University of Minnesota
Integrated Multidisciplinary Experiential Learning Nepal Semester
Topic Course Syllabi

In Collaboration with
National Trust for Nature Conservation (NTNC) / Biodiversity Conservation Center
Sauraha, Chitwan, Nepal
Spring 2013
Nepal Semester Course Syllabus (16 credits)

Synopsis

This 16-credit spring semester program is located in the biodiversity and wildlife rich Terai region of Nepal and emphasizes hands-on experience with rural communities combined with coursework. Work closely with communities to measure and value the ecosystem services of community managed forest ecosystems while living adjacent to Chitwan National Park. Conduct natural resource assessments including large mammal (elephant, rhino and tiger) and forest resource inventories, and learn about sustainable development options that contribute to conservation efforts. Integrated coursework on wildlife diversity, forest management, sustainability, socio economic assessment, and Nepali language and culture will provide the background for a unique cross cultural, experiential learning experience.

The estimated program fee is $11,216 and includes tuition, educational costs, housing, meals, and international health insurance. Students should budget separately for airfare, passport, visa/required documents/immunizations, texts/materials, housing/meals not included in the program fee, and essential daily living expenses. See the budget estimate for more information.

Financial aid can be used to study abroad, and scholarships are available. Please visit the LAC scholarship page and CFANS ILG page for eligibility and applications. Students who meet the following criteria are welcome to apply:

- In good academic standing
- Intercultural and international interests
- Volunteer experience preferred but not required

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Note: FW 4391 is a general designator for topics courses and the two courses will have different assigned sections indicated by "a" and "b" above.
Course 1

Nepali Culture and Rural Society - CFAN 3840

Instructors: Instructors for the course will be Dr. Narayan Dhakal, Dept. of Fisheries, Wildlife and Conservation Biology, and Dr. Narayan Kaji Shrestha, a Nepali social and anthropological researcher, and Naresh Subedi, a Wildlife Biologist at the Biodiversity Conservation Center which is hosting the semester abroad. There will be 4 language assistants that will be available throughout the semester program to assist students when interacting with local communities as well as assist them with language training as needed beyond this initial course.

CFAN 3480 - Topics

4 Credits

Spring 2013

Course Description:

This course will provide an orientation to Nepali language and Nepal’s unique history, culture, and community forest practice and benefits. Students are not expected to reach proficiency in the language but will have sufficient training for basic communication. Students will also be accompanied by translators when working with the Community Forest User Groups. This integrated course curriculum will fulfill the Global Perspectives CLE requirement. Students will learn about Nepali culture and also basics about navigating the culture and avoiding cultural misunderstandings. An important part of this course will be an introduction to the Nepali Community Forestry system, its history and current issues with the movement. Nepal has over 17,000 Community Forestry User Groups representing a large part of Nepali rural society.

Nepal has an old and unique culture and history and is located between China and India. Nepal was never under a colonial regime. However, there was a strong connection with British India in terms of assisting Nepal in maintaining diplomatic relations with China and the world (Kirkpatrick, 1793). The country is considered a laboratory to learn about diverse ethnic groups and their culture and lifestyle. Students will get first hand information on social and cultural lifestyles of Tharu people in Chitwan. The Tharu are considered malaria immune and they were the earliest settlers in the Chitwan Valley. The Tharu are an indigenous people and an ethnic group that has survived in the dense malaria prone forest and have been settled in lowland Nepal for more than 300 years (Gunaratne, 200; Krauskopff, 2000; Muller-Boker, 1999).
The population of Nepal is 29 million representing several caste and ethnic groups. Hinduism is the major religion followed by Buddhism, Islam and Christianity. The total land area of Nepal is 140,800 sq. km (about the size of Tennessee) and home to the tallest mountain in the world, Mount Everest. Climatic conditions range from sub-tropical in the summer with mild winters to extreme conditions in the Himalaya’s. Nepal’s economy is predominantly agriculture followed by tourism and hydroelectricity. Rich biodiversity found in more than 18% of its land area is protected by law. Nepal has the 10th richest flowering plant diversity in Asia; 31st in the world, it also holds the highest density of tigers and the 2nd highest density of one-horned rhinoceros.

The course will deal with the history and bravery of the Nepalese people and how they struggled to crate a unified Nepal from many fragmented small nations. Nepal army’s infantry skill was highly recognized by the British regime after the War between Nepal and British India. The “Gorkha” is the famous battalion that has been popular in mountain warfare and still maintains some smaller units in India and Great Britain. Students will learn about Nepali culture that will provide them a social learning opportunity and provide for reflection on issues from a developing country’s livelihoods perspective. In this course students will also learn about the impact of yoga on health and wellbeing through the lenses of cultural, medical and environmental anthropology. Students will also participate in a short health and wellness practices course from an instructor (a resource person). The course provides a positive experience as well as knowledge and understanding of the communities who are struggling for their livelihoods and contributing to conserve the global environment.

Nepal is famous for participatory forest management, community forestry and governance within community forest user groups (CFUGs). Community forest management forms an important part of the social and economic dynamics of rural Nepal. Students will learn about the process of community forest formation, different management regimes, and concepts and practices of carbon monitoring and management through a participatory approach. Students will learn how rural communities of Nepal are instrumental in sequestering carbon from the atmosphere amid global climate change (Andersson et. al, 2011; Persha et. al, 2010; Nagendra and Gokale, 2008; Nagenera et. al, 2008; Baral, et al, 2007)

Course structure will include class lectures, field visits, public interaction, and opportunities to explore historical sites and monuments, and observe community forest management practices. Reading materials will be arranged and assigned in advance and students must complete readings before class. Students will be encouraged to interact in the class based on the readings and will write a 5 – 7 pages paper as part of the course requirements.

**Course Objectives:**

- Gain a basic understanding and competency in the Nepali language
- Understand Nepali culture and history with an emphasis on rural Nepal, natural resource management and the livelihood implications of natural resource management.
- Understand the development of community forestry in Nepal, it’s political, social and economic dimensions, and its impact on Nepali rural society
- Fulfill the global perspectives theme of the Liberal Education (LE) requirement
Grading Standards

The course will be graded from A through F (with pluses and minuses). Assignments and individual and group projects will receive qualitative grades A-F.

A = Outstanding achievement that demonstrates superior mastery of the material and exemplary performance on both tests and written exercises. The distinction between A and B will depend on the student’s ability to understand and articulate explicit and implicit concepts.

B = Achievement that significantly exceeds the level necessary to meet the course requirements.

C = Achievement that meets all course requirements at an average level.

D = Achievement worthy of credit, but which does not fully meet the course requirements.

F = Failure to complete the course requirements at a level worthy of credit without pre-arranged agreement between the student and the instructor regarding a grade of incomplete. Incompletes are given only with prior arrangement with instructor. Incompletes are assigned at the discretion of the instructor and are only given when extraordinary circumstances prevent completion of course work on time.

Policy on Late Assignments

Because of the nature of the course and the semester, students need to turn in assignments on time.

