



UNC
GLOBAL

THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

COLLEGE OF ARTS & SCIENCES

STUDY ABROAD OFFICE

FedEx GLOBAL EDUCATION CENTER
CAMPUS BOX 3130
CHAPEL HILL, NC 27599-3130

T 919.962-7002
F 919.962-2262
studyabroad.unc.edu

January 11, 2016

Administrative Board of the College of Arts & Sciences
Office of General Education
CB #3510
300 Steele Building
UNC-CH

UNC Environmental Sustainability in Australia- Summer

Dear Colleagues:

The Curriculum of Environment and Ecology and the Study Abroad Office are submitting for your approval a proposal to establish a faculty-led summer study abroad program in North Queensland, Australia beginning in Summer 2017 and continuing annually.

Overview

This five-week summer study abroad program will be led by a UNC-CH Environment and Ecology faculty member and organized by American Universities International Programs (AUIP). The program will be interdisciplinary, combining principles from the natural and social sciences, economics, and communications to teach students about how natural resources can be sustainably managed. The curriculum will be made up of two concurrent, three-credit courses: **ENEC 490 Ecology of Australian Ecosystems** and **ENEC 264 Conservation in Theory and Practice**. The first will explore the ecology of Australia's unique ecosystems so students understand what ecosystem services they provide and the ecological processes that are necessary for their resilience. The second course will focus on how ecological science, economics, and social marketing tools are used by Australian organizations to conserve and restore these ecosystems.

Rationale

This program offers a unique and truly interdisciplinary learning opportunity for students because it will assemble a group of students that are bonded by a common environmental sustainability goal but who bring a diverse set of backgrounds and skills. Therefore, students can learn from each other and discover how to work collaboratively to solve environmental problems. Australia, and in particular its northeastern coastal region, is an ideal location for studying ecology, the conflicts between society and nature, and the innovative solutions to these conflicts. This region is an ecologists dream with access to an extraordinary variety of interconnected ecosystems including coral reefs, mangroves, rainforests, freshwater wetlands, and eucalyptus forests that give rise to one of the most biodiverse regions in the world and house some of the most unique organisms on the planet. Furthermore, Australia is a global leader in environmental sustainability that has invested \$2 billion over four years at the national, regional and local levels to encourage sustainable management of their natural resources. In particular, the Townsville City Council has an Office of Sustainability that coordinates the City's responses to the challenges from climate change

and development. Townsville is also one of only 24 cities in the world to earn an IBM Smarter Cities Challenge grant. Students will learn about the unique ecology of these ecosystems with frequent immersive field trips and gain first-hand knowledge and skills about their conservation and restoration by working alongside professionals from a variety of Australian organizations. Students will leave Australia with a profound appreciation for the natural beauty of this region, a robust understanding of its ecology, and valuable practical skills that they can use for careers in environmental sciences and studies.

Resident Director

Dr. Geoffrey Bell will serve as the UNC Resident Director. Dr. Bell's CV is provided in the appendix.

American Universities International Programs

AUIP was established in 1971 and specializes in providing experiential education in the South Pacific region. They work with faculty and study abroad offices at US higher education institutions to provide customized study abroad programs. Their mission is to provide high quality education opportunities that encourage participants to engage with the cultures and natural environments of other countries through active learning. They currently serve approximately 1000 students each year.

Program dates

The program will run for five weeks with a start date in late June. The exact program dates will be confirmed in June 2016.

Enrollment

The program will accept applications from UNC-CH and non-UNC-CH undergraduate students, with priority given to UNC-CH students. Target program enrollment is 16-20 participants, though the program can run with as few as 10 participants. Applicants must have a minimum GPA of 2.8 and at least rising sophomore status. Applicants can be from a variety of disciplines though all should have an interest in the environment and ideally have completed one introductory college-level science course.

Program content

The program is comprised of two courses:

- ENEC 490 Ecology of Australian Ecosystems
- ENEC 264 Conservation in Theory and Practice

Students are required to take both 3-credit UNC-CH courses for graded credit. Both courses are taught and assessed by Dr. Bell. Contact hours will include in-class discussions and active learning activities, guest lectures from Australian professionals, field trips to natural areas, and hands-on experience collecting data that will be used to monitor the health of these ecosystems and inform management decisions. Students will utilize free time in the late afternoon and evenings to complete course assignments and projects.

Students will be instructed to obtain the readings and other online course materials prior to the start of the program. They will have WiFi access at the accommodations in Townsville and on Magnetic Island should the internet be needed for any coursework.

There will be ample opportunity for cultural learning. Students will be introduced to Australian history and culture through assigned readings prior to the start of the program. They will take an "open-book" quiz which forces them to research Australia history, culture, politics, and geography. Soon after arrival in Australia, a local guest lecture will provide an overview of Australia history and culture. Throughout the program students will meet and interact with locals and will learn about Australia history and culture as it relates to their courses.

More details about the courses and the program content are outlined in the syllabi and itinerary enclosed in the appendix.

Program location

The program will begin and end in Townsville. To take advantage of the course-related resources available in Australia, the program will travel to other nearby locations in Australia. The program will stay overnight in the following locations: Townsville, Hidden Valley, Billabong Sanctuary, Magnetic Island, and on-board a Snorkel and Dive boat on the Great Barrier Reef. There will also be several day-long excursions from these locations.

Townsville is the largest urban center in North Queensland and is referred to as an unofficial capital. Hidden Valley is a suburb of the city of Darwin in the Northern Territory of Australia. Billabong sanctuary is a wildlife sanctuary about 11 miles south of Townsville. Magnetic Island, about 5 miles offshore from Townsville, is mostly a national park. The Great Barrier Reef is accessible from Townsville.

Logistics

AUIP will organize all logistics from program development to on-site arrangements.

In addition to the pre-departure orientation session led by UNC-CH Study Abroad staff, program participants will watch the AUIP pre-departure orientation video, read assignments given by AUIP, and complete the pre-departure quiz. Once on-site, Dr. Bell will deliver an on-site orientation using materials from AUIP, and a local expert will lecture on Australian history and culture.

Students will live in shared rooms in hotel-like accommodations and cabins. Many meals (32 breakfasts, 12 lunches, and 15 dinners) are included in the program. For other meals, students can access kitchen facilities in the accommodations and/or dine at local restaurants.

Experienced drivers hired by AUIP provide ground transportation as the group moves from one site to the next.

AUIP is available 24/7 for emergency support. AUIP also provides one local cell phone and a first aid kit to the Resident Director.

More information about AUIP's services is outlined in the letter included in the appendix.

Emily Marlton, Northern Europe and Oceania Program Director in the Study Abroad Office, will conduct a site visit to Townsville in either 2016 or 2017.

Health and Safety

According to the U.S. State Department website, "International and domestic-based terrorists have targeted, and will likely continue to target, the country. U.S. citizens in Australia should remain vigilant with regard to their personal security and exercise caution. Australian law enforcement authorities continue to take actions to guard against a terrorist attack and are using a range of tactics to mitigate the threat."

