLAS.ti to code data	L	1.5	ATLAS.ti 7 Quick Tour	<i>Livelihoods FEX 2 (due Sept. 15)</i>
Cambodia's dry ecoregion				
Characteristic flora & fauna of the deciduous dipterocarp forest (DDF) ecosystem	L / FC	3.5		Visit the Phnom Tnaot CPA ecotourism site <i>Ecotourism FEX part 2 (due Sept. 27)</i> <i>Nature journal entry: birds & butterflies</i>
The Mekong River				
Mekong river hydrology & fish ecology Dams & environmental activism in Cambodia	L	3	Deadly Environment Milne Ziv et al	
Highland Cambodia: forests & indigenous livelihoods				

Highland livelihoods: threatened ecosystems and livelihood challenges for the Bunong indigenous people Guest workshop by Bunong community development organization, IBCDE	L / W	5	Scott	
Livelihoods field trip to a Bunong farm: <ul style="list-style-type: none"> • Observation and discussion of highland farming techniques • Guest lecture by a Bunong elder on traditional medicine 	L / FC	4	Fox et al Mertz et al Fox	Half day visit to Bunong farm <i>Nature journal entry: medicinal plants</i>
Species identification skills				
Bird observation & diagnostic skills	L / FC	1		Highland birding session <i>Nature journal entry: highland birds</i>
Livelihoods in transition II: traditional medicine				
Traditional medicine in Cambodia: use, collection & trade		1	Ashwell & Walston	
Midterm exam review		1.5		
Tonle Sap Lake: ecosystems and livelihoods on the Great Lake				
Avifauna of a flood pulse ecosystem Livelihoods on the lake Guest speaker: Osmose on alternative lake livelihoods	L / FC	4.5	Berdick Deap, Degan & Zalimbe Navy et al Joffrey et al Nuorteva et al Sneddon & Fox	Interview with family at the floating village of Prek Toal <i>Comparative Livelihoods FEX Part I</i> Prek Toal Core Sanctuary visit <i>Nature journal entry: waterbirds</i>

Wetland birding observations	FC	1		Field trip to Phnom Krom wetlands <i>Nature journal entry: birds</i>
The Cambodian coast				
Coastal mangrove ecosystems & fishing livelihoods	L	2	Rizvi & Singer	
Community-based natural resource management (CBNRM): opportunities & challenges Guest speaker: Sim Himm, head of Trapeang Sangker community fishery	L / FC	4	CBNRM Learning Institute Marschke & Berkes 2005 Van Acker	Visit to Cham community mangrove conservation site Livelihood interview with Cham fishers <i>Comparative Livelihoods FEX Part II (Due Oct. 26)</i>
Vietnam's Mekong Delta: intensive landscape adaptation & its consequences				
Lectures & field trips by Can Tho University faculty Agricultural reconstruction lecture for Cambodia & Vietnam	L / FC	5.5	Biggs Kakonen Keskinen Ives Schmitt et al	Visit to Ang Giang Province flood dykes Tra Su melaleucca forest visit <i>Nature journal entry: waterbirds</i>
Livelihoods in transition III				
Globalization & local livelihoods		1.5	Tsing	
Final exam review session		1.5		
Total course hours		60		

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.

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

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- Marschke, M. & F. Berkes. (2005). Local level sustainability planning for livelihoods: A Cambodian experience. *International Journal of Sustainable Development & World Ecology* 12, 21–33.
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- 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.
- Scott, J. (2000). Hill and valley in Southeast Asia... or why the state is the enemy of people who move around...or... why civilizations can't climb hills. Unpublished conference paper for the 2000 Symposium: Development and the Nation State in Washington University, St. Louis.
- Tegelberg, M. (2010). Hidden sights: Tourism, representation and Lonely Planet Cambodia. *International Journal of Cultural Studies* 13: 491-509.

Optional Readings

AtlasTI user manual (2014). Retrieved from http://atlasti.com/wp-content/uploads/2014/05/QuickTour_a7_en_07.pdf

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

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.

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

McKenney, B., et al. (2004). Focusing on Cambodia's high value forests: Livelihoods and management. Phnom Penh: Cambodia Development Resource Institute and Wildlife Conservation Society.

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

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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.

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