Expectations of Students

Students are responsible for participating in class projects on time and for being prepared (reading the assigned material) for class sessions. Projects will be conducted in small groups and students are expected to work as a team and assure that all members of a team are competent in all aspects of tasks.

Guidelines for Final Written Assignment

Three options will be provided to student to complete their final writing assignment.

Three options will be provided to student either writes about their experience as reflection from their class, or synthesize from the reading materials provided or by conducting a small survey of a Nepali household. Content of the writing will be based on the student’s individual analysis, participant’s observation, but guidelines for the content will be provided by instructors.

1. Writes an essay about students experience as reflection from their class and the insights from this course.
2. Synthesize from the reading materials provided and draw conclusion from your understanding about the lifestyle of rural Nepal
3. Conduct a participant’s observation of the rural society and draw student’s own conclusion through the cultural and anthropological lenses.
4. The title of the essay has to be approved by the assigned instructor prior to start the writing.
5. The length of the essay has to be 5 to 7 pages at 1.5 line space and font size and type 12 Arial or Times New Roman.
**Student Learning Outcomes**

This course will provide the following student learning outcomes:

1. **Can identify, define, and solve problems**: Students will work with local communities to start identifying problems faced by Community Forestry User Groups (CFUGs) and work with those groups to explore solutions – this will continue throughout the semester.

2. **Have mastered a body of knowledge and a mode of inquiry**: This course will provide the students the background required to understand Nepali culture, anthropology and the unique community forest management system in Nepal. This will be used as they continue to work with the communities and acquire additional knowledge and skills in natural resource measurement, management and sustainability issues.

3. **Understand diverse philosophies and cultures within and across societies**: This will be an integral part of this course which will be a theme throughout the semester.

4. **Can communicate effectively**: This course will provide students language skills but also provide training on how to communicate through translators in a different culture. As the language coordinator stated: “they will learn how to learn a language”

5. **Understand the role of creativity, innovation, discovery, and expression across disciplines**: The course, through the skills provided from different disciplines and the interaction with communities that will require the integration of the skills and knowledge gained over the semester will challenge the students to be creative and innovative in exploring solutions to problems identified in local community management of natural resources.

6. **Have acquired skills for global citizenship and life-long learning**: The students’ participation in a semester long study abroad program working closely with local communities to identify problems and use the skills they learn through coursework to address those problems will provide an applied approach to global citizenship and initiate a lifelong process of learning and understanding of global issues. This will also develop students’ capacity to understand and value importance of people in the world in conserving global biodiversity.
### Preliminary Class Schedule (Note: Language training will continue throughout)

<table>
<thead>
<tr>
<th>Day</th>
<th>Courses and Teaching Methods¹</th>
</tr>
</thead>
</table>
| 1-4 | **Nepali language**  
|     | • Basic Nepali  
|     | • Common vocabulary  
|     | • Simple Nepali grammar  |
|     | **Speaking and Writing Practice**  
|     | • Vocabulary practice  
|     | • Student instructor communication  
|     | • Student and Nepali conversation  
|     | • Discussion about history and culture with community leaders  |
|     | **Nepali Culture**  
|     | • Caste and ethnicity  
|     | • Hinduism and Buddhism  
|     | • Mainstreaming gender  |
| 5   | **History**  
|     | • Ancient and Medieval Nepal  
|     | **Modern Nepal:**  
|     | • Rana and Shah dynasty  
|     | • Democratic Government  
|     | • Multiparty democracy  
|     | • Current state of politics  |
| 6-8 | **Anthropology General**  
|     | • Nepal on a perspective of British India  
|     | • Ethnography of indigenous Tharu community in Chitwan  
|     | • Race and ethnicity in natural resources management  
|     | **Cultural Anthropology**  
|     | • Indigenous community and natural resources management  
|     | • Temples, stupas and their relevance in the Nepali culture and society  
|     | • Effects of modernization in urban culture  
|     | • Urban sprawl in the foot-hills of Kathmandu  
|     | **Medical Anthropology**  
|     | • Nature cure and indigenous healing  
|     | • Indigenous healing practices  |

¹ Teaching methods will be 50% class and 50% practical or experiential. The mode of the experiential learning will depend upon the nature of the course. For example, in Nepali language course students will interact with the villagers, shop keepers, community leaders to practice language. Students are taken to the field sites of course relevance, for example, historical sites, ethnic households, indigenous healers, etc.
| 9 - 12 | **Community Forestry in Nepal and Its process**  
|        | - Overview on forest management regimes in Nepal – past, present & future direction  
|        | - Evolution of community forestry  
|        | - Stakeholders’ network analysis in community forestry  

**Contribution of community forestry on people's Livelihood**  
- CF contribution to health and education  
- Local economy  
- Social and cultural change  
- Income generation  

**Planning**  
- Community Forestry Planning  
- Process of making operational plan, constitution of CF Second generation issues and gender equity  
- User identification, investigation, RRA, PRA tools and their use  

**Governance**  
- Principle of good governance  
- Decentralization and devolution  
- Case studies  
- Case study from Chitwan district  

| 13 - 15 | **Concept and practices of REDD with reference of community forestry**  
|         | - What is REDD and how does it relate to the context of Nepal  
|         | - Current practice of carbon monitoring  
|         | - Possible or current carbon benefit sharing mechanism  
|         | - Enterprise development in the community forest  

**Cited References**  

Other References
About Yoga http://yoga.about.com/od/fr.htm
Info please: http://www.infoplease.com/ipa/A0107820.html
Course 2

Biodiversity Assessment and Monitoring
FWCB 4391/5392
Instructor: J.L. David Smith (jlds@umn.edu)
Location: Biodiversity Conservation Center
Chitwan National Park, Sauraha, Nepal
3 credits

Overview:

This 3-credit course is a part of a 4-course sequence in the Nepal Semester Abroad Program in spring of 2013. It provides students the opportunity to learn basic techniques in assessing the status and monitoring vertebrate population in Chitwan National Park. The course will emphasize current statistical methods to estimate abundance and habitat occupancy of vertebrate populations and draw inferences about the human and natural factors that explain population numbers. Students will be presented with a series of tasks that wildlife biologists often address in managing vertebrate species. Students will then apply an experiential learning approach to address each management task. This process will consist of reviewing possible methods to address each management task, choosing a suitable approach, and then developing a work plan. Students will be expected to pretest their design to ensure that it meets their statistical objectives and to conduct an evaluation of the completed task.

Field sites will include both Chitwan National Park and community forests in the park’s buffer zone. At the completion of this course, a course on community forest dynamics and measurements and a third course, sustainable community based natural resource management; students will develop final projects in cooperation with members of community forest user groups. To become familiar with the forests and communities where they will conduct their community forest projects, we will travel to each of these sites during this course. This will allow students to meet and begin discussing management issues that local user groups might want to address during the final project. The activities in this course will be modified to gain skills needed to address community forest management issues that are important to CFUGs.

