



## Rainforest, Reef, and Cultural Ecology Seminar

ENVI 3000 (6 Credits / 90 class hours)

SIT Study Abroad Program:  
Australia: Rainforest, Reef, and Cultural Ecology

**PLEASE NOTE: This syllabus represents a recent 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 goal of the Rainforest, Reef, and Cultural Ecology Seminar (RRCES) is to introduce students to the natural and cultural values of the globally significant bioregions of Far North Queensland: the Wet Tropics and Great Barrier Reef World Heritage Areas. Through lectures and numerous field excursions to ecologically significant sites, we emphasize an understanding of key ecological patterns and processes involved in the evolution and biogeography of the region's diverse biota, and search for common principles that can be applied at the local, landscape and global scale. The course also analyzes the long-term protection and conservation strategies for the region's living resource base by considering Aboriginal and non-Aboriginal relationships to the land and sea country of the region. In addition, a wider range of topics, including human ecology, ecological economics, and politics enable students to acquire a broader understanding of the relationships between human actions and natural systems in Far North Queensland, in particular, and Australia in general.

The Rainforest, Reef, and Cultural Ecology Seminar (RRCES) is presented in close association with the Environmental Field Study Seminar (EFSS). The RRCES seminar provides students with access to a wide range of professionals, environments, and learning resources both in a classroom and field setting. It also provides traditional and field-based learning, and challenges students to synthesize observations from fieldwork with readings and lectures, and to use creativity and curiosity to question assumptions and generate original ideas. The themes of 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.

### Learning Outcomes

On successful completion of this course students will be able to:

- Summarize the important historical and contemporary ecological patterns and processes affecting the ecology of north Queensland's terrestrial and marine habitats and biota;

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- Explain the conservation implications of natural and anthropogenic disturbance regimes to Australian ecosystems in general and coral reefs, rainforest, and sclerophyll forest systems in particular;
- Discuss World Heritage listing as a conservation tool, and critically assess the strengths and weaknesses of the World Heritage concept as a means to protect natural and cultural assets of universal value to humanity;
- Demonstrate the roles that Aboriginals and non-Aboriginal Australians can play in the conservation and management of the Wet Tropics and the Great Barrier Reef World Heritage Areas;
- Operate responsibly, safely, objectively, and with ecological sensitivity in relation to natural environments;
- Apply an analysis of ecological, political, and economic considerations in order to critically evaluate the conflicts associated with conservation of biological diversity;
- Construct questions that promote inquiry and facilitate independent study;
- Integrate the content of formal lectures with current events, readings, and field experiences through written assignments and discussions.

## Language of Instruction

This course is taught entirely in English.

## Course Requirements

### 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.**

Each module of this course contains multiple sessions, exercises and/or assignments. Additional course content information is available upon request to: [studyabroad@sit.edu](mailto:studyabroad@sit.edu).

## Week 1 – Introduction to Natural and Human Systems: Cairns, Port Douglas, Atherton Tablelands (15 contact hours)

This module provides a background to the field based approach to integrating the topics of rainforest, reef and cultural ecology by focusing on each of these topics in the Cairns region. After a brief introduction to the logistics and rationale of the course in Cairns, we leave on a six day excursion and visit a number of sites which provide an introduction to the natural and human systems in the region. We focus our field trip in the watershed of the Barron River to introduce the concept of Integrated Catchment Management as a practical approach for illustrating the fundamental ecological connections between the globally significant terrestrial and marine systems within which the program operates. We also investigate the human communities found within the catchment and investigate how livelihoods may affect the rainforest and reef. Field excursions to local sites, national parks, Aboriginal tourism enterprises, and a day excursion to coral reefs, set the stage for the main themes of the program which are investigated in greater detail in the subsequent portions of the course.

Sample lecture: 'Introduction to interpreting natural and cultural values in the Wet Tropics World Heritage Area'

Required reading: Goosem, S. (2000). Landscape, ecology, and values. In G. McDonald and M. Lane (eds.) *Securing the Wet Tropics* (pp.14-31). Sydney, Federation Press.

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Assignments: Field Project Workbook – Port Douglas to Yungaburra landscape transect analysis.

