Environmental Research Methods and Ethics

ENVI 3500 (4 credits / 60 class hours)

SIT Study Abroad Program:
Tanzania: Wildlife Conservation & Political Ecology

Course Description
This course, taught by the academic director and Tanzanian experts, assists students in learning effectively while living in another culture and challenges them to go beyond the familiar confines of the home campus by taking full advantage of field opportunities. The concepts and skills developed in the seminar underlie and reinforce all other program components. The seminar begins with an initiation to field study techniques during orientation and continues throughout the program. Emphasis is placed on grappling with cultural and ecological differences in addition to ethical considerations with regard to recording, interpreting, and analyzing information from primary sources. Discussions, field exercises, and work journal assignments focus on observations (both social and ecological) and their subsequent analysis. The scientific method is also addressed, with assignments requiring collection and analysis of data from the natural environment and compared and contrasted to qualitative (primarily PRA) techniques. The course facilitates students’ subsequent development of an in-depth Independent Study Project (ISP) primarily based on information obtained from primary sources. Formal classroom lectures total approximately 30 hours, with an additional 95 hours of related educational excursions and self-directed activities.

Course Objectives
The Environmental Research Methods and Ethics course (ERME) encompasses 60 academic hours (4 credits) and its main objectives are as follows:

- To become aware of approaches to field methodology and to develop a sense of what can be learned and how it can be learned outside the classroom;
- To offer insight into culturally appropriate, ethically-sound and environmentally sustainable field methodologies;
- To begin to integrate knowledge gleaned from the Wildlife Conservation and Political Ecology Seminar into Independent Study Project (ISP) ideas; and
- To develop an understanding of the practical aspects and challenges of arranging a research project, utilizing the unique human and physical resources available in Tanzania.

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Learning Outcomes
By the end of the course, students will have the ability to:

- Compare and contrast social science research methodologies (in-depth interviewing, questionnaires, focus groups and surveys) and Participatory Rural Appraisal (flow diagrams, participatory observation, transect walks, etc) with emphasis placed on critical cultural analysis and ethical considerations in working with research subjects;

- Evaluate a variety of ecology and field biology data collection skills, including transects, quadrats, Point Center Quarter (PCQ), animal behavioral studies (scans and follows), census taking, ecological assessment techniques; and interpret primary data in relation to the scale-defined levels that are connected to the structure & functioning of an ecological system and a range of conservation strategies;

- Apply and critique basic statistical analyses, e.g. standard error of the mean, confidence limits, $t$-tests, ANOVA, Chi-Square, correlations and regressions, etc. in project evaluation and problem solving; and

- Select and justify an understanding of appropriate methodologies used to carry out a 30-day Independent Study Project (ISP) utilizing the unique human and physical resources available in Tanzania.

Course Requirements

Readings
You are responsible for all the required readings, and should be prepared to bring them to bear on discussions in class. The readings will help you place the classes in their context, to challenge and engage lecturers, to generate questions for class discussions and to deepen your knowledge of particular aspects discussed in class. They are not necessarily tailor-made for each and every class.

General Required Readings


Evaluation and Grading Criteria

Environmental Research Methods and Ethics (ERME) Assignments
Timely completion of all ERME assignments is expected. Late hand-ins will be penalized. All assignments are evaluated according to organization, analytical quality, depth of understanding, argumentation and presentation of evidence.

Written Assignments 40%

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Observation Journal  30%
Oral Presentations  20%
Participation  10%

- Written assignments include cultural analysis papers, participant and non-participant observation assignments, Arusha drop-offs and market excursions, reports for field labs, and assignments collecting ecological data from Tarangire, Ngorongoro, Serengeti, Ndarakwai and Mazumbai Forest Reserve.
- Students are required to keep a field study observation journal that documents field methodology in social and natural sciences, experiences, and cultural analyses.
- Participation in class refers to attendance, punctuality, attentive listening and active engagement in all Academic Seminar lectures, discussions, field trips and other activities. It also means polite and respectful behavior.

Grading
Written assignments will be graded on style and form, content, depth of analysis, and understanding of readings and lectures as demonstrated by their appropriate incorporation into assignment. Participation will be graded by observing attendance, attitude, preparation, active involvement in class discussions and question and answer sessions with lecturers, and culturally appropriate behavior on excursions and with guest lecturers.