The instructors include J.L. David Smith and Naresh Subedi. Smith, is a wildlife ecologist whose research has focused on endangered large carnivores and ungulates. He is interested in assessing and maintaining viable populations of endangered species through participatory management of landscapes that include both natural and human dominated ecosystems. He conducted his P.D. research on tiger dispersal in Chitwan National Park and subsequently his research focused on training Asian and American graduate students working in Nepal, Thailand, Bangladesh, and Cambodia. Subedi is the Director of the Biodiversity Conservation Center where the course will be held. His Ph.D. research was on nutrition if the greater one-horned rhinoceros in Chitwan National Park. He has nearly 20 years of experience managing and conducting research in the
Nepalese lowlands, first as a wildlife ranger in the Nepalese Department of National Parks and Wildlife Conservation and then as an ecologist with the National Trust for Nature Conservation

Objectives:

1. To provide experience in planning and conducting biodiversity assessments and research projects.
2. To introduce a variety of techniques used in assessing and/or monitoring populations.
3. To develop basic field and management skills.
4. To develop skills in data collection and management.
5. To increase knowledge of the basic natural history of the Terai Arc Landscape.
6. To understand the power of participatory conservation.
7. To enjoy the course and overall experience in the Nepalese Terai.

Class:

The class will run for two and a half weeks. Students will help define levels of competency they need to effectively address biodiversity assessment questions. There will be an emphasis on designing appropriate methods for different types of questions. Instructors will present concepts and develop activities so that students learn by working individually and in small groups on field projects. After gaining experience with each biodiversity assessment tool, students will present their data analysis and interpretation to the class. Field activities will be conducted in Chitwan National Park and at community forests sites where students will complete their final project so that they begin working with community forest user groups early in the semester. Staff from the DNPWC and the Trust will participate in the course and will present techniques they use to monitor wildlife populations in Nepal.

Course emphasis:

The course goal is to provide students with background that will allow them to assess and manage vertebrate populations. Because many vertebrate species in Nepal are threatened due to poaching, habitat loss and habitat degradation, the emphasis will be on how to determine and address these threats. Classroom presentations will provide the theoretical background and case studies of how these threats are addressed. Students will then work in small groups in a field setting to gain experience describing and measuring biodiversity.

Methods:

- Hands on, experiential, teaching methods will be used.
- Students will learn theoretical aspects of vertebrate population assessment.
- Students will discuss with local communities the reasons vertebrate populations are threatened and explore ways to address these threats.
- Students will learn to incorporate local knowledge and perspectives in assessing biodiversity.
- Each student will write an evaluation of each field project.
- Students will be assessed based on their performance in the field; there will be no final exam.
Graduate student paper:
Graduate students will be required to write a review paper that evaluates one of the main biodiversity assessment tools. The paper will analyze journal articles that have used this tool to determine if it meets the objectives for which it was intended.

Grading Standards
The course will be graded from A through F (with pluses and minuses). Assignments and individual and group projects will receive qualitative grades A-F
A = Outstanding achievement that demonstrates superior mastery of the material and exemplary performance on both tests and written exercises. The distinction between A and B will depend on the student’s ability to understand and articulate explicit and implicit concepts.
B = Achievement that significantly exceeds the level necessary to meet the course requirements.
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D = Achievement worthy of credit, but which does not fully meet the course requirements.
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Policy on Late Assignments
Because of the nature of the course and the semester, students need to turn in assignments on time.

Expectations of Students
Students are responsible for participating in class projects on time and for being prepared (reading the assigned material) for class sessions. Projects will be conducted in small groups and students are expected to work as a team and assure that all members of a team are competent in all aspects of tasks.

Students with Disabilities
Students with disabilities will be reasonably accommodated. Please inform the instructor of specific disabilities or accommodations in advance so we may respond appropriately. Additional information may be found at http://www.osai.umn.edu/syllabus.html.

Scholastic Dishonesty
The following is the University’s statement on scholastic dishonesty. “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: submission of false records of academic achievement; cheating on assignments or examinations; plagiarizing; altering, forging, or misusing a University academic record; taking, acquiring, or using test materials without faculty permission; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement.

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.

Cooperating on the content of examinations, homework, projects, or reports will usually be required unless explicitly prohibited. Cooperation and assistance among students in preparing team reports is required.

The Former College of Natural Resources Honor System

The honor system is most accurately defined as a student self-government system for conducting examinations. Under the honor system, students accept responsibility for the supervision of student conduct during examinations. It operates on the assumption that students are honest and enjoy working in a situation where their honesty and the honesty of others are not in question. It operates to respect honesty and to prevent cheating, as well as to punish those who cheat. The honor system contributes to the development and expression of ethical standards desirable for all professionals in whom the public places confidence.

Class schedule:

| Day 1 | Discussion of course syllabus, course expectations and philosophy of experiential learning  
An inventory of students skills and establishment of small teams for week 1  
An introduction to the vertebrate diversity in Chitwan National Park and a review of the local and global status of the locally endangered mammals  
  • Classroom training  
  • Examination of track casts, skulls and dung collection in the museum  
Identifying the common birds near the research station  
  • Students will meet national park guides and conduct a bird survey in Kumroze community forest |
|---|---|
| Day 2 | Orienteering, GPS and GIS  
  • Maps, projections, datums and coordinate systems (self test quiz)  
  • Basic theory of GPS (self-test quiz)  
  • Field exercise: use of GPSs (entering coordinates; establishing & finding plots)  
  • Introduction to GIS data for Chitwan and CFs in the buffer zone  
  • Entering GIS exercise data into GIS  
Presentation of biodiversity issues and management institutions in Nepal  
  • Presentation by Warden of Chitwan: structure and accomplishments of Department of National Parks and Wildlife Conservation  
  • Presentation by Babu Ram: biodiversity in buffer zone forests  
Late afternoon bird ID walk |
## Day 3

**Before breakfast walk to identify mammal tracks**
- Students will conduct a recce survey with BCC wildlife technicians to identify tracks and other sign
- Each small team will make a plaster track cast

### Discussion of population assessment
- Population assessment objectives at different scales
- Complete counts versus sample estimates
- Direct observation versus sign indices

### Quantitative distribution mapping: occupancy and detection theory
- The basic verbal model of occupancy theory
- Field exercise testing size of sample units and making naive estimates of detection probability

**Late afternoon bird ID walk Chitwan N.P.**

## Day 4

### Occupancy theory
- Formal presentation of theory
- Temporal versus spatial replicates & random versus correlated replicates
- Introduction to Presence software
- Computer exercises with Presence software
- Preparation for tiger occupancy survey
- Field trip to Madi Valley to meet community forest user group

**Late afternoon bird ID walk in Kumrose CF**

## Day 5

### Occupancy survey
- Students, wildlife technicians and community forest user group staff survey 112 500m segments in Madi Valley
- Return to BCC and estimate tiger occupancy in each of seven Madi Valley community forests and the overall mean detection probability across all community forests.