### **Weeks 2 & 3 – Australia’s Biota and Human-Environment Interaction (20 contact hours)**

*Concurrent with homestay in Cairns*

Sessions in Cairns focus on building a knowledge base on the Australian environment and biota, as well as understanding local and national economic and political systems. We investigate the context and unique aspects of the evolution of Australia’s biota, and investigate how Australia’s environment has shaped human communities both pre- and post- arrival of Europeans. Lectures emphasize the history of Australia from a biophysical and human perspective and help to provide the basis for telling the story of how Australia came to be. Particular emphasis on the conservation of the Wet Tropics and Great Barrier Reef World Heritage Areas and their significance to the ecology and economies of Queensland are emphasized. We also look to understand how Australians can work to combat environmental degradation in an ecologically fragile country, in hopes of preserving Australia’s natural heritage in perpetuity. Field excursions to the Cairns Botanic Gardens help to illustrate concepts from the classroom.

Sample lectures: ‘Australian Bioregions and Wild Habitats’, ‘Ecology and Evolution of Australia’s Biota’, ‘Current environmental issues in Australia’

Required readings: Smith, D. (1990). *Continent in Crisis*. Ringwood, Victoria. Penguin Books Australian Ltd.; Archer, M. and B. Beale.(2004). *Going native: living in the Australian environment*. Sydney, Australia: Hodder Headline; Lindenmayer, D. (2007). *On borrowed time: Australia’s environmental crisis and what we must do about it*. Ringwood, Victoria: Penguin Books.

Assignments: Development of Focus Question topic; Flora and Fauna Expertise research for rainforest module; Quizzes.

### **Week 4 – Cultural Ecology Field Module (16 contact hours)**

This module is undertaken on a seven-day camping trip in which students travel to remote bushland with Aboriginal guides. The camping trip deeply immerses students in the outdoors in order to allow them to better experience an Aboriginal perspective toward Australia’s natural resources, history, culture, and contemporary social and environmental problems. Aboriginal culture was a spoken culture of stories, and so students’ learning is based on the principles of close observation, discussions, and firsthand experience, in order to acquire a better understanding of the First Australians’ intimate understanding of ecology, environmental management, and Aboriginal cultural conservation and restoration. These issues are of extreme importance, as government conservation authorities and agencies have placed increased importance on Aboriginal involvement in managing the natural systems of the Wet Tropics and Great Barrier Reef World Heritage Areas.

Sample lecture: Video: ‘Views of Colonisation of the Australian Continent.’

Required viewing: Pilger, J. (1985). *The Secret Country: The First Australians Fight Back*. <http://johnpilger.com/videos/the-secret-country-the-first-australians-fight-back>.

Assignment: Focus Question research, field project workbook- ethnobotany; Quiz.

### **Weeks 5&6 – Rainforest Field Module (23 contact hours)**

Background lectures in Cairns provide the basis for a 10 day long field module entitled “Wet Tropics Bioregion: A Landscape Ecology Perspective”. Each day a variety of field sites are visited to assess biodiversity and site characteristics. Observations made on these visits are coupled with emphasizing key points related to the ecology and evolution of Australian rainforests in the global context, the

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importance of plant-animal adaptations and interactions to understanding the patterns and processes of rainforests in general and the Wet Tropics in particular. Ecosystem structural and functional attributes are emphasised as a basis for understanding the speciation processes and biogeography of the Wet Tropics as well as the dynamic environment which has led to a diversity of structural forest types at the sites visited. Discussions and field lectures provide an integrated approach to understanding the ecology of the region from a landscape perspective and inevitably lead to investigating the important principles justifying rainforest conservation and sustainable management. The importance of land management systems and practices to the health of the aquatic and marine systems in the region is also emphasized.

Sample lecture: 'Ecology of Australian Rainforests: Animal/Plant interactions.'

Required reading: Grant, J. Unpublished. *Wet Tropics Bioregion: a landscape ecology perspective*. SIT Cairns, Australia.

Assignments: Ecology of Australian Rainforests: field assessments on rainforest ecology trip; Habitat heterogeneity and managing for diversity in National Parks- Case study of Eubenangee Swamp National Park; Flora and Fauna expertise; Quiz.

