School for International Training | 1 Kipling Road, PO Box 676 | Brattleboro, VT 05302-0676 USA
Tel 888 272-7881 | Fax 802 258-3296 | studyabroad.sit.edu

Environmental Field Studies Seminar

ENVI-3500 (4 credits)

Australia: Rainforest, Reef, and Cultural Ecology

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 Environmental Field Studies Seminar (EFSS) introduces students to the skills required to observe, interpret, and function appropriately within the range of Australian environments and cultural contexts encountered on the program. The EFSS runs concurrently with the Rainforest, Reef and Cultural Ecology Seminar (RRCES) but is most directly applied to the development and execution of the Independent Study Project. Lectures and hands on learning activities at ecologically significant sites in the Wet Tropics and Great Barrier Reef bioregions are designed to familiarize students with developing hypotheses, methods, and analytical approaches to field-based investigations in the natural and social sciences. Field techniques to study rainforest, coral reef, and cultural ecology are investigated in depth during three, week to ten day-long modules in the field, as well as during a week- long orientation trip and lectures at our home base in Cairns.

Hands on learning projects introduce students to field based learning in tropical Australia and include issues of risk minimization and safety in a field setting. Lectures and field projects stress the use of field observations and scientific literature in developing insightful and testable research questions and then documenting and analyzing ecological and cultural field data in a rigorous and responsible manner. A critical and analytical approach to the written and oral communication of research findings is emphasized to develop attitudes, work habits, methods, and techniques essential to the successful completion of field study in general, and an Independent Study Project specifically.

Learning Outcomes

Upon completion of the course, students will be able to:

- Demonstrate confidence and proficiency in the accurate collection and analysis of observational data in terrestrial and marine environments.
- Communicate results obtained from primary data collected in the field, either in written or presentation format, with proper attention to stylistic conventions and format.
- Describe the processes required for the successful development and implementation of a field-based research project.

Copyright © School for International Training. All Rights Reserved.

- Conduct and communicate a risk management plan to conduct field studies in a safe and responsible manner in natural and human built environments.
- Analyze the strengths and weaknesses of methodologies used to assess ecological and human systems.
- Demonstrate a capacity for self-guidance, establishment of priorities, and dealing with uncertainty in the execution of field studies.
- Execute ecological and sociological field studies in an ethically appropriate and culturally sensitive manner.

Language of Instruction
This course is taught entirely in English.

Course Schedule

**Please be aware that topics and excursions may vary to take advantage of any emerging events, to accommodate changes in our lecturers' availability, and to respect any changes that would affect student safety. Students will be notified if this occurs*

Orientation - Cairns, Port Douglas, and Atherton Tablelands (8 contact hours)
Over the course of the nine-day orientation period, students are required to make critical observations and formulate questions about the human and biotic communities we encounter. The geography of the Wet Tropics and Great Barrier Reef bioregions are emphasized as well as an introduction to the biophysical factors which dictate the distribution of the biota spatially.

Sample lectures: 'The Wet Tropics Bioregion: Geological History', 'The making of a Biodiversity Hotspot', 'Adaptive radiation: examining species traits and evolutionary characteristics at the Rainforest Habitat'

Assignments: Natural History Field Notebook journal entries

Cairns (9 contact hours)

During the two-week portion of the program in Cairns, students complete an ecological field project which assesses the interactions between birds and human habitation in the Cairns CBD and surrounds. Students gain a better understanding of the logistics of field based ecological studies in a tropical setting.

Sample lectures: 'Origins and Patterns of Distribution of Animals Within the Wet Tropics'

Required reading:
Taylor, L., Taylor, C., & Davis, A. (2013). The impact of urbanisation on avian species: The inextricable link between people and birds. *Urban Ecosystems*, *16*(3), 481-498.

Ambrose, H.W., D.J. Emlen, and K. Bright. (2002). *A handbook of biological investigation.* Winston-Salem, North Carolina: Hunter Textbooks Inc.

Assignments: Ecological Field Project: Suburban Bird Project.

Copyright © School for International Training. All Rights Reserved.

Cultural Ecology Field Module (5 contact hours)

The weeklong Aboriginal camping trip provides the backdrop for our analysis of socio-cultural settings and investigation of Aboriginal and western views of the environment, conservation, and the role of human beings in natural systems. Students continue their investigations into human behaviors and cultural systems on return to Cairns.

Sample lecture: 'Historic and contemporary Aboriginal Issues', 'Incorporation of indigenous knowledge into science'

Required reading:
Roberts, P., Buhrich, A., Caetano-Andrade, V., Cosgrove, R., Fairbairn, A., Florin, S. A., ... & Ferrier, Å. (2021). Reimagining the relationship between Gondwanan forests and Aboriginal land management in Australia's "Wet Tropics". *Iscience*, *24*(3).

Moggridge, B. J., & Thompson, R. M. (2021). Cultural value of water and western water management: an Australian Indigenous perspective. *Australasian journal of water resources*, *25*(1), 4-14.