## Day 6

### Estimation of ungulate abundance
- Discussion of estimation methods (direct and indirect distance sampling and relative and absolute abundance from pellet count data)
- Students conduct computer simulation of pellet count estimates varying sampling intensity, plot size, and degree of non-random distribution of dung
- Students and staff of Kumrose community forest clear 375 ten square meter plots for re-sampling after 30 days.

## Day 7

**No class (student free time or organize their own field trip)**

## Day 8

### Methods of estimating bird diversity and abundance
- Early AM: set up mist nets and conduct point counts near nets
- Mid-morning review of current bird biodiversity assessments in Chitwan NP, buffer zone forest and agricultural land

### Introduction to population estimates using mark-recapture and camera traps
- Theory of mark recapture
- Exercise using Mark software
- Review of current data on Chitwan mark recapture tiger estimates
- Demonstration of setting up camera traps
Methods of estimating bird diversity and abundance continued
- Early AM: set up mist nets and conduct point counts near nets
- Analysis of point count data comparing 3 sites

Establishing camera trap survey
- Students set camera traps Kumrose CF

Introduction to distance sampling
- Theory
- Use of Distance software (www.ruwpa.st-and.ac.uk/distance)
- Computer exercise
- Field exercise: distance sampling of ungulates from elephant back & on foot

Preparation of project reports

Presentations
Jungle drive to Lami Thal, Park Headquarters and Tiger Tops

Student Learning Outcomes
This course will provide the following student learning outcomes:

1. Can identify, define, and solve problems: Students will be become familiar with the theory and use of current biodiversity assessment tools.
2. Have mastered a body of knowledge and a mode of inquiry: This course will provide the students the background on how assess distribution and abundance of large carnivore, ungulate populations and bird diversity at a degree of resolution needed by CFUGs in management and marketing biodiversity credits
3. Understand diverse philosophies and cultures within and across societies: The students will work directly with community forest user groups to understand their attitudes and use of natural resources, and their attitudes towards biodiversity conservation
4. Can communicate effectively: This course will provide students experience communicating through translators in a different culture. The course will also require students to prepare reports that establish biodiversity assessment and monitoring appropriate for use in community forest management in Nepal
5. Understand the role of creativity, innovation, discovery, and expression across disciplines: Students will learn the role of local knowledge in measuring biodiversity and in devising solutions to animal human conflict. Addressing the needs of members of CFUGs as well as seeking to achieve biodiversity conservation goals will challenge students to be creative and innovative in exploring solutions to problems identified in community forest management...
6. Have acquired skills for effective citizenship and life-long learning: The students’ participation in a semester long study abroad program working closely with the Biodiversity Conservation Center staff and local communities to assess biodiversity. Students will devise assessment techniques that can be used to evaluate biodiversity in community forests. They should have gained an appreciation of local knowledge and take with them a deep appreciation for why participatory conservation is a key component of conservation in any setting from local to global.

Text and required readings: (Preliminary)
Course manual will contain all course material and readings
Course 3
Community forest dynamics and measurements

FR 3480

Instructor:
Dinesh Paudel (paude005@umn.edu)  
Naresh Subedhi  
James L.D. Smith (jlds@umn.edu)

Location: Biodiversity Conservation Center  
Chitwan National Park, Sauraha, Nepal

3 credits

Overview:
This 3-credit course, offered as part of the Nepal Semester Abroad Program in Spring of 2013 provides students the opportunity to learn forest and ecosystem measurement skills that are applicable in a variety of settings from the forests of Minnesota to the community forests of Nepal. The course uses a participatory approach so students will work directly with members of Community Forest User Groups (CFUGs) to carry out the measurements and communicate results to the communities in a format relevant to their needs.

The instructors

Dinesh Paudel, a Forester and Geographer with extensive experience with community forestry in Nepal, will teach the measurements component of this course. He developed the guidelines for participatory forest measurement which are used by community forest groups in Nepal. Dinesh’s Ph.D. research analyzed community forestry micro-enterprises.

NareshSubedhi, manages both research and monitoring programs at Biodiversity Conservation Center (BCC), in Chitwan National Park; BCC is a part of the National Trust for Nature Conservations. Naresh administers the Center and supervises programs on the biological and social aspects of community forests. Before joining the Trust, he was an officer in the Department of National Parks and Wildlife Conservation. He is both a forester and a wildlife biologist and he plans to complete his Ph.D. on food habits and energetics of the greater Indian one-horned rhinoceros at the Wildlife Institute of India by November 1st.

James L.David Smith is a large mammal, landscape ecologist whose research is primarily on issues related to tiger conservation. He is interested in effective population size, inbreeding, habitat connectivity and movement modeling. All of these topics are relevant to questions related to the carrying capacity of tigers and their prey in different ecological settings.

Course Objectives:
1. Students will study the natural history and ecology of lowland forests in Nepal
2. Students will learn participatory approaches to forest inventory and objective-based forest measurements techniques,
3. Students will be able to identify forest areas (boundary survey), measure and calculate forest density and stock and utilize the findings in quantifying ecosystem services and developing an objective based management plan,

4. Students will learn data analysis techniques appropriate for managing forests for multiple timber and non-timber products and ecosystem services,

5. Students will be able to plan and implement natural resource inventories, analyze data, and develop appropriate management recommendations with local communities based on their resource management needs, and

6. Students will learn common plant species that occur in the following communities: 1) riverine forest, 2) grassland, 3) sal forest, 4) mixed deciduous forest, and 5) agro forests and degraded areas. Plants will be classified as palatable, unpalatable (for livestock), timber, fuel or invasive.

Class:
The class will run for two & 1/2 weeks and contain a mixture of class lectures, field exercises and data analysis and interpretation. There will be an emphasis on field exercises, working closely with community forest user groups.

Course emphasis:
The course objective is to provide students an understanding of basic forest ecology and natural resource measurement skills so that students can undertake natural resource inventories, analyze forest measurement data and generate a community forest management plan. A second objective is for students to develop the skills needed to work with local community forest user groups to design, carry out and report on inventories that meet their needs.

Teaching Methods:
- Hands on, experiential, practice-based teaching methods,
- Students will learn theoretical aspects of measurements in class before implementing measurements in one of the selected community forestry sites,
- Mornings will be spent on classroom teaching and afternoons for field exercise. There will be evening discussions and data analysis exercises,
- Students will interact, plan and implement with members of a local user groups measurement exercises,
- A final output/report will be presented in front of the community, which can use the information as part of their forest management plan,
- Students will be assessed based on their performance in the field, there won’t be any final exam other than the preparation of the report for the community.