AUIP has a number of practices in place to address risk management and student health and safety. For example, AUIP has a Risk Management Plan for all key activities, a faculty handbook addressing detailed steps for program safety, and a PowerPoint of Case Scenarios for Health and Safety Incidents, all of which are made available to the faculty and the Study Abroad Office. Additionally, AUIP audits all program suppliers.

Students will be enrolled in international accident and health insurance through HTH Worldwide (www.hthstudents.com) for the duration of the program. All program activities, including snorkeling and SCUBA diving, are covered by the HTH insurance plan.

Excellent medical care is available in Australia. For minor healthcare needs, such as a sprained ankle, students can seek care at a nearby medical center. The program also has a first aid kit to provide basic supplies for immediate needs. For more serious needs, on-site staff will assist a student to the hospital. Medical centers are available in all program locations, except Hidden Valley and on the Great Barrier Reef. In Hidden Valley, medical care provisions are available on-site, students can be driven to the nearest medical center or hospital, and medical evacuation is available. On the Reef, medical care provisions are available and emergency evacuation is available.

More information about AUIP's health and safety procedures can be found on their website:
<http://auiip.com/parents/health-safety/>

We are happy to provide any further information that you may need to evaluate this proposal.

Yours sincerely,



Dr. Jaye Cable, Professor and Chair, Curriculum in Environment & Ecology Date

1/27/2016



Dr. Robert Miles, Associate Dean: Study Abroad and International Exchanges Date

1.27.2016

CONSERVATION IN THEORY AND PRACTICE

(ENEC/GEOG 264)

Course Description:

This course will take an interdisciplinary look at conservation by exploring the interconnections among ecosystem science, policy, education, and human behavior. More specifically, this course will focus on an emerging philosophy of how to sustainably manage our natural resources called Ecosystem Based Management (EBM). Traditionally, natural resource management efforts has used top-down, expert-driven government regulations to conserve/manage single resources in such a way to minimize variability in resources. EBM argues that it may be more effective to engage local communities to build consensus on how to sustainably manage whole ecosystems for their resilience. In this class we will explore the ecological, economic, and social concepts underlying EBM, the interdisciplinary tools that are used by EBM, as well as how Australian communities and organizations are implementing this approach.

Instructors:

Geoffrey Bell
Curriculum for the Environment and Ecology
gwbell@email.unc.edu

Prerequisites:

This class will cover introductory science concepts and is designed for students interested in pursuing careers in environmental science and studies including ecology, conservation, restoration, as well as environmental policy, education, and communication. Therefore, you should currently have or plan to pursue an environmentally-related major (e.g., Biology, Environmental Science/Studies, Geography, Geology, Public Policy, etc.) and/or have taken at least one semester of a college-level science class (e.g., BIOL 101, ENEC 202, GEOG 110, GEOL 110, etc.)

Attendance:

Most of this course will be active learning and experiential-based so concepts can only be learned through active participation during class periods and field excursions; therefore it is impossible to “make up” material as a result of missing class. Learning can only happen if students regularly attend class prepared to engage in lively and stimulating discourse and hands-on activities. Therefore, attendance is mandatory, I will take attendance for each class and field excursion, and excessive absences will lower your final grade. **You are allowed 3 absences before your grade will be lowered.** Excused absences including severe illness, hospitalization,

death in the family, and religious holiday observance must be accompanied by official documentation. Each additional absence after #3 will result in a 2% reduction in your final grade, regardless of the reason.

Course Objectives:

I have four main learning objectives for students in this course:

1. Understand how ecological, economic, and social concepts are integrated into management plans to conserve or restore wildlife populations, communities, and whole ecosystems.
2. Learn about the tools being used by Australian organizations to conserve and restore their natural resources.
3. Learn how to search for and read articles published in the primary literature.
4. Learn how to accurately and effectively communicate the importance and implications of scientific research to the general public.

Course Structure:

- **In-class discussions:** This is a seminar-style class so for each class period we will discuss the content of ~15-30 pages of required readings from a combination of textbook chapters and the primary literature. You are expected to have read the material and come to class prepared to discuss the topic with the rest of the class.
- **Field excursions:** We will spend much of our time at various field sites along Australia's northeastern coast including Paluma Range National Park, Magnetic Island, and the Great Barrier Reef. At each site you will meet professionals that will describe the ecology of the system they work in and illustrate the tools they use to conserve and restore Australian wildlife, ecosystems, and other natural resources. These excursions will include presentations, tours of facilities, guided hikes through natural areas, participation in data collection, etc.
- **Web page:** We will use *Sakai* for the course website. You can view announcements and updates to the course as well as upload your assignments.
- **Reading material:** All of the required readings will come from the following sources:
 1. *Ecosystem Management: Adaptive Community-Based Conservation* by: G.K. Meffe, L.A. Nielsen, R.L. Night, & D.A. Schenborn. 2002
 - **REQUIRED.** Available from online retailers like Amazon and Barnes & Noble for about \$50. Excerpts are available as a Google Book:
http://books.google.com/books?id=8leTD6L63DIC&printsec=frontcover&source=gbs_ViewAPI
 2. *Ecosystem-Based Management for the oceans* Edited by: K. McLeod & H. Leslie. 2009
 - I will provide PDF copies of the chapters from this book.

3. Primary scientific literature

- Citations will be provided for these readings on the course website. It is up to you to obtain the articles.

Assessments:

- 1. Class participation:** I expect each student to be actively engaged in all classroom and field activities by sharing their thoughts, asking questions, helping others, and maintaining a positive attitude. Your grade will be based on the frequency and quality of your contributions to in-class discussions and how engaged you are during field excursions.
- 2. Quizzes:** Quizzes will be given prior to or shortly after a class period or field excursion. These will be short (~10 questions) quizzes composed of multiple choice, true/false, fill-in-the-blank, and/or short answer style questions. Pre-class quizzes are designed to make sure you have completed the background readings or lecture videos and comprehend the basic ideas/concepts. Quizzes assigned after class periods or excursions will assess your ability to apply the concepts covered during class.
- 3. Social media:** During the course of the summer session you will work in small groups (2 – 3 students) to prepare several social media postings that will detail the learning experience of the class. The class will decide as a whole, which type of social media outlet (blog, wiki, podcast, etc.) to use and different groups will take turns posting their entry either daily or semi-daily, depending on the travel schedule. Your goal is to develop a substantive posting that educates a general audience about how ecology, economics, and social sciences are used to conserve and restore ecosystems and natural resources.
- 4. Final Project:** Your final project for this class will be to work as part of a team (~ 3 -5 students) to develop a social marketing product for one of the organizations you worked with during the summer session by applying the concepts you learned about during the 2-day social marketing workshop. Your final product will be due on the day of the final exam.

Grading:

Your final grade will be based on the following components:

<u>Course Component</u>	<u>% of Final Grade</u>
• Class participation	20%
• Quizzes	15%
• Social media	30%
• Final project	35%

Course grades are based on the following scale: A \geq 93; A- = 90-92; B+ = 87-89; B = 83-86; B- = 80-82; C+ = 77-79; C = 73-76; C- = 70-72; D+ = 67-69; D = 63-66; D- = 60-62; & F < 60.