Grading Scale: The grading scale for all classes is as follows:

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<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
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<tr>
<td>94-100%</td>
<td>A</td>
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<tr>
<td>90-93%</td>
<td>A-</td>
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<tr>
<td>87-89%</td>
<td>B+</td>
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<tr>
<td>84-86%</td>
<td>B</td>
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<tr>
<td>80-83%</td>
<td>B-</td>
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<tr>
<td>77-79%</td>
<td>C+</td>
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<tr>
<td>74-76%</td>
<td>C</td>
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<tr>
<td>70-73%</td>
<td>C-</td>
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<tr>
<td>67-69%</td>
<td>D+</td>
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<tr>
<td>64-66%</td>
<td>D</td>
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<td>below 64</td>
<td>F</td>
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Grading Criteria
An “A” grade for an assignment entails superior (not just “very good”) performance in terms of structure and organization of assignments, analysis, logical argumentation and consistency, and the provision of factual, numerical and/or historical evidence. In terms of Class Participation, an “A” grade refers to full attendance, punctuality, attentive listening and active engagement in all lectures, discussions, field trips and other activities. It also means polite and respectful behavior. The level, frequency, and quality of the students’ participation will be monitored and taken into account. The assessment tools include a portfolio design with a matrix. Written assignments include cultural analysis papers, participant and non-participant observation assignments, Arusha drop-offs and market excursions, reports for field labs, and assignments collecting ecological data from Tarangire, Ngorongoro, Serengeti, Ndarakwai and Mazumbai Forest Reserve. Students are required to keep a field study journal that documents field methodology in social and natural sciences, experiences, and cultural analyses. Students are evaluated based on participation in seminar activities, written assignments, and the observation journal. Final grades are assigned by the academic director using a rubric format.

Program Calendar

Field Activities for this course
*This syllabus is representative of a typical semester. Because courses develop and change over time to take advantage of unique learning opportunities, actual course content varies from semester to semester.*
• Socio-cultural Field Skills: In-depth interviewing, participant observation, surveys/questionnaires, critical analyses, and journal writing; with discussions centering on globalization, modernization/development, livelihoods, gender, political economy, rights and power & privilege; experiential-learning activities take place in the Homestays and in the villages around the National Parks, the Ngorongoro Crater Conservation Area and Mazumbai Forest Reserve.

• Ecological Field Skills: Short field-labs at Ndarakwai studying bird ecology, vegetation analysis, human ecology, and other eco-topics; 2) a 6-day short course in tropical forest ecology at the Mazumbai Forest Reserve; and 3) a 12-day field practicum at Tarangire National Park, Serengeti National Park and the Ngorongoro Crater Conservation Area including: bird and mammal identification and ecology; field study teams - population dynamics, anti-predator behaviors, resource partitioning of ruminants & non-ruminants, interspecific interactions, etc.

Specific Social Science Field Skills
• Natural Resource Management Issues at Mayo Village
The students are divided into groups and focus on various aspects of remote village life near a Government Forest Reserve (protected) and a village forest reserve (open access). Aspects include: wood product uses, water conservation, agricultural practices, indigenous medicine, gender relations, etc. The student groups (@ 4-5 students) are free to decide and spend the morning discussing the issue with a Tanzanian expert before entry into the village. Using participant observations and a group-designed instrument, the students inquire into their selected topic. Evaluation consists of a 30-minute group presentation and a general forum discussion.

• Participant Observations & Focus Groups at Maasai Homestay, Lake Natron
The students spend three nights and four days in a Maasai boma (family encampment) in a remote part of north-central Tanzania. The students are placed in their boma on an individual basis. The families are simply instructed to “treat the student as one of their children”. The students have an introductory lecture/discussion with the local village elders on the history of the Maasai peoples and the natural resource management in the area. The students are encouraged to go into the experience with a minimal amount of material possessions, i.e. no cameras, music, a few clothes, etc., to more fully immerse in the stay. A full-day processing session includes: 1) gender and age set discussions with Maasai; 2) writing time to record experience into their personal journals; and 3) a group discussion on the experience and specifically indigenous rights. The students also have an opportunity to climb a live volcano, Ol’doniyolo Lengai, the Maasai “mountain of God”.