Graduate student paper:
Graduate students will be required to prepare a management plan for the management of a non-timber forest product of value found in the community forest.
**Grading Standards**

The course will be graded from A through F (with pluses and minuses). All exams, written assignments, and projects will be given a numerical grade, then converted to a weighted proportion based on the fractions to the left to calculate final grades.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Minimum Required Percentage</th>
</tr>
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<tbody>
<tr>
<td>A</td>
<td>93% or higher</td>
</tr>
<tr>
<td>A-</td>
<td>90% or higher</td>
</tr>
<tr>
<td>B+</td>
<td>87% or higher</td>
</tr>
<tr>
<td>B</td>
<td>83% or higher</td>
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<tr>
<td>B-</td>
<td>80% or higher</td>
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<tr>
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<tr>
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</tr>
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Class schedule:

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Ecology-Introduction to forest ecology and management</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Session 1: Plate tectonics and the geology of the Himalayas</td>
</tr>
<tr>
<td></td>
<td>▪ Northern Gangetic Plain, Siwalik Hills and “dun” valleys of the Nepalese Terai</td>
</tr>
<tr>
<td></td>
<td>▪ Impact of geology, soils and rainfall on forest community composition and structure</td>
</tr>
<tr>
<td></td>
<td>• Session 2: Alluvial ecosystem dynamics</td>
</tr>
<tr>
<td></td>
<td>▪ Rivers, monsoon flooding and dynamics</td>
</tr>
<tr>
<td></td>
<td>▪ Consequences of a high water table</td>
</tr>
<tr>
<td></td>
<td>o Session 3: History of forest management in Nepal (from feudal times to present)</td>
</tr>
<tr>
<td></td>
<td>▪ Politics and impact of community forestry</td>
</tr>
<tr>
<td></td>
<td>▪ Structure, establishment and spread of community forests</td>
</tr>
<tr>
<td></td>
<td>• Session 4: Field trip to Kumrose Community Forest</td>
</tr>
<tr>
<td>Day 2</td>
<td><strong>Ecology</strong></td>
</tr>
<tr>
<td>-------</td>
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</tr>
<tr>
<td></td>
<td>• Session 5: Field trip: Natural history of riverine forests</td>
</tr>
<tr>
<td></td>
<td>▪ Soil profile of riverine forest</td>
</tr>
<tr>
<td></td>
<td>▪ Temperature and humidity in riverine forest</td>
</tr>
<tr>
<td></td>
<td><strong>Plants</strong></td>
</tr>
<tr>
<td></td>
<td>• Session 1: Riverine forest plant identification</td>
</tr>
<tr>
<td></td>
<td>▪ Evening: prepare fresh and dry plant material for studying plants</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Day 3</th>
<th><strong>Ecology</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Introduction to tall grasslands</strong></td>
</tr>
<tr>
<td></td>
<td>• Session 6: Field trip by elephant to tall grasslands</td>
</tr>
<tr>
<td></td>
<td>▪ Impact of the water table and fire on grassland dynamics</td>
</tr>
<tr>
<td></td>
<td>▪ Discussion: Is fire or grazing influencing the structure of grassland communities?</td>
</tr>
<tr>
<td></td>
<td><strong>Plants</strong></td>
</tr>
<tr>
<td></td>
<td>• Session 2: Introduction to common grassland species</td>
</tr>
<tr>
<td></td>
<td>▪ Evening: prepare fresh and dry plant material for studying plants</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Day 4</th>
<th><strong>Plants</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Session 3: Introduction to sal forest species</td>
</tr>
<tr>
<td></td>
<td><strong>Forest measurements</strong></td>
</tr>
<tr>
<td></td>
<td>• Session 1: Boundary Surveys, inventory plots and sampling</td>
</tr>
<tr>
<td></td>
<td>• Session 2: Field training on surveying techniques, equipment and calculations</td>
</tr>
<tr>
<td></td>
<td>• Session 3: GPS, topographic maps and satellite imagery</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Day 5</th>
<th><strong>Plants</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Session 4: Introduction to mixed deciduous forest species</td>
</tr>
<tr>
<td></td>
<td><strong>Ecology</strong></td>
</tr>
<tr>
<td></td>
<td>• Session 7: Succession from grassland to riverine forest</td>
</tr>
<tr>
<td></td>
<td>▪ Role of rhinos and wild boar</td>
</tr>
<tr>
<td></td>
<td>▪ Role of fire</td>
</tr>
<tr>
<td></td>
<td><strong>Forest Measurements</strong></td>
</tr>
<tr>
<td></td>
<td>• Session 4: Classroom exercise: introduction to stereo photo interpretation</td>
</tr>
<tr>
<td></td>
<td>• Session 5: Estimate standing biomass of timber.</td>
</tr>
<tr>
<td></td>
<td>• Session 6: Complete surveying, plot identification and map preparation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Day 6</th>
<th><strong>Plants</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Session 5: Field trip to Baghmara; Agricultural and degraded plant communities</td>
</tr>
<tr>
<td></td>
<td><strong>Ecology</strong></td>
</tr>
<tr>
<td></td>
<td>• Session 8: Introduction to community forestry</td>
</tr>
<tr>
<td></td>
<td>• Session 9: Cattle and rhino impact on plant communities</td>
</tr>
<tr>
<td>Day 7</td>
<td>Day off</td>
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</tr>
<tr>
<td>Day 8</td>
<td>Ecology</td>
</tr>
<tr>
<td></td>
<td>- Session 10: Rhinos and civet cats as landscape architects</td>
</tr>
<tr>
<td></td>
<td>- Field exercise: survey plant diversity in rhino latrines and in different age riverine forest stands</td>
</tr>
<tr>
<td>Day 9</td>
<td>Forest measurement</td>
</tr>
<tr>
<td></td>
<td>- Session 7: Review methods for estimating forest carbon with communities user groups (all day workshop conducted by ICIMOD)</td>
</tr>
<tr>
<td>Day-10</td>
<td>Plants</td>
</tr>
<tr>
<td></td>
<td>- Session 6: Introduction to dry dipterocarp (sal) forest species</td>
</tr>
<tr>
<td></td>
<td>Forest Measurements</td>
</tr>
<tr>
<td></td>
<td>- Session 8: All day field trip to measure sal forest biomass on an elevational transect from the alluvium to the Churia Hills; will examine the impact of soils, drainage and elevation on sal forest productivity</td>
</tr>
<tr>
<td>Day-11</td>
<td>Plants</td>
</tr>
<tr>
<td></td>
<td>- Session 7: Review plants; study for plant final</td>
</tr>
<tr>
<td></td>
<td>Preparation for presentation and develop a measurement report</td>
</tr>
<tr>
<td></td>
<td>Students will prepare a report including an analysis and a summary of the overall condition of the community forest they select to study. They will identify management recommendations which they will present to the communities on day 13.</td>
</tr>
<tr>
<td>Day 12</td>
<td>Forest measurements</td>
</tr>
<tr>
<td></td>
<td>- Session 9: Data analysis: Calculation of volume, density and harvestable amounts for each sal forest plot</td>
</tr>
<tr>
<td></td>
<td>Plants</td>
</tr>
<tr>
<td></td>
<td>- Session 8: Plant final exam</td>
</tr>
<tr>
<td>Days-13-14</td>
<td>Forest measurements</td>
</tr>
<tr>
<td></td>
<td>- Session 10: Field trip to community forest in Madi Valley</td>
</tr>
<tr>
<td></td>
<td>- Students will work with a Madi Valley community forest team to map and inventory a community forest using recently developed Nepalese protocol for measuring forest carbon.</td>
</tr>
<tr>
<td></td>
<td>- A general assembly of the community forest user group will be organized with the 4 CFUGs in Madi Valley to discuss forest measurement and management issues. Communities will discuss their forest management</td>
</tr>
</tbody>
</table>
objectives and future forest management plans based on the results of the measurements and recommendations