Course Content & Roadmap:

Day	Topic	Location	Activity	Contact Hours
4	Ecosystem Based Management (EBM)	Townsville	Discussion & active learning	1.5
5	Sustainable watershed management	Townsville	Guest lectures & discussion	3
6	Marine protected areas (MPA's)	Townsville	Lecture	1.5
7	Managing the Great Barrier Reef	Townsville	Guest lecture	3
8	FREE DAY			
9	TRAVEL DAY			
10	Aboriginal restoration of the Annabone Wetlands and Molonga Creek	Mungalla Station	Guest lecture & excursions	2.5
11	Fire ecosystem management in Jourama Falls National Park	Jourama Falls National Park	Guest lecture & excursions	2.5
12	Land management strategies for restoring threatened wildlife	Mt Zero-Taravale	Guest lecture & excursions	2.5
13	Analyzing monitoring data for threatened & endangered wildlife	Mt Zero-Taravale	Active learning	2.5
14	EXTRACURRICULAR ACTIVITIES			
15	Wetland restoration	Hidden Valley	Lecture	1.5
16	Wetland restoration techniques	Tyto Wetlands	Presentations & excursions	5
17	Conservation and enrichment strategies for the Australian dingo	Billabong Sanctuary	Guest lectures & excursions	2.5
18	FREE DAY			
19	TRAVEL & FREE DAY			
20	Changing social perceptions and behavior through social marketing – Part I	Magnetic Island	Workshop	5
21	Changing social perceptions and behavior through social marketing – Part II	Magnetic Island	Workshop	5

22	Managing landscapes for biodiversity	Magnetic Island	Lecture	1.5
23	Ecosystem management on Magnetic Island	Magnetic Island	Guest lectures & excursions	2.5
24	Introductions & management of koala on Magnetic Island	Magnetic Island	Guest lecture & excursions	2.5
25	FREE DAY			
26	FREE DAY			
27	Ecosystem management of the Great Barrier Reef	Townsville	Guest lecture	1
27	Sustainable business accounting – the Triple Bottom Line	Townsville	Guest lecture	1.5
28	Citizen science in conservation	Townsville	Guest lecture	1
32	READING DAY			
33	Final exam period	Townsville	N/A	2

Total: 50 contact hours

SPECIAL TOPICS IN ENVIRONMENTAL SCIENCE AND STUDIES (ENEC 490)

ECOLOGY OF AUSTRALIAN ECOSYSTEMS

Course Description:

This course will provide a survey of the ecological processes that shape the composition, structure, and functions of ecosystems using the eastern coastal region of Australia as a natural laboratory. From readings, lecture videos, and in-class active learning exercises you will learn about the ecological processes that are important for maintaining the resilience of ecosystems including fire, hydrology, primary production, predation, dispersal, etc. as well as how anthropogenic change has threatened these ecosystems. We will then visit a variety of Australian ecosystems including the Great Barrier Reef, wetlands, eucalyptus forests, rainforests, and sclerophyll forests so you can learn from environmental professionals and experience the ecology of these systems first-hand by taking guided hiking tours, snorkeling and diving, participating in fieldwork, and collecting ecological data.

Instructors:

Geoffrey Bell
Curriculum for the Environment and Ecology
gwbell@email.unc.edu

Prerequisites:

This class will cover introductory science concepts and is designed for students interested in pursuing careers related to environmental science and studies including ecology, conservation, restoration, as well as environmental policy, education, and communication. Therefore, you should be currently or planning to pursue an environmentally-related major (Biology, Environmental Science/Studies, Geography, Geology, Public Policy, etc.) and/or have taken at least one semester of a college-level science class (e.g., BIOL 101, ENEC 202, GEOG 110, GEOL 110, etc.)

Attendance:

Most of this course will be active learning and experiential-based so concepts can only be learned through active participation during class periods and field excursions; therefore it is impossible to “make up” material as a result of missing class. Learning can only happen if students regularly attend class prepared to engage in lively and stimulating discourse and hands-on activities. Therefore, attendance is mandatory, I will take attendance for each class and field

excursion, and excessive absences will lower your final grade. **You are allowed 3 absences before your grade will be lowered.** Excused absences including severe illness, hospitalization, death in the family, and religious holiday observance must be accompanied by official documentation. Each additional absence after #3 will result in a 2% reduction in your final grade, regardless of the reason.

Course Objectives:

I have four main learning objectives for students in this course:

1. Understand the ecological concepts relevant for managing/conserving/restoring wildlife populations, communities, and whole ecosystems.
2. Explore the diversity of Australian ecosystems with immersive field experiences.
3. Learn practical field sampling/monitoring techniques for collecting data as well as how to manage, visualize, and analyze these data.
4. Hone your written and oral communication skills.

Course Structure:

- **Classroom:** Classroom activities will be a combination of interactive lectures, discussions of readings, and active learning exercises. We will cover general ecological concepts during class time and reserve specific examples and case studies of these concepts for the field excursions. Background readings or lecture videos will be assigned for each class period. You are expected to have done the readings and watched the lecture videos before coming to class so you are prepared to participate in the classroom activities.
- **Field excursions:** We will spend much of our time at various field sites along Australia's northeastern coast including Paluma Range National Park, Magnetic Island, and the Great Barrier Reef. At each site you will meet ecological professionals that will describe the ecology of the system they work in and illustrate how the ecological theory you learn about in the classroom is being applied to conserving and restoring Australian wildlife, ecosystems, and other natural resources. These excursions will include presentations, tours of facilities, guided hikes through natural areas, participation in data collection, etc.
- **Web page:** We will use UNC's *Sakai* service for the course website. You will use *Sakai* to view announcements, download learning resources, take quizzes, and upload assignments.
- **Learning resources:** All of the required readings and lecture videos will come from the following sources:
 1. *Lecture videos:*

- I will create several lecture videos for the course and post them online to my Vimeo page (<https://vimeo.com/gwbell/videos>); links to these videos will be posted in *Sakai's* Resources folder.

2. *Textbooks:*

- Since this course will teach ecological concepts from a variety of disciplines (e.g., population dynamics, fire ecology, landscape ecology, genetics and evolution, ecosystem dynamics, etc.) no single textbook can adequately cover each topic. Therefore, I will draw chapters/excerpts from several introductory-level ecology textbooks including but not limited to:
 - Van Dyke, F. (2003). *Conservation Biology: Foundations, Concepts, Applications*. McGraw-Hill, Boston, MA. 413 p.
 - Scott, A.C. (2014). *Fire on Earth: An Introduction*. Wiley-Blackwell, Chichester, West Sussex. 435 p.
 - Mitsch, W.J. and J. G. Gosselink. (2015). *Wetlands*, 5th Edition. Wiley, Hoboken, NJ. 736 p.

3. *Primary scientific literature*

- Citations will be provided for these readings on the course website. It is up to you to obtain the articles.