Assignments: Essay based on indigenous land management knowledge systems.

Rainforest Field Module (22 contact hours)

On an eleven-day field trip entitled "Wet Tropics Bioregion: A Landscape Ecology Perspective" students visit a variety of sites in the Wet Tropics bioregion in order to develop skills related to understanding why certain plant and animal communities are found at sites, and how human land use impacts native ecosystems in the region.

Sample lectures: 'Habitat heterogeneity and managing for diversity in National Parks- Case study of Eubenangee Swamp National Park', 'Techniques for nocturnal arboreal mammal assessment'

Required reading:
Williams, S. E., & de la Fuente, A. (2021). Long-term changes in populations of rainforest birds in the Australia Wet Tropics bioregion: A climate-driven biodiversity emergency. *PLoS One*, *16*(12), e0254307.

De la Fuente, A., & Williams, S. E. (2023). Climate change threatens the future of rain forest ringtail possums by 2050. *Diversity and Distributions*, *29*(1), 173-183.

Assignments: Rainforest Field Project.

Coral Reef Ecology Field Module (22 contact hours)

Copyright © School for International Training. All Rights Reserved.

On a ten-day field trip entitled “Coral Reefs: Patterns and Processes” students investigate coral reefs from a variety of perspectives ranging from individual fish behavior and intra-specific interactions, to the biophysical parameters which determine the distribution, structure, composition, and conservation prospects of coral reef communities.

Sample lectures: ‘Introduction to techniques to study coral reefs and fishes’, ‘Invertebrate Identification, camouflage and habitat use’

Required reading:
Richardson, L. E., Graham, N. A., Pratchett, M. S., Eurich, J. G., & Hoey, A. S. (2018). Mass coral bleaching causes biotic homogenization of reef fish assemblages. *Global Change Biology*, *24*(7), 3117-3129.

Assignments: Marine Field Project.

Cairns - Synthesis of Seminar (1 contact hour)

In preparation for Independent Study Project field work, a review of work in the seminar is undertaken.

Required Reading:
Students are expected to read completely the following textbook which are provided to them upon arrival in country:

Ambrose, H.W., D.J. Emlen, and K. Bright. (2002). *A handbook of biological investigation.* Winston-Salem, North Carolina: Hunter Textbooks Inc.

Instructional Methods
This course is designed around the principle that learning is an active, holistic process that extends well beyond the classroom. Seminars introduce key concepts and interpretive frameworks that are then examined, complicated, and enriched through direct engagement with people, places, and contexts — field visits, expert briefings, guided observation, and community-based learning. Field-based learning is integrated into course design rather than treated as enrichment: faculty prepare students for each engagement, guide interpretation on location, and facilitate the reflection that connects experience to course themes. Students move through cycles of experience, observation, and analysis, progressively taking greater ownership of their own inquiry. This process is not always linear, and that is by design — developing the capacity to learn from unpredictable, context-dependent situations is itself a transferable skill and a foundation for lifelong learning.

Required Texts
See course schedule for a full list.

Assignments and Evaluation

Copyright © School for International Training. All Rights Reserved.

Assignment Descriptions and Grading Criteria

Ecological Field Project: Suburban Bird Project. Each student collects data on the abundance, composition and diversity of bird communities from the suburban habitats. They then make comparisons between bird community composition and habitat features such as vegetation structure, age, and dominant plant life forms. Students also read and critique two published scientific papers on the study topic, as well as two past SIT Independent Study Projects related to the topic. Students write up a short report detailing the background, aims, findings and potential implications of their work. The overall goal of this project is to introduce students to the local environment and biota, field study methods, and the ISP process.

Rainforest Field Project: During the last 2 days of the Rainforest field trip students undertake a field project in small groups of 2-3 people. The project requires at least 8 hours of observation and data collection in the rainforest and modified habitats on a topic of interest identified by the staff each semester. In conjunction with staff, students develop appropriate methods, and collect, analyze and interpret the results of their investigations. Findings from the projects are communicated in a write- up designed to be interpreted by the public.

Essay based on indigenous knowledge systems: This assignment focuses on a piece of research that challenges traditional views of ancient Gondwanan rainforests as pristine, untouched relics by arguing they are dynamic products of long-term Aboriginal land management practices, such as controlled burning and habitat mosaicking. Taking an essay approach, this assignment is an opportunity to critically engage with this research and to effectively synthesize ecological theory, Indigenous knowledge systems, and conservation policy. The goal is to develop skills in evidence-based critique and interdisciplinary integration.

Marine Field Project: During eleven days on Lizard Island, students undertake an individual project in which they are required to examine niche overlap and habitat associations between sympatric species of fishes located on the fringing reef in Watson's Bay. At the beginning of the week, buddy pairs of students work with the instructor to identify two focal species that they will study while snorkeling over eight, 2-hour, sampling periods. Students then analyze their results and write a written report in the format of a scientific paper.