<table>
<thead>
<tr>
<th>Day 15</th>
<th>Day off</th>
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</thead>
<tbody>
<tr>
<td>Day 16</td>
<td>Community forestry project planning (all day session; user groups will stay overnight)</td>
</tr>
<tr>
<td></td>
<td>- Students will meet with 3 user group committees from Madi Valley, Kumrose, and New Padampur to begin planning forestry aspects of the final community forestry project</td>
</tr>
<tr>
<td></td>
<td>- User group members and students will have dinner and informal discussions</td>
</tr>
<tr>
<td>Day 17</td>
<td>Each user group/student team will present their proposed project plan</td>
</tr>
</tbody>
</table>

| Plant List |
| --- | --- | --- |
| Species | Nepalese name | vegetation type |
| 1 | Acacia auricoloformis | tree |
| 2 | Acacia catechu | khayer |
| 3 | Acacia nilotica | Babool |
| 4 | Adina cordifolia | Haldhu |
| 5 | Albizia lebbeck | Kalo siris |
| 6 | Albizia spp. | Siris |
| 7 | Alnus nepalensis | Utis |
| 8 | Anogeissus | Banjhi |
| 9 | Artocarpus lakoocha | Badhar |
| 10 | Arundinella spp | tree |
| 11 | Arundo donax | grass |
| 12 | Azadiracta indica | Neem |
| 13 | Bambusa spp. | grass |
| 14 | Bassia butyrasea | Chiuri |
| 15 | Bauhinia purpurea | tanki |
| 16 | Bauhinia | Koiralo |
| 17 | variegata | tree |
| 18 | Bombax ceiba | Simal |
| 19 | Cassia tora | tapri |
| 20 | Coffee bengalensis | shrub |
| 21 | Colebrookia oppositafolia | Dhursuli |
21 Cymbopogon spp  
22 Dalbergia sisos  
23 Eichhornia crassipes  
24 Eriathus ravennae  
25 Erythra arborescenes  
26 Eucalyptus camaldulensis  
27 Eucalyptus camaldulensis  
28 Eupatorium adenophorum  
29 Ficus insectoria  
30 Ficus semecordata  
31 Ficus semecordata  
32 Gmelina arborea  
33 Imperata cylindrica  
34 Largerstroemia parviflora  
35 Lemna perpusilla  
36 Leucaena leucocephala  
37 Litsea monopetala  
38 Mallotus philippensis  
39 Mikenia micrantha  
40 Morus alba  
41 Narenga porphyrocomata  
42 Nymphaea nouchali  
43 Phragmites kharka  
44 Pinus roxburghii  
45 Populus spp.  
46 Potamogeton nodosus  
47 Potamogeton crispus  
48 Prunus cerasoides  
49 Saccharum bengalense  
50 Saccharum spontaneum  
51 Sesbania grandifolia  
52 Shorea robusta  
53 Syzigium cuminii  
54 Terminali tomentosa  
55 Themeda spp  
56 Trewia nudiflora  
57 Typha angustifolia  
58 Zizyphus mauritanai
Student Learning Outcomes

This course will provide the following student learning outcomes:

7. **Can identify, define, and solve problems**: Students will work with local communities to start identifying management problems faced by Community Forestry User Groups (CFUGs) and work with those groups to explore solutions related to forest measurement – this course will prepare students for the final course of the semester.

8. **Have mastered a body of knowledge and a mode of inquiry**: This course will provide the students the background required to plan, implement and analyze natural resource measurement data with techniques relevant for forest measurement in general. This will be used as they continue to work with the communities and acquire additional knowledge and skills in natural resource and wildlife management and sustainability issues.

9. **Understand diverse philosophies and cultures within and across societies**: The students will work directly with community forest user groups to understand their attitudes and use of natural resources, adapting measurement techniques to best meet their needs.

10. **Can communicate effectively**: This course will provide students experience communicating through translators in a different culture. The course will also require students to work with communities to define their needs and prepare presentations and reports in a format relevant to the communities.

11. **Understand the role of creativity, innovation, discovery, and expression across disciplines**: The course, through the skills provided from different disciplines and the interaction with communities, will require the integration of the skills and knowledge gained over the semester and will challenge the students to be creative and innovative in exploring solutions to problems identified in local community management of natural resources.

12. **Have acquired skills for effective citizenship and life-long learning**: The students participation in a semester long study abroad program working closely with local communities to identify problems and use the skills they learn through coursework to address those problems will provide an applied approach to effective citizenship and initiate a lifelong process of learning and understanding of global issues. The participatory approach to working with communities and designing solutions can be especially useful as students pursue their chosen career paths.

Text and required readings:

Course readings will be available in a course reader or handed out in class and may be available on the course website. Additional readings will be posted on the course website.

Burk, Thomas E. August 2011. Measuring Forest Resources - FR 2104. Prepared for Cloquet Forestry Session I, University of Minnesota. (**This is the basic text for this course**)

Course 4

Sustainable Community Based Natural Resource Management
ESPM 3480/5480

Instructor: Dean Current (curre002@tc.umn.edu)
Location: Biodiversity Conservation Center
Chitwan National Park, Sauraha, Nepal

3 credits

Overview:
This 3-credit course, offered as part of the Nepal Semester Abroad Program in Spring of 2013 provides students the opportunity to learn the principles of natural resource based sustainable development in a developing country setting. The course presents international perspectives on sustainable resource use and management in developed and developing countries, including the integration of social, economic, and policy considerations related to natural resource management. Overviews of agriculture, forestry, agroforestry, non-timber forest products, water resources, forest product certification, and other development issues and options will be presented. The course uses an experiential learning approach and students will visit Community Forest User Groups (CFUGs) to learn about a variety of development interventions and their level of impact on the local communities including environmental, economic and socio-cultural impacts.

The instructor Dean Current, a Forest Economist with training in Anthropology has over twenty years of experience in natural resource based rural development in Central and South America and South and Southeast Asia, working with research projects and development projects. Guest speakers will be brought in during the semester to contribute relevant experience on specific issues and regions of the world.

Objectives:
- Provide an introduction to issues related to the use and degradation of renewable natural resources and the role they play in sustainable international development, integrating social and biophysical issues in development and comparing and contrasting those issues in developed and developing countries. Understand how socio-cultural, economic, and political factors often act as opportunities and constraints to sustainable natural resource based development. Understand the cultural and cross-cultural context within which international development efforts take place and how that influences pace, direction and success of development.