Assessments:

1. ***Class participation:*** I expect each student to be actively engaged in all classroom and field activities by sharing their thoughts, asking questions, helping others, and maintaining a positive attitude. Your grade will be based on the frequency and quality of your contributions to in-class discussions and activities as well as how engaged you are during field excursions.
2. ***Quizzes:*** Quizzes will be given prior to or shortly after a class period or field excursion. These will be short (~10 questions) quizzes composed of multiple choice, true/false, fill-in-the-blank, and/or short answer style questions. Pre-class quizzes are designed to make sure you have completed the background readings or lecture videos and comprehend the basic ideas/concepts. Quizzes assigned after class periods or excursions will assess your ability to apply the concepts covered during class.
3. ***Written assignments:*** You will write several one- to two-page reflections throughout the summer session. Each reflection is written for an excursion or field activity and is meant to help you understand the concepts covered during class and describe how they have been applied to the system you experienced during the field excursion. I will post a handout with detailed description of reflections to the course website.
4. ***Field notebook and data:*** You will participate in several hands-on data collection activities, including a three-day snorkeling and diving excursion aboard a boat near the end of the course. You will be responsible for keeping a field notebook where you will

record your notes and data for each day of field work. You will submit your field notebook near the end of the summer session; it will be graded based on how organized, clear, and comprehensive it is.

5. **Final Project:** Your final project for this class will be to prepare a 15 – 20 min oral presentation that reports results from one of the monitoring projects you participate in during the course of the summer session. Your oral report will need to describe the purpose of the monitoring program, why your data was collected, what patterns you discovered, and any conclusions that you can draw from your data.

Grading:

Your final grade will be based on the following components:

<u>Course Component</u>	<u>% of Final Grade</u>
• Class participation	20%
• Quizzes	15%
• Written assignments	20%
• Field notebook & data	20%
• Final project	25%

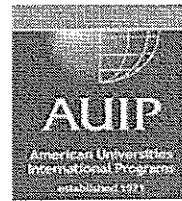
Course grades are based on the following scale: A \geq 93; A- = 90-92; B+ = 87-89; B = 83-86; B- = 80-82; C+ = 77-79; C = 73-76; C- = 70-72; D+ = 67-69; D = 63-66; D- = 60-62; & F < 60.

Course Content & Roadmap:

Day	Topic	Location	Activity	Contact Hours
3	Ecosystems composition, structure, & functions	Townsville	Lecture & discussion	1.5
4	Ecosystem states & resilience	Townsville	Lecture & discussion	1.5
6	Coral reef ecosystems	Townsville	Lecture	1.5
8	FREE DAY			
9	TRAVEL DAY			
10	Wetland case study: Annabone Wetlands	Mungala Station	Excursion	2.5
11	Fire ecology	Hidden Valley	Guest lecture & excursions	2.5

12	Habitat loss of threatened & endangered species	Mt. Zero-Taravale	Guest lecture & excursions	2.5
13	Monitoring threatened & endangered wildlife	Mt Zero-Taravale	Hands-on data collection	2.5
14	EXTRACURRICULAR ACTIVITIES			
15	Wetland ecohydrology	Hidden Valley	Lecture	1.5
16	Ecology of the Tyto Wetlands	Tyto Wetlands	Guest lecture	2.5
17	Population biology case study: the Australian dingo	Billabong Sanctuary	Guest lectures & excursions	2.5
18	FREE DAY			
19	TRAVEL & FREE DAY			
23	Diversity of Magnetic Island ecosystems	Magnetic Island	Guest lectures & excursions	2.5
24	Research methods for studying the ecology of the Australian koala	Magnetic Island	Hands-on data collection	2.5
25	FREE DAY			
26	FREE DAY			
27	Great Barrier Reef ecosystem	Townsville	Guest lecture	1
28	Coral reef survey methods	Townsville	In-water training	3
29	Great Barrier reef survey trip	Townsville	Fieldwork	5
30	Great Barrier reef survey trip	Townsville	Fieldwork	5
31	Great Barrier reef survey trip	Townsville	Fieldwork	5
32	READING DAY			
34	Final exam period	Townsville	N/A	2

Total: 47 contact hours



Draft Itinerary for
University of North Carolina
Sustainable Ecosystem Management and Restoration in Australia
June/July 2017 (35 days)

Day 1: Depart U.S. for Australia

Day 2: En route to Australia

Lose a day crossing the International Dateline

Day 3: Arrive in Townsville (D)

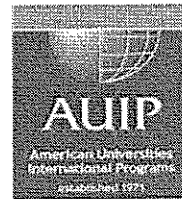
TBD	Flight arrives in Townsville; make your own way to accommodation
12:00 pm – 2:00 pm	Check-in to accommodation Unpack and settle in to your accommodation.
3:00 pm – 4:30 pm	Lecture: Orientation and introduction to course Professor Geoffrey Bell
5:40 pm – 5:50 pm	Walk to dinner
6:00 pm	Welcome dinner
Accommodation	City Oasis Inn

Day 4: Townsville (B)

7:30 am – 8:30 am	Group breakfast
8:30 am – 8:50 am	Walk to Reef HQ lecture classroom
9:00 am – 10:30 am	Lecture Professor Geoffrey Bell
10:45 am – 12:15 pm	Lecture Professor Geoffrey Bell
12:30 pm – 1:30 pm	Lunch on your own Numerous restaurants and supermarkets are located on Flinders Street where you can purchase lunch and supplies.
Afternoon	Free time
Accommodation	City Oasis Inn

Day 5: Townsville (B)

7:30 am – 8:30 am	Group breakfast
9:00 am – 9:20 am	Walk to Reef HQ lecture classroom



9:30 am – 10:30 am

Lecture: Collaborative management of culturally significant wetlands
Mike Nicholas

Michael Nicholas is a Research Projects Officer with the Commonwealth Scientific and Industrial Research Organization (CSIRO). His research work has included investigations in landscape ecology and natural resource management, and recently he has investigated the use of non-chemical methods for restoration and repair of coastal wetlands in northern Australia. He has a long history and relationship with indigenous Australians, having worked for an indigenous resource agency in the Northern Territory and more recently with the Nywaigi people of the Ingham district in North Australia.

11:00 am – 12:00 pm

Lecture: Water issues and sustainability in Australia
Dr Mark Read

Ecologist Mark Read is currently the Director of Ecosystems, Conservation and Sustainable Use for the Great Barrier Reef Marine Park Authority. In this role he has a broad list of responsibilities, including managing threatened species such as sea turtles and dugongs, assessing the vulnerabilities of local wildlife to climate change, and ensuring the sustainability of sport fisheries along the Great Barrier Reef. Mark was previously head of the Crocodile Management Unit for Queensland Parks and Wildlife Service and for more than a decade has been involved in research on a wide variety of North Queensland's diverse fauna and its inter-connectedness.

12:00 pm – 1:00 pm

Lunch on your own
Numerous restaurants and supermarkets are located on Flinders Street where you can purchase lunch and supplies.