### **Week 7&8 – Coral Reef Ecology Field Module (19 contact hours)**

The Great Barrier Reef is considered one of the natural wonders of the world. The coral reef ecology module investigates the evolution, ecology, management, and threats to the reef over the course of a 10 day field visit to Lizard Island Research Station. Daily lectures on understanding the Great Barrier Reef within the local and global context of coral reefs complement students' field work to assess reef types and habitat features found at Lizard Island. An overall understanding of the importance of this living system to global biodiversity and marine resources conservation is considered paramount to students understanding of coral reefs as a globally threatened ecosystem. The complex and multiple drivers of reef degrading processes are investigated within management contexts of the social and political systems of Australia and other countries with coral reef systems.

Sample lecture: 'The Ecology of Coral Reefs.'

Required reading: Harrison, P.L. and D.J. Booth (2007). Coral reefs: naturally dynamic and increasingly disturbed ecosystems in Connell, S.B. and B.M. Gillanders (Eds.) *Marine Ecology*. (pp. 316-368) Melbourne: Oxford Press.

Assignments: Focus question research, field trip workbook, Quiz.

### **Week 9 – Cairns - Synthesis of Seminar (4 contact hours)**

Our time in Cairns focuses on summarizing the information presented in the seminars and assessing the applications and transferability of course principles to ecological and cultural settings beyond north Queensland.

Final submission of focus question essays.

Final Exam -covering material from lectures, readings and field trips from weeks 1 through 9.

#### *Required Readings:*

Students are expected to read completely the following four textbooks which are provided to them upon arrival in country:

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Archer, M. and B. Beale. (2004). *Going native: living in the Australian environment*. Sydney, Australia: Hodder Headline.

Broome, R. (2003). *Aboriginal Australians* (3<sup>rd</sup> edition). New South Wales, Allen & Unwin Pty. Ltd.

Lindenmayer, D. 2007. *On borrowed time: Australia's environmental crisis and what we must do about it*. Ringwood, Victoria: Penguin Books.

Smith, D. (1990). *Continent in crisis*. Ringwood, Victoria. Penguin Books Australian Ltd.

## Evaluation and Grading Criteria

### Description of Assignments:

#### **Field Trip Workbook**

The field trip workbook consists of formal question sheets associated with each field excursion. These act as records of the excursions and will assist students in remembering places and their significance. The questions are designed to instigate analytical thinking about observations in the field, presenters, and readings.

#### **Flora and Fauna Expertise**

Students are responsible for researching and presenting to the group the natural history of one plant and one animal taxon in the field on the rainforest trip. Students become the group expert on the biology, ecology, human use and conservation of their chosen plants and animals.

#### **Quizzes**

There are also up to seven quizzes during the program on important subject and factual matter most recently covered in the program.

#### **Focus Question/Essay**

The Focus Questions assignment is designed to encourage the development of questions around observed learning, integration of information from disparate sources, and analysis and formulation of solutions to current problems, by developing an essay based on a student-formulated question.

#### **Exam**

One final exam is given before the beginning of the ISP. The exam covers all the lectures, visits, and topics discussed during the program.

#### **Participation**

Participation in the course activities is also evaluated. Performance is based on punctual attendance at all activities; informed participation in all activities, including group discussions, field trips, and lectures; and encouragement and support of group members in their studies and contribution to maintaining a positive learning atmosphere in the group.

A full description of the expectations and assessment guidelines for each of these assignments is provided in the student handbook, which students will receive at the commencement of classes.

### Assessment:

<b>Field Trip Workbook</b>	<b>10%</b>
<b>Flora &amp; Fauna expertise</b>	<b>20%</b>
<b>Quizzes</b>	<b>15%</b>
<b>Focus Questions/Essay</b>	<b>25%</b>

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<b>Exam</b>	<b>25%</b>
<b>Participation &amp; contribution to group learning</b>	<b><u>5%</u></b>
	<b>100%</b>

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

### **Expectations and Policies**

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 5pm unless otherwise instructed. Assignments are docked 5% for each day or part of a day that they are late. Contact the Academic 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 cell phones, ipods, internet 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 difference and consider other perspectives with respect.

**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 you at Orientation.

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