Class:
The class will run for two weeks and contain a mixture of class lectures, field exercises and data analysis and interpretation. There will be an emphasis on field work working closely with community forest user groups. Students will be able to visit community development projects related to tourism, education, community forest management, micro-credit, aquaculture among others in communities close to the Chitwan National Park.
Course emphasis:
The course aim is to provide students background that will allow them to observe and evaluate development efforts through a sustainable framework integrating the social, economic and environmental impacts of development efforts. Students will visit and observe development efforts and interview those involved in such efforts. Classroom lectures will provide the theoretical background as well as case studies from other regions of the world.

Methods:
- Hands on, experiential, teaching methods
- Students will learn theoretical aspects of sustainable natural resource based development in class before visiting and discussing efforts in one of the selected community forestry sites.
- Students will interact directly with local communities that have implemented development options.
- A final output/report will be prepared.
- Students will be assessed based on their performance in the field, there won’t be any final exam other than the preparation of the final report.

Graduate student paper:
Graduate students will be required to prepare an evaluation of one of the development options being undertaken in one of the communities. This will require planning interviews with participants, carrying out the interviews and preparing a report on the option.

Grading Standards

The course will be graded from A through F (with pluses and minuses). All exams, written assignments, and projects will be given a numerical grade, then converted to a weighted proportion based on the fractions to the left to calculate final grades.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Numerical Range</th>
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<tbody>
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<tr>
<th>Day</th>
<th>Activity</th>
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<tbody>
<tr>
<td>Day 1</td>
<td><strong>Principles of sustainable natural resource based development</strong>&lt;br&gt;  - Classroom training.&lt;br&gt;  - Visit to a community to discuss their development efforts.</td>
</tr>
<tr>
<td>Day 2</td>
<td><strong>Understanding sustainable resource management</strong>&lt;br&gt;  - Classroom training on sustainable resource management&lt;br&gt;  - Visit to community to discuss forest management plan and sustainability issues</td>
</tr>
<tr>
<td>Day 3</td>
<td><strong>Institutional issues in sustainable development/governance</strong>&lt;br&gt;  - Classroom training – Institutional structure of community forestry and government and international agencies involved in development&lt;br&gt;  - Visit to community forestry to discuss governance, equity and pro-poor development activities</td>
</tr>
<tr>
<td>Day 4</td>
<td><strong>Role of participation in sustainable development</strong>&lt;br&gt;  - Classroom training and discussion&lt;br&gt;  - Field visit to community forestry user group</td>
</tr>
<tr>
<td>Day 5</td>
<td><strong>Adoption issues in sustainable development</strong>&lt;br&gt;  - Classroom training and discussion&lt;br&gt;  - Evaluation of a development intervention using characteristics of an innovation</td>
</tr>
<tr>
<td>Day 6</td>
<td><strong>Water issues in sustainable development</strong>&lt;br&gt;  - Classroom training and discussion&lt;br&gt;  - Visit to New Padampur to discuss water issues related to resettlement and how they are being addressed by the community.</td>
</tr>
<tr>
<td>Day 7</td>
<td><strong>Payments for environmental services – options for community forestry</strong>&lt;br&gt;  - Classroom training and discussion&lt;br&gt;  - Visit to communities to discuss REDD</td>
</tr>
<tr>
<td>Day 8</td>
<td><strong>Market based conservation – issues and options</strong>&lt;br&gt;  - Classroom training and discussions&lt;br&gt;  - Natural resource based enterprises in local community forestry/tourism, NTFP’s</td>
</tr>
<tr>
<td>Day 9</td>
<td><strong>Field day – Assessment of selected development interventions using sustainability framework</strong>&lt;br&gt;  - Students will visit community forest user groups to assess a selected development intervention. Will include interviews with participants and administrators as well as observation.</td>
</tr>
<tr>
<td>Day 10</td>
<td><strong>Preparation and presentation of final reports</strong>&lt;br&gt;  - AM: Report and presentation preparation&lt;br&gt;  - PM: Presentation of results of assessment and discussion</td>
</tr>
</tbody>
</table>
Calendar: Assignments, Quizzes, and Exams: (Actual order might change)

<table>
<thead>
<tr>
<th>No.</th>
<th>Assignment and Explanation</th>
<th>Assigned to: and Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Individual definitions of sustainable development</td>
<td>Individual</td>
</tr>
<tr>
<td>2</td>
<td>Gender, equity and governance in community forestry</td>
<td>Group</td>
</tr>
<tr>
<td>3</td>
<td>Survey of forest product use in communities</td>
<td>Group</td>
</tr>
<tr>
<td>4</td>
<td>Survey of forest products in the marketplace</td>
<td>Group</td>
</tr>
<tr>
<td>5</td>
<td>Perceptions of payments for environmental services in communities</td>
<td>Group/individual</td>
</tr>
<tr>
<td>6</td>
<td>Assessment of role and sustainability of a forest product</td>
<td>Group</td>
</tr>
</tbody>
</table>

Attitude and field performance

The success of field projects depends on effective cooperation, planning, coordination in processing data, and communicating results. Virtually any professional evaluation you encounter in a natural resource agency scenario will take your performance in these areas into account. Performance evaluation for this course will reflect this by taking into account your field skills, communication skills, and your ability to work in a team.

Overall Course Evaluation

The contribution of each element of the course will weigh towards your final grade as follows:

<table>
<thead>
<tr>
<th>Course Element</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition of sustainable development</td>
<td>10</td>
</tr>
<tr>
<td>Observation of gender, equity governance</td>
<td>10</td>
</tr>
<tr>
<td>Survey of forest product use</td>
<td>15</td>
</tr>
<tr>
<td>Survey of forest products in markets</td>
<td>15</td>
</tr>
<tr>
<td>Perceptions of PES</td>
<td>10</td>
</tr>
<tr>
<td>Sustainability assessment</td>
<td>30</td>
</tr>
<tr>
<td>Attitude and Field Performance</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>
Student Learning Outcomes
This course will provide the following student learning outcomes:

1. **Can identify, define, and solve problems**: Students will be provided a sustainability framework as a tool to assess sustainability of development efforts. The framework will help the students assess potential sustainability problems and a path to addressing them within the sustainability framework.

2. **Have mastered a body of knowledge and a mode of inquiry**: This course will provide the students the background on how sustainability can be used as a means to assess the ability of development interventions to succeed. An integrated social, economic, and environmental assessment provides a unique mode of inquiry.

3. **Understand diverse philosophies and cultures within and across societies**: The students will work directly with community forest user groups to understand their attitudes and use of natural resources, and their attitudes towards sustainability criteria in practice.

4. **Can communicate effectively**: This course will provide students experience communicating through translators in a different culture. The course will also require students to prepare presentations and reports using a sustainability framework.

5. **Understand the role of creativity, innovation, discovery, and expression across disciplines**: The course, through the skills provided from different disciplines and the interaction with communities, will require the integration of the skills and knowledge gained over the semester and will challenge the students to be creative and innovative in exploring solutions to problems identified in local community management of natural resources.