1:30 pm – 2:30 pm

Faculty-led discussion/break-out
Professor Geoffrey Bell

Accommodation

City Oasis Inn

Day 6: Townsville (B)

7:30 am – 8:30 am

Group breakfast

8:30 am – 8:50 am

Walk to Reef HQ lecture classroom

9:00 am – 10:30 am

Lecture
Professor Geoffrey Bell

10:45 am – 12:15 pm

Lecture
Professor Geoffrey Bell

Afternoon

Free time
Lunch on your own

Accommodation

City Oasis Inn

Day 7: Townsville (B)

8:00 am – 9:00 am

Group breakfast



10:00 am – 2:00 pm

Reef Ecologic

Dr Adam Smith and his team at Reef Ecologic will provide lectures and workshops covering a variety of topics to provide foundation learning for the course ahead. Some of the possible topics include:

- Marine park planning - history and next steps
- Offsets and net benefits - can these policy tool improve reefs
- What is best practise management- lessons from tourism
- How to improve management- lessons from ports
- Reef recovery at a local level
- Citizen science
- Protected species management- is it working?
- Marine renewable energy
- Aquaculture
- Sustainable fisheries
- Reef guardians - what are the costs and benefits
- Communication is the key for sharing knowledge- what works and what doesn't
- Leadership and the people who are changing the reef world

Dr Adam Smith is a Director of Reef Ecologic based in Townsville. He is a scientist, manager and leader with lifelong passion and commitment to the marine environment and future generations. Adam has 30 years' experience in research and management, including 15 years with the Great Barrier Reef Marine Park Authority. Adam studied a BSc (Hons), PhD and MBA and has authored over 40 scientific papers and books.

Fellow lecturers may include Dr Paul Marshall, founder and former Director of the Climate Change Program at the Great Barrier Reef Marine Park Authority, and Dr Jon Day, former Great Barrier Reef Marine Park Authority Director.

Lunch break will be provided at midday.

Accommodation

City Oasis Inn

Day 8: Townsville (B)

8:00 am – 9:00 am

Group breakfast

9:30 am – 4:30 pm

Free day

Accommodation

City Oasis Inn

Day 9: Hidden Valley (B, L, D)

8:00 am – 9:00 am

Group breakfast

10:00 am – 4:00 pm

Travel Townsville to Hidden Valley with stops en route

11:15 am – 12: 15 pm

Arrive at Little Crystal Creek where you will have one hour for lunch, swimming and exploring the Paluma Range National Park.

Picnic lunch will be provided.

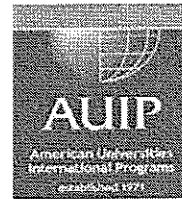
12:15 pm

Depart Little Crystal Creek for Paluma Village.

12:35 pm – 2:30 pm

Guided rainforest walk

The group will take a rainforest walk following the Witt's Lookout Trail for 3 kilometres. The walk takes in beautiful views of the coast and the World Heritage Listed Wet Tropics and your guide will teach you about the local



plants and ecosystems.

2:30 pm

Depart Paluma for Hidden Valley Cabins

Fifteen minutes into the journey, the group will stop at the Eucalyptus grandis forest to learn about the shift in ecosystem types on your way from Paluma to Hidden Valley. These increasingly dry ecotones are used to explain the direct link between the primitive rainforests seen in the Wet Tropics and the wet and dry sclerophyll forests and dry open woodlands that dominate the Australian landscape of today.

Upon arrival, check-in to accommodation; unpack and settle in.

4:00 pm – 5:30 pm

Lecture

Professor Geoffrey Bell

6:30 pm

Group dinner

Accommodation

Hidden Valley Cabins

Day 10: Mungalla Station (B, L, D)

7:00 am – 8:00 am

Group breakfast

8:00 am – 10:00 am

Travel Hidden Valley to Mungalla Station

10:00 am – 12:30 pm

Mungalla Station

Visit Jacob Cassady and his family of the Nywaigi Aboriginal people at Mungalla Station, a beef cattle property. Mungalla Stud is a property of 880 hectares. Of the 880 hectares approximately 230 hectares of seasonally inundated wetlands which are adjacent to the World Heritage Great Barrier Reef and the IUCN listed Halifax Bay Wetlands National Park. These wetlands have been degraded by the invasive plant species of Hymenachne amplexicaulis, Water hyacinth, Salvinia and Aleman grass, as a result of installing an earth wall to halt the flow of saline tidal water into the wetlands and by general spread into the wetland by these Weeds of National Significance (WoNS). This action has resulted in major changes to the hydrology, nutrient regimes, ecosystem stability and function of the wetlands.

The day will start with a cultural session introducing you to the Nywaigi Aboriginal culture. During the session you may be able to try your hand at traditional activities such as throwing boomerangs and spears. This is followed by a 'Captive Lives' session during which you will hear the story of the ancestors of the Aboriginal people from Mungalla Station and surrounding areas and how they were exhibited as cannibals and savages in the nineteenth century circuses and sideshows of Europe and America. You will see the old homestead site, where you will learn about James Cassady and his family, who were the first European settlers on Mungalla.

12:30 pm – 1:30 pm

A BBQ lunch will be provided.

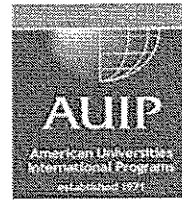
1:30 pm – 4:00 pm

Mungalla Station: Annabone Wetlands restoration

While biodiversity and amenity values have been compromised there is excellent capacity for restoration. The Nywaigi Traditional Owners have determined that they would like to return the wetlands to a more natural state and through a series of projects; funded through the Australian Government we have begun the process of rehabilitation.

We will learn about the programs currently being run by the Nywaigi Aboriginal People to restore the areas of the Annabone Wetlands, the revegetating Molonga creek, removal of the earth wall and the Weed control in Palm Creek and other riparian fringes. This work is being carried out in conjunction with the Australian Government's Commonwealth Scientific and Industrial Research Organisation (CSIRO).

Depending on the latest status of restoration projects, work may include noxious plant control, monitoring water quality, birdlife and fish populations.



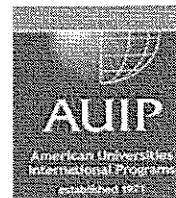
4:00 pm – 6:00 pm	Travel Mungalla Station to Hidden Valley
6:00 pm – 7:00 pm	Faculty-led discussion/break-out Professor Geoffrey Bell
7:00 pm	Group dinner
Accommodation	Hidden Valley Cabins

Day 11: Jourama Falls National Park (B, L, D)
--

7:00 am – 8:00 am	Group breakfast
8:00 am – 9:30 am	Travel Hidden Valley to Jourama Falls
10:00 am – 12:30 pm	Jourama Falls National Park Travel to Jourama Falls to do site visit with Paluma Range Head Ranger Tim Delvin. Tim will give presentations and working examples of Queensland National Parks and Wildlife's approach to Fire Management in protected areas, managing habitat for vulnerable and endangered species and management of National Parks in relation to public access.
12:30 pm – 1:30 pm	Picnic lunch will be provided.
1:30 am – 4:00 pm	Jourama Falls National Park continued
5:30 pm – 6:30 pm	Faculty-led discussion/break-out Professor Geoffrey Bell
6:30 pm	Group dinner
Accommodation	Hidden Valley Cabins

