Environmental Research Methods and Ethics

ENVI-3500 (4 credits)

Tanzania: Zanzibar Coastal Ecology and Natural Resource Management

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.

Course Description
The Research Methods and Ethics Seminar prepares students to learn and conduct research effectively in a non-traditional environment. It provides experience with environmental and wildlife field study techniques and facilitates students’ development of a well-designed Independent Study Project. Course content emphasizes understanding the ecosystems, wildlife, and human-environment context as fundamental to fieldwork. The course teaches environmental field methods, skills, and tools: maps, compasses, and orienteering; environmental (terrestrial and marine) survey; behavioral observation of a range of wildlife using a wide range of techniques include animal count, focal and scan sampling, pitfall and camera trapping, mist-netting and point count, among others. On anthropology, the course teaches field methods that include interviewing techniques, focal group discussion, and participatory approaches. Students also engage with record keeping, statistical analysis, interpretation, and presentation of primary data linked to environments and wildlife. Through excursions and field assignments, the course introduces and critically employs scientific methods appropriate to the program theme. The course also explains the Institutional Review Board (IRB) process necessary for student research clearance and adequately prepares students to develop a feasible and ethical Independent Study Project (ISP).

Course Learning Outcomes
At the end of the Environmental Research Methods and Ethics Seminar (RME), students will be able to:

- Show informed awareness of environments, species, and the practicalities of field research in Tanzania, including reciprocity with communities;
- Formulate a research question and develop a scientific research design;
- Demonstrate skill in the use of essential field tools, e.g. for orienteering;
- Apply key field methods to collect primary data in ecology, society, and natural resource management;
• Apply appropriate statistics to analyze and represent data;
• Show familiarity with the IRB process and ethically-sound field research;
• Demonstrate a critical understanding of past student ISPs and local field studies; and,
• Develop an appropriate, focused, sound, and feasible proposal for an Independent Study Project (ISP).

Course Requirements
Students participate in activities and reflexive discussions to learn the methods and ethics appropriate to the theme of ecology, wildlife, and natural resource management in Tanzania. For their Independent Study Project (ISP) proposal and presentation, students apply the methods, skills, and tools learned in the Research Methods and Ethics course. The Academic Directors evaluate student participation and assignments based on timeliness, completeness, depth of thought, clarity of organization, application of methods and skills, quality of primary data, depth of analysis and interpretation, coherence of argument, and ethical practice.

Course Program
This course takes the form of topical modules that incorporate student activities and assignments:

Module 1: Human-Wildlife Interface in Tarangire-Manyara Ecosystem
This module introduces students to social science concepts and methods within Tarangire-Manyara ecosystem covering about 30,000 square kilometers. Field trips and excursions facilitate the collection of primary data in the context of human-wildlife interactions. Activities and discussion emphasize logistics, data collection tools and reviews of survey techniques. Students use survey techniques to record primary data on human-wildlife interactions. Students are split into Field Study Teams (FST) to collect, analyze, and present data on marauding animals, human demographics, social income generative activities, farming practices, mitigation measures, community perceptions toward wildlife conservation, and resource mapping. Presentations of the findings are made to the broader group.

Readings:
Module 2: Wildlife Interactions and Behavioral Ecology
This module is conducted in Tarangire-Manyara ecosystem, Ngorongoro Crater Authority Area and Serengeti National Park. It introduces students to natural science concepts and methods. Field trips and excursions facilitate the collection of primary data on animal behavior, species distribution, prey-predator interactions, and the vegetation mosaic. Students employ a range of techniques, including focal and scan sampling, animal counts, and camera traps to record data on wildlife interactions and animal environments. In Tarangire NP and Ngorongoro Conservation area, students are split into FSTs (i.e. ruminants, non-ruminants, and birds) to observe and gather data and then present findings to the broader group. While in Serengeti National Park, each FST designs a "mini-ISP" around one of the basic concepts of ecology – social organization as it relates to habitat. Each FST conducts a background review, devises a study question with predictions, gathers primary data, and analyzes and presents findings to the group in a FST oral presentation.

Readings:

Module 3: Coastal Marine Wildlife Environmental Research Methods
This module introduces students to essential marine environmental research concepts and methods in the near shore marine settings of Unguja Island. Excursions facilitate the collection of primary marine data in-context. Activities and discussions emphasize logistics,
field equipment, marine biodiversity inventories, census techniques for marine animals, and evidence of environmental impacts to wildlife and ecosystems. Students use traditional techniques and tools to record primary field evidence. Student teams analyze and represent data on corals, fish, echinoderms, mollusks, and other marine life.

Readings:

Module 4: Coastal Forest Wildlife Environmental Research Methods
This module introduces students to essential coastal forest environmental research methods. An excursion to Jozani-Chwaka Bay National Park and Biosphere Reserve on Unguja Island facilitates the collection of primary data on wildlife in both terrestrial and mangrove forests. Activities and discussions emphasize logistics, field equipment, orienteering, terrestrial biodiversity inventories, census techniques for terrestrial animals, behavioral studies, and evidence of environmental impacts to wildlife and ecosystems. Teams of students record primary field evidence and analyze and represent data on Red Colobus monkeys (P. kirkii), frogs, and understory birds.

Readings:

Module 5: Human-Environment Interface - Natural Resource Management, Ecotourism, and Wildlife Conservation in the Zanzibar Archipelago
This module emphasizes the relationship among humans, regional environments, and coastal wildlife. On Chumbe Island (off of Unguja Island) and Misali Island (off of Pemba Island), excursions address the successes and challenges of parks and private ecotourism ventures from multiple stakeholder standpoints, including those of coastal African communities. The group also studies relevant laws and policies, the governance of conservation entities (e.g., parks), the roles of local and foreign scientists, and inner workings and politics of parks development in the region. Students further consider the implications and ethics of research and reciprocity in East Africa.
Readings:

Course Readings
Reference articles and books (see above) are available from the program library and through SIT’s electronic library database.

Course Grading Distribution
Quizzes and Participation in Readings and Discussions - 20%
Terrestrial Wildlife Methods in Arusha - 25%
Marine and Terrestrial Wildlife Methods in Zanzibar - 25%
ISP Proposal and Presentation - 30%

Course Grading Scale
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Course Grading Criteria
All assigned grades take into account the students’ special circumstances and challenges as foreigner. An “A” grade entails superior (not just “very good”) performance in terms of accuracy, structure, and organization for assignments. An “A” grade refers to full attendance, punctuality, attentive listening, and active engagement in all language classes, field exercises, and other activities. It also means polite and respectful behavior. The frequency and quality of the students’ participation is monitored and taken into account.
**Disability Services:** Students with disabilities are encouraged to contact Disability Services at disabilityservices@sit.edu for information and support in facilitating an accessible educational experience. Additional information regarding SIT Disability Services, including a link to the online request form, can be found on the Disability Services website at [http://studyabroad.sit.edu/disabilityservices](http://studyabroad.sit.edu/disabilityservices).

**Student Expectations**
Please refer to the SIT Study Abroad handbook for policies on academic integrity, ethics, warnings, probations, diversity, disability, sexual harassment, and the academic appeals process. In addition, students should refer to information in the Student Handbook and the Program Dossier distributed during orientation.