6. **Have acquired skills for effective citizenship and life-long learning**: The students participation in a semester long study abroad program working closely with local communities to identify problems and use the skills they learn through coursework to address those problems will provide an applied approach to effective citizenship and initiate a lifelong process of learning and understanding of global issues. Using a sustainability framework combined with a participatory approach to working with communities and designing solutions can be especially useful as students pursue their chosen career paths.
Text and required readings: (Preliminary)

(Note: students will receive a fairly thorough explanation of community forestry in Nepal in the first course during the semester so the readings will include Nepal cases but will concentrate on efforts outside of Nepal for comparative purposes.)


Course 5

An ecosystem service and socio-economic assessment of 4 community forests

FW 4391/5392

Instructor: Narayan Dhakal and others
Location: Biodiversity Conservation Center
Chitwan National Park, Sauraha, Nepal and surrounding Community Forests

3 credits

Goal:
This capstone will rely on the skills acquired in CFAN 3840, FW 4391/5392, FR 3480, and ESPM 3480/5480. It will be an active learning experience which will assess 3-4 community forests with respect to ecosystem services, biodiversity conservation, and sustainable forest management with objectives jointly defined by students and community forest user groups.

Overview:
This course will explore the potential outcomes of different management scenarios and the issues and constraints that create challenges in conservation. This will be accomplished with the active participation of community forest user groups throughout. The course will provide students the opportunity to study the human dimensions of biodiversity conservation and sustainable natural resource management. It will focus on the social and cultural aspects of sustainable natural resource management in community forests in and around the Chitwan National Park in Nepal. Students will review published peer reviewed journal articles related to integrated human and nature systems including subjects such as human dimensions of natural resources management, human ecology, bio culture, and climate change adaptation. The majority of the course will require that student groups work with community forestry user groups (CFUGs) to develop a project incorporating the skills learned in the previous courses to address a need identified by the CFUG.

Objectives:
- Integrate the skills and knowledge students acquire through previous coursework to design and carry out a project that addresses a need/problem identified through a participatory process with the CFUG.
- Provide an opportunity for students to work in teams coordinating with local communities to develop their problem solving skills around natural resource management issues.
- Provide students a practice based understanding of international conservation problems and challenges through an experiential learning approach.

This course will also serve as a window to view the development countries social, economic and cultural issues, challenges and development aspirations. It will suggest solutions to solve often complex social, economic and environmental problems. Gaps between conservation theory and practices will be discussed as students are guided to design research that produces an outcome to address those gaps. Issues like how poverty and inequitable economic benefit distribution effects conservation of endangered species and how this problem can be mitigated. The course will place emphasis on valuing biodiversity through an
experiential learning approach. Students will be encouraged to think “out of the box” to understand global environmental conservation and climate change adaptation issues and explore potential solutions.

**Potential topics:**
- Analysis of existing conservation policies in practice
- Compiling a forest inventory of standing timber
- Determine the sustainable yield of non-timber, minor forest products
- Estimate per ha forest carbon storage
- Estimate the quantity, quality, and value of water resources under different management scenarios
- Determine the status of biodiversity within each CFUG with a special emphasis on tigers and their prey
- Analyze the economic impact of forest based enterprises on different community forest stakeholders (e.g. gender, ethnic and socio-economic groups)
- Explore how conservation & economic incentives influence land management
- Research the implications of the process of distribution of economic incentives
- Measure the impact of voluntary resettlement and community engagement in post resettlement conservation
- Engage in participatory planning and management to promote conservation and community benefits.
  - Explore how international conservation rules and regulations are or are not supporting conservation efforts and issues for successful implementation of conservation efforts.

**Planning the Project**
Students will work with the CFUGs and the course teaching team to identify a project. All possible data bases on conservation and human development and their sources will be made available. The teaching team will assist the students and CFUGs in defining a topic. After the student group working with the CFUG has identified a suitable project and that is approved by the teaching team, the student groups will work with the CFUG to complete the Project.

**Methods of Data Collection**
Data will be collected either on data sheets, notebooks, or entered into a class spreadsheet. With the help of an interpreter, students can interview local households to know hands on people perspectives in conservation. Data will be shared via a local wireless and students will have access to the internet. Each student will be expected to have her/his own laptop.

Student will submit final group report on research concepts, methods, results, discussion and conclusion. Due date for research report will be determined after the consultation with the faculty and students. Students will submit final project report after incorporating comments that comes during their report presentation.

**Overall Course Evaluation**
The contribution of each element of the course will weigh towards your final grade as follows:
Skills in working with other Nepalese and American members of the project 10 %
Project preparation, field work and data analysis for the final report 60 %
Presentation of report to the local community and to members of the forest and wildlife depts. 30 %
Required Activities throughout the course

The student groups must prepare a final report as well as presentations to the CFUG they work with and the National Trust for Nature Conservation. The course coordinator / instructor / faculty will review the project and grade them. When the student has completed the required hours of fieldwork, the student will submit a report of at least 1,500 words that describes what the student has learned. The student will submit this report, along with a complete journal, to the course coordinator by the date due specified.

Student Learning Outcomes

This course will provide the following student learning outcomes:

7. **Can identify, define, and solve problems**: Students will increase their understanding of the complex ecological and economic problems in a developing country using a participatory approach working with local communities to define and use data gathering techniques learned throughout the semester to be able to suggest potential solutions.

8. **Have mastered a body of knowledge and a mode of inquiry**: The students’ participation in this particular course is closely linked to coupled human nature system research techniques. Students will learn how wild animal movements, such as tiger and rhino effects the livelihoods of the population living in human dominated biodiverse landscapes. This particular course will provide students experience with a participatory approach to inquiry and problem solving.

9. **Understand diverse philosophies and cultures within and across societies**: The students will work directly with community forest user groups to understand their attitudes and use of natural resources, and their way of interacting with their natural environment and the values they assign to that environment and the products and services that it provides.

10. **Can communicate effectively**: This course will provide students experience communicating through translators in a different culture. Direct communication and negotiation with the CFUGs will provide an excellent learning experience. The course will also require students to prepare presentations and reports that will be presented to the communities and Nepali natural resource professionals.

11. **Understand the role of creativity, innovation, discovery, and expression across disciplines**: The course, through the skills provided from different disciplines and the interaction with communities, will require the integration of the skills and knowledge gained over the semester and will challenge the students to be creative and innovative in exploring solutions to problems identified in local community management of natural resources.

12. **Have acquired skills for effective citizenship and life-long learning**: The students participation in a semester long study abroad program working closely with local communities to identify problems and use the skills they learn through coursework to address those problems will provide an applied approach to effective citizenship and initiate a lifelong process of learning and understanding of global issues. Using a sustainability and problem solving framework combined with a participatory approach to working with communities and designing solutions can be especially useful as students pursue their chosen career paths.
Online Resources and References

1. National Trust for Nature Conservation
2. The Central Bureau Statistics, Nepal
3. Federation of Community Forest Users, Nepal
4. Department of National Parks and Wildlife Conservation
5. Ministry of Forest and Soil Conservation
6. District Development Administration, Chitwan
7. Bird Education Society
8. Green Society Chitwan

Following are references that give insights to the subject area that are covered during the course:


Thank You