Day 12: Australian Wildlife Conservancy (B, L, D)
--

8:00 am – 9:00 am	Group breakfast
10:00 am – 12:30 pm	Australian Wildlife Conservancy Australian Wildlife Conservancy acquires land, and works with other landholders, to establish sanctuaries for the conservation of threatened wildlife and ecosystems. Australian Wildlife Conservancy now owns 23 sanctuaries covering over 3 million ha (7.4 million acres) in places such as north Queensland, the Kimberley, western New South Wales, Northern Territory and the forests of south western Australia. Australian Wildlife Conservancy's Mt Zero-Taravale Sanctuary is located on the western side of the Paluma Range National Park. Reserve manager Tim White will showcase Australian Wildlife Conservancy land management, rehabilitation programs, wildlife mapping and conservation and explain how Australian Wildlife Conservancy continues to build on a strong base of investments with Australia. Australian Wildlife Conservancy acquires land, and works with other landholders, to establish sanctuaries for the conservation of threatened wildlife and ecosystems. Australian Wildlife Conservancy now owns 23 sanctuaries covering over 3 million ha (7.4 million acres) in places such as north Queensland, the Kimberley, western New South Wales, Northern Territory and the forests of south western Australia. Australian Wildlife Conservancy's Mt Zero-Taravale Sanctuary is located on the western side of the Paluma Range National Park. Reserve manager Tim White will showcase Australian Wildlife Conservancy land management, rehabilitation programs, wildlife mapping and conservation and explain how Australian Wildlife Conservancy continues to build on a strong base of investments with Australia.



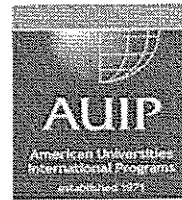
12:30 pm – 1:30 pm	Picnic lunch will be provided.
1:30 am – 4:00 pm	Australian Wildlife Conservancy continued
5:30 pm – 6:30 pm	Faculty-led discussion/break-out Professor Geoffrey Bell
6:30 pm	Group dinner
Accommodation	Hidden Valley Cabins

Day 13: Australian Wildlife Conservancy (B, L, D)
--

8:00 am – 9:00 am	Group breakfast
10:00 am – 12:30 pm	Australian Wildlife Conservancy Working in an area on the conservancy set aside for service learning. Students will participate in 3 different activities. The projects are designed to be revisited every year by study abroad groups. The data collected and outcomes of hands on work are then recorded and use for future work on the property. - Hands on removal of old fencing left from the gazing industry that is causing mortality rates in the populations of endangered animals on the property. This work is mapped and recorded to provide future groups with progress and outcomes - Bird survey. Building a data on the conservancy while rehabilitation work in being cared out is critical. Students will take part in bird surveys for AWC's data base - Weed survey and removal.
12:30 pm – 1:30 pm	Picnic lunch will be provided.
1:30 am – 4:00 pm	Australian Wildlife Conservancy continued
6:30 pm	Group dinner
Accommodation	Hidden Valley Cabins

Day 14: Hidden Valley Cabins (B, L, D)

8:00 am – 9:00 am	Group breakfast
9:00 am – 10:00 am	Lecture: Energy usage and the carbon tax in Australia with a solar plant tour Ross McLennan Ross runs a small, family-run tourism business 103 km northwest of Townsville called Hidden Valley Cabins. The McLennan family have owned and operated the business since 1986. Because of its remote location, Hidden Valley Cabins have no town amenities and are totally self-sufficient. In December 2007, the retreat switched off its diesel generators and since then the entire resort's electrical needs have been supplied by the sun, saving the resort up to 26000L of diesel and 78 tonnes of CO2 per year. Ross is very passionate about sustainability, the natural environment that he calls home, and finding ways to implement best practice into his business.
10:15 am – 1:30 pm	Running River Gorge hike The hike into the Gorge will take approximately 50 minutes, including stops along the way to discuss the Gorge's formation and ecosystem. Once in the Gorge, time is provided to swim in the crystal clear waters and explore the Gorge. The walk out of the Gorge will take 1 hour and 20 minutes. Picnic lunch will be provided.



Afternoon	Free time
5:00 pm – 6:30 pm	Platypus spotting Australian Geographic recognized the area as one of the top five places to see platypus in the wild.
7:00 pm	Group dinner
Accommodation	Hidden Valley Cabins

Day 15: Hidden Valley Cabins (B, L, D)

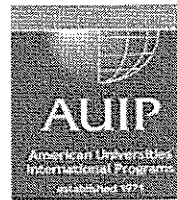
8:00 am – 9:00 am	Group breakfast
9:30 am – 11:00 am	Lecture Professor Geoffrey Bell
12:00 pm	Group lunch
1:00 pm – 2:30 pm	Lecture Professor Geoffrey Bell
Afternoon	Free time
7:00 pm	Group dinner
Accommodation	Hidden Valley Cabins

Day 16: Tyto Wetlands (B, L, D)
--

7:00 am – 8:00 am	Group breakfast
8:00 am – 10:00 am	Travel Hidden Valley to Tyto Wetlands
10:00 am – 12:30 pm	Tyto Wetlands This project involved the rehabilitation of wetlands on the agriculturally rich alluvial flood plains of the Herbert Valley and includes an interpretive centre and a network of walkways and bird hides across a 120 hectare site. The area is home to over 230 species of bird, numerous tropical plant species and an abundant wallaby population. The day will be split into two components. Presentations about the project and hands on work at the wetlands: - Presentation from local government planning and infrastructure. How the project went from conception to reality. - Presentation on the rehabilitation work that was carried out on the site and the scientific research behind it. - Afternoon in the wetlands working with Tyto management on projects to assisted in the development of the area.
12:30 pm – 1:30 pm	Picnic lunch will be provided.
1:30 pm – 4:00 pm	Tyto Wetlands continued
4:00 pm – 6:00 pm	Travel Tyto Wetlands to Hidden Valley
6:00 pm – 7:00 pm	Faculty-led discussion/break-out Professor Geoffrey Bell
7:00 pm	Group dinner
Accommodation	Hidden Valley Cabins

Day 17: Billabong Sanctuary (B, L, D)
--

8:00 am – 9:00 am	Group breakfast
9:00 am – 9:30 am	Travel Townsville to Billabong Sanctuary



10:00 am – 12:30 pm

Billabong Sanctuary

The Billabong Sanctuary is a leader in conservation, their excellent corporate management behaviour ensures the long term sustainability of the business and its lasting contribution to environmental causes. We strongly believe that our holistic and passionate approach to conservation is the secret behind our success.

This experience with qualified rangers will showcase the positive role model Billabong Sanctuary provides through education to the wider community focusing on the life and history of Australia's native Dingo:

- A presentation on Australia's native dog, its evolution and social interaction with indigenous Australians + the changes since white settlement in Australia
- Adaptations since its arrival to Australia and behavioural instincts
- The plight of the modern Dingo
- Training, diet and enrichment programs at the sanctuary
- A behind the scenes tour of the sanctuary is on offer if time allows Koala and Wombat experience for the group
- Our Rangers will sneak a personalised Koala and Wombat show with souvenir photo opportunity available
- Dinner on the edge of the Billabong

12:30 pm – 1:30 pm

Group lunch will be provided.