Specific Natural Science Field Skills
• Field Labs at Ndarakwai
To introduce the Independent Study Project, the students carry out several mini-field labs during Orientation at Ndarakwai. All labs consist of an introductory lecture on how they could be used in conducting field studies, a primary data collection component, a brief written/analysis section and a post-lab general discussion. The three labs are: ethnobotany, bird identification, and vegetation analysis in relation to Maasai rangeland ecology.

• Tropical Forest Ecology at Mazumbai
The idea is for students to begin to understand the ecological and conservation factors that are affecting the Forest Reserve System of Tanzania. While we are at Mazumbai,

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students conduct the following: An “Introduce Yourself” to the Forest Exercise: Using some Poetry and a Chapter from Tom Brown, students spend the morning alone in the tropical forest getting to know each other; An Educational Hike/Lecture: Students use a Chapter from Terborg’s “Diversity and Tropical Forests” and have a 4-5 hour walk/talk/questions hike to the top of the Reserve (@2000m a.s.l.); Three Tropical Forest Exercises: Working alongside Tanzanian foresters, students spend the mornings in the forest collecting various kinds of data, e.g. micro-spatial and temporal data, indices of organization, Simpson’s Indices of Diversity, vertical stratification, etc. In the afternoon the groups will analyze the data, prepare a written assignment and be ready in the evening to present and discuss their findings to everyone.

- **Field Study Module in the National Parks**
  The idea is to begin to appreciate the behavioral ecology of African mammals in relation to conservation efforts surrounding the National Park systems of northern Tanzania. The objective of this first part of the Field Study Module is: To begin to examine the human-wildlife interface and get students started with learning some basic census & behavior techniques used by scientist and managers. Without data on population sizes, densities, and distributions (both spatially & temporally) that students gain through censuses, and a good knowledge of the species’ behavioral ecology and life history, they are not in a position to properly manage the animals in an area, or to understand how changes in their environment, like poaching or habitat loss, are affecting them. The main question is: How is social organization & behavior affected by habitat?

**Field Activities:** Each day the (4) Field Study Teams (FST) are given a field study assignment complimented by a brief intro to the assignment – included in the intro are the whys and hows of the method, the method itself & a data collection sheet.

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<thead>
<tr>
<th>Birds</th>
<th>Ruminants, Non-Ruminants &amp; Elephants</th>
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<tbody>
<tr>
<td>Road Counts</td>
<td>Road Counts</td>
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<tr>
<td>Timed Species Counts</td>
<td>Focal Scans/Animal Follows</td>
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After each assignment, students come back to camp and do some calculations in the Results and Analysis Section of their FST Journal, prepare Visual Aids (VAs), and go over some prepared questions to be recorded in the Background Information Section of the FST Journal. The groups then come together to share VAs and have an “open” discussion with Tanzanian experts - both Park officials and locals - about how the results could relate to behavioral ecology and management.

**Serengeti Section:** Students focus on behavior (ethograms) in this part of the FST Project - how behaviors could be related to mating systems, anti-predator systems, social organization, feeding ecology, etc. – they use the background information and further readings to decide on the ethogram.

In the SNP, they collect the data on 3 separate outings in the Raw Data Section of the FST Journal. When they get back to Arusha, they have a few days to prepare a 30-minute PowerPoint presentation covering the SNP Portion of the FST Project only, i.e. using their ethogram, an Outline of Presentation, Background Information, Methods w/ analysis, Study Question(s) w/ predictions, Results & Discussion, and finish with Biases/Limitations/Recommendations and Conclusion. Note: There is no written component of the FST Project.

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Student Expectations

Class Participation
Participation in class refers to attendance, punctuality, attentive listening and active engagement in all Academic Seminar lectures, discussions, field trips and other activities. It also means polite and respectful behavior.

Please refer to the SIT Study Abroad Handbook for policies on academic integrity, ethics, warning and probation, diversity and disability, sexual harassment and the academic appeals process. Also, refer to the specific information available in the Student Handbook and the Program Dossier given to students at Orientation.

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