Natural History Field Notebook: Each student is required to develop a relevant and up to date natural history notebook that documents and interprets ecological and sociological information collected during field excursions. Information should be presented in a written and pictorial manner. Points are given for thoroughness, organization, neatness, creativity, and depth and quality of analysis.

A full description of the expectations and assessment guidelines for each of these assignments can be found on Canvas.

Assessment

Copyright © School for International Training. All Rights Reserved.

Rainforest Field project	20%
Suburban Bird Project	20%
Indigenous Essay	15%
Marine Field Project	20%
Natural History Field Notebook	25%

Attendance and Participation

Participation is assessed based on consistent, informed engagement in class sessions, simulation activities, and experiential learning. This includes preparation for discussions, constructive collaboration within teams, responsiveness during simulations, and professional conduct during site visits and guest engagements. Students are expected to contribute thoughtfully, listen actively, and engage respectfully with peers and external partners throughout the course.

Consistent participation in classes, site visits, and required program activities is essential to the academic experience. Students are expected to participate fully and may not opt out of required components, as these activities are integral to course learning and collective discussion. If circumstances such as illness affect attendance, students must communicate promptly with the Program/Academic/Center Director or a designated staff member. Absences may affect academic performance and course grades, and repeated or unexcused absences may result in additional academic or programmatic consequences. When absences are unavoidable, alternative academic work may be required.

Late Assignments

Because this program integrates classroom learning with site visits and debriefs, assignments are designed to build on one another and connect directly to learning on location. *Timely submission is therefore important for maintaining continuity and full participation in the academic experience*. Extensions may be granted *in limited circumstances and on a case-by-case basis* with approval from the Center/Academic/Program Director or a designated staff member. Requests should be made in writing as early as possible and no later than 12 hours before the posted due date. Students are expected to communicate proactively if challenges arise. Work submitted after an approved extension period may receive a reduced or failing grade, depending on the circumstances.

Grading Scale

94-100%	A
90-93%	A-
87-89%	B+
84-86%	B
80-83%	B-
77-79%	C+
74-76%	C
70-73%	C-

Copyright © School for International Training. All Rights Reserved.

67-69%	D+
64-66%	D
below 64	F

Program Expectations
To support a respectful, engaging, and academically rigorous learning environment, students are expected to approach this program with professionalism, preparation, and openness. Because this is an intensive, field-based program, individual conduct directly shapes the quality of the shared academic experience.

- Attendance in all aspects of the scheduled program is mandatory. Failure to attend and participate in program components is grounds for probation and/or dismissal from the program.
- Show up prepared. The seminar is based on group learning so you must participate fully. Be on time for all lectures, workshops and field trips. There are many long days so you must be well rested and have a clear head and have your readings completed and points in mind for discussion or clarification. Reading and observation will be tested regularly with quizzes.
- Complete assignments on time. Assignments are due by 11pm unless otherwise instructed. Assignments are docked 5% for each day or part of a day that they are late. Contact the Center Director in advance if health or other issues prevent you from submitting an assignment on time. All assignments must be completed to get a passing grade. Graded assignments will be returned within two weeks of submission.
- The whole time we are on field trips we are in class. You are expected to act appropriately; including refraining from using mobile phones etc. You are also not allowed to drink alcohol on field trips until we are finished class for the day.
- Comply with academic integrity policies (no plagiarism or cheating, nothing unethical).
- Respect differences of opinion (classmates', lecturers, local constituents engaged with on the visits). You are not expected to agree with everything you hear, but you are expected to listen across differences and consider other perspectives with respect.

SIT Policies and Resources
Please refer to the SIT Study Abroad Handbook and the Policies section of the SIT website for all academic and student affairs policies. Students are accountable for complying with all published policies. Of particular relevance to this course are the policies regarding: academic integrity, Family Educational Rights and Privacy Act (FERPA), research and ethics in field study and internships, late assignments, academic status, academic appeals, diversity and disability, sexual harassment and misconduct, and the student code of conduct.

Credit Hours: School for International Training (SIT) adheres to the standard that 1 credit hour equals no less than 45 hours of coursework. The calculation is based on the standard 50-minute academic hour. The number of credits each course carries determines how many total hours each course involves in a semester. Of the 45-hours for 1-credit hour, one third is designated for direct faculty instruction. Direct faculty instruction includes all learning activities

Copyright © School for International Training. All Rights Reserved.

led by the faculty whether in the classroom or in the field — lectures, guest speakers, site visits, hands-on field activities, etc.
The full policy on credit hours can be found here.

AI Usage: SIT's policy on Generative AI and Academic Programs is included as an addendum to the academic integrity policy.

Please refer to the SIT Study Abroad Handbook and SIT website for information on important resources and services provided through our central administration in Vermont, such as Library resources and research support, Accessibility Services, Counseling Services, Title IX information, and Equity, Diversity, and Inclusion resources.

Copyright © School for International Training. All Rights Reserved.