1:30 pm – 4:00 pm

Billabong Sanctuary continued

6:00 pm

Group dinner

7:00 pm

Optional: Australian Creatures By Night!
Explore a diverse system of billabong habitats by night. See our nocturnal animals and explore the Billabong ecosystem come alive with Barramundi feeding in the waters and the sounds of Australia at night. Ending in a Salt water crocodile encounter and educational program.

Accommodation

Billabong Sanctuary

Day 18: Magnetic Island (B, D)

8:00 am – 9:00 am

Group breakfast

9:30 am – 10:00 am

Travel Billabong Sanctuary to Townsville

9:30 am – 10:00 am

Sealink Ferry: Townsville to Magnetic Island

10:00 am – 10:30 am

Travel ferry to Bungalow Bay
Grocery stop at Magnetic Island Nelly Bay supermarket for lunch supplies; otherwise can purchase lunch daily from cafes and restaurants.

Afternoon

Free time
Lunch on your own

6:30 pm

Group dinner

Accommodation

Bungalow Bay Koala Village

Day 19: Magnetic Island (B)

8:00 am – 9:00 am

Group breakfast

Day

Free day

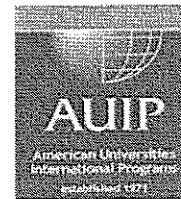
Accommodation

Bungalow Bay Koala Village

Day 20: Magnetic Island (B)

7:30 am – 8:30 am

Group breakfast



9:00 am – 4:00 pm

Social Marketing: Behaviour Change for Environmental Good

Students introduced to social marketing principles, theories and application delivered by world leading experts from James Cook University. Social Marketing can be defined as the design, implementation and control of programs aimed at increasing the acceptability of a social idea or practice in one or more groups of target adopters. It utilizes the concepts of market segmentation, consumer research, product concept development and testing, directed communication, facilitation, incentives and exchange theory to maximise the target adopter's response.

The social marketing short course will enable students to explore the fundamental principles of social marketing, to gain or improve skills relating to the design and implementation of social marketing interventions. It will include a critical review of the relevance of commercial marketing concepts and behavioural theories to social marketing applications such as sustainability as well as other relevant topics such as environmental issues, crime prevention and health behaviours. You will also gain experience in developing research instruments, using both quantitative and qualitative techniques, in order to provide background research on target populations prior to developing specific interventions.

Content:

1. Social Marketing Foundations
2. Application of Marketing Principles
3. Behaviour Theory Foundations
4. Campaign/Intervention Planning Principles.

Sustainable Education through interaction of Australian Wildlife

Be shown the workings of the park and understand how the park uses hands-on experiences to educate visitors about native wildlife, historical and contemporary threats to their survival and pressures on their habitats with the aim of effecting positive attitudes and behaviour towards the animals.

Horseshoe Bay Ecosystems insight

On arrival on the Island you will have the opportunity to explore a diverse system of habitats from the hinterland of Horseshoe Bay into the catchment of the Great Barrier Reef Marine Park. This area marries the pressures of community living and development with the fragile ecosystem of nature. Understand how Bungalow Bay rangers use activities and interpretation to impart messages about the fragility of island ecosystems and the impact of development, community living and habitat loss on native Australian wildlife to generate sustained attitude and behaviour change by guests.

Lunch break will be provided at midday.

Accommodation

Bungalow Bay Koala Village

Day 21: Magnetic Island (B)

8:00 am – 9:00 am

Group breakfast

9:00 am – 4:00 pm

Social Marketing: Behaviour Change for Environmental Good

Lunch break will be provided at midday.

Accommodation

Bungalow Bay Koala Village

Day 22: Magnetic Island (B)

7:30 am – 8:30 am

Group breakfast

9:30 am – 11:00 am

Lecture
Professor Geoffrey Bell

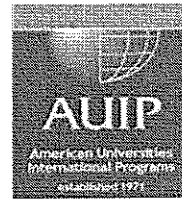
Afternoon

Free time

Accommodation

Bungalow Bay Koala Village

Day 23: Magnetic Island (B)



8:00 am – 9:00 am

Group breakfast

9:30 am – 12:00 pm

Terrestrial Landscapes of the Australian Dry Tropics “Impacts and Management”

Magnetic Island hosts a diverse array of ecosystems supporting an abundant array of flora and fauna. Magnetic Island is home to Australia's most northern population of wild Koala's, the most concentrated population of Northern Death Adders, plus a large array of interesting creatures such as the endangered bush stone curlew. To start your learning experience about Terrestrial Landscapes found throughout Queensland.

The Terrestrial Landscapes focus begins with a special presentation by resident 'Ranger Tony' showcasing the biodiversity of Queensland's habitats tied in with his special personal collection of wildlife endemic to each region.

Visit Magnetic Island National Park's coastal wetlands area of Horseshoe Bay before climbing into the dry sclerophyll forests bordering the granite boulder habitats. Showcasing the diverse habitats home to over 75 species of reptiles, mammals and birds found in the dry tropics.

This immersive learning experience is delivered in collaboration with Queensland Parks and Wildlife Service and is facilitated as part of a walking tour showcasing management practices in the National Park.

Topics Covered:

- Introduction to the diversity of Australian terrestrial ecosystems, a journey from central Queensland to the coast.
- Similarities and linkages between arid environments, open eucalypt forests, grassland, rainforests, mangroves and reef islands.
- Plant and animal adaptations in the environment.
- Sensitive ecosystems.
- European impact: soil, plants, and animals.
- Climate change.
- Magnetic Island ecosystems and management.

12:00 pm – 1:00 pm

Lunch break

1:00 pm – 3:30 pm

Terrestrial Landscapes continued

4:00 pm – 5:00 pm

Faculty-led discussion/break-out
Professor Geoffrey Bell

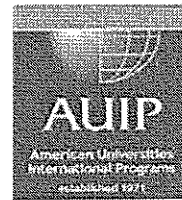
Accommodation

Bungalow Bay Koala Village

Day 24: Magnetic Island (B)

8:00 am – 9:00 am

Group breakfast



9:30 am – 12:00 pm

Koala Population Research

Australia's iconic species the koala has not always been native to Magnetic Island. Join Ranger Tony for hands on approach to explore habitat and adaptation for this species that has made Magnetic Island home for over 50 years.

An exploration of the species from our onsite Koala Sanctuary to learn firsthand about the evolution of the koala and how it is coping throughout Queensland with habitat destruction, knowledge within the community and its 20-year future.

An afternoon of exploration through the eucalypt habitat of Horseshoe Bay to visit pockets of urban encroachment and then to the National Park habitat that this species has made home since its introduction to Magnetic Island.

Exploration of habitat, community awareness, and how the species has adapted to the habitats of the dry tropics.

Lunch break will be provided at midday.

12:00 pm – 1:00 pm

Lunch break

1:00 pm – 3:30 pm

Koala Population Research continued

Accommodation

Bungalow Bay Koala Village

Day 25: Magnetic Island (B)

8:00 am – 9:00 am

Group breakfast

Day

Free day

Accommodation

Bungalow Bay Koala Village

Day 26: Magnetic Island (B)

8:00 am – 9:00 am

Group breakfast

Day

Free day

Accommodation

Bungalow Bay Koala Village

Day 27: Townsville (B, D)

8:00 am – 9:00 am

Group breakfast

9:30 am – 10:00 am

Travel Bungalow Bay to ferry

10:00 am – 10:30 am

Sealink Ferry: Magnetic Island to Townsville

10:30 am – 10:50 am

Walk to Reef HQ lecture classroom

11:00 am – 12:00 pm

Lecture: Introduction to the Great Barrier Reef Marine Park

The Great Barrier Reef is internationally recognized for its outstanding biodiversity. The World Heritage status of the reef recognises its great diversity of species and habitats. Conserving the reef's biodiversity is not just desirable - it is essential. The Great Barrier Reef Marine Park Authority is responsible for managing the Great Barrier Reef Marine Park so it's protected for the future. During this introductory series of lectures you will gain a fuller appreciation of the enormity of the Great Barrier Reef Marine Park, what challenges it is facing and how it is cooperatively manages, making it arguably the best managed natural resource on planet Earth.

12:00 pm – 1:30 pm

Lunch on your own

Numerous restaurants and supermarkets are located on Flinders Street



where you can purchase lunch and supplies.

1:45 pm – 3:15 pm

Lecture: Reef HQ's Triple bottom Line +1

Reef HQ Great Barrier Reef Aquarium takes the contemporary and best practice "Triple Bottom Line" business approach and strengthens its business outcomes by adding "Education." This empowers them and their visitors to be active and informed citizens who have a commitment to sustainability now and well into the future.

4:30 pm – 9:30 pm

Reef HQ Aquarium Reef Sleep

4:30 PM - 5:30 PM

Lecture: Great Barrier Reef conservation and management strategies

5:30 pm - 7:00 pm

Aquarium exploration

7:00 pm – 7:30 pm

Meet night staff

7:30 pm – 8:00 pm

Reef HQ Aquarium group dinner

8:00 pm - 9:30 pm

Rotational activities: torchlight tour, turtle hospital visit and behind the scenes tour

Accommodation

Reef HQ

Day 28: Townsville and Great Barrier Reef (B)

8:00 am – 9:00 am

Group breakfast

9:00 am – 1:00 pm

Eye on the Reef in-water training

Introduction to "Eye on the Reef" program and snorkel in Reef HQ aquarium tanks to learn "Eye on the Reef" methodology and reef survey skills.

1:00 pm – 2:00 pm

Lunch on your own

Numerous restaurants and supermarkets are located on Flinders Street where you can purchase lunch and supplies.

2:15 pm – 4:15 pm

Lecture

Professor Geoffrey Bell

Afternoon/early evening

Store luggage at accommodation; dinner on your own before boarding boat. Walk to wharf on Tomlins Street for boat boarding.

7:30 pm – 8:30 pm

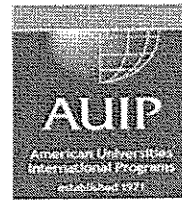
Adrenalin Snorkel & Dive: boat induction and orientation.

Depart for sea late evening.

Accommodation

Adrenalin Snorkel & Dive boat

Day 29: Great Barrier Reef (B, L, D)



9:00 am – 5:30 pm

Great Barrier Reef excursion

Adrenaline Snorkel and Dive, Townsville's most experienced marine tourism operator, will escort you to some of the best sites on the Great Barrier Reef. With over 20 years in Marine Tourism, you can relax knowing they have the skills, knowledge and experience to show you the best spots on the Great Barrier Reef. A great way to see the Great Barrier Reef is to live there. See the stunning array of wild life waking up to an explosion of colour and activity. Dive and snorkel into the evening as daylight softly moves to dusk. Be a part of the reef settling down for the night as the last rays of sunlight bathe the ocean.

The scene is set - three whole days of diving and snorkelling some of the wondrous pearls that go to make up the exquisite necklace that is the Great Barrier Reef.

The Great Barrier Reef Marine Park Authority's "Rapid Monitoring Program" is the latest community monitoring (Citizen Science) tool that enables community members to participate in monitoring the health of the Great Barrier Reef. The strength of the program is that it can be used either at the same site repeatedly for monitoring changes over time or it can be deployed anywhere on coral reefs to get a snapshot of reef health.

You will receive in-water training, instructed in the simplified steps and use of diagrams on underwater slates. The Rapid Monitoring Program can easily be adopted by people who may not have a scientific background however the data collected provides enough detail to be of scientific value for reef managers.

All meals provided onboard.

Accommodation

Adrenalin Snorkel & Dive boat

Day 30: Great Barrier Reef (B, L, D)

9:00 am – 5:30 pm

Great Barrier Reef excursion

All meals provided onboard.

Accommodation

Adrenalin Snorkel & Dive boat

Day 31: Great Barrier Reef and Townsville (B, L)

9:00 am – 4:30 pm

Great Barrier Reef excursion

All meals provided onboard.

4:30 pm

Arrive back in Townsville. Walk to accommodation.

Accommodation

City Oasis Inn

Day 32: Townsville (B)

8:00 am – 9:00 am

Group breakfast

Day

Reading Day

Accommodation

City Oasis Inn

Day 33: Townsville (B)

8:00 am – 9:00 am

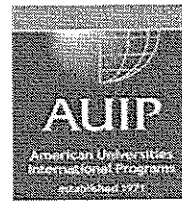
Group breakfast

9:00 am – 11:00 am

Final assessments review
Professor Geoffrey Bell

1:00 pm – 4:00 pm

Final assessments
Professor Geoffrey Bell



Accommodation City Oasis Inn

Day 34: Townsville (B, D)

8:00 am – 9:00 am	Group breakfast
9:00 am – 12:00 pm	Final assessments Professor Geoffrey Bell
Afternoon	Free time
6:30 pm	Final dinner
Accommodation	City Oasis Inn

Day 35: Townsville to USA (B)

6:00 am – 7:00 am	Group breakfast
TBD	Depart for airport on your own; flight departs Townsville



**American Universities International Programs (AUIP)
Established 1971**

Emily Marlton
Northern Europe, Oceania, and Canada Programs Director
Study Abroad Office
University of North Carolina at Chapel Hill
FedEx Global Education Center
301 Pittsboro Street, Campus Box 3130
Chapel Hill, NC 27599-3130

December 24, 2015

Dear Emily:

American Universities International Programs Ltd (AUIP) is pleased to provide the following quote for the provision of services for the University of North Carolina program in Australia in June/July 2017.

About AUIP

AUIP specializes in providing experiential education in the South Pacific region. We work with faculty from American colleges and universities to provide study abroad programs for approximately 1,000 students each year. Our primary goal is to provide high quality, affordable educational opportunities that encourage participants to engage with the cultures and natural environments of other countries through active learning. It is our belief that such programs will not only foster participants' intellectual curiosity about the world around them, but also contribute to wider international understanding, appreciation, and cooperation.

Key advantages of working with AUIP for your service provision include:

- AUIP manages all logistics, so faculty can focus on teaching.
- Faculty and students know the program cost up to a year in advance, with an up-front program fee in US dollars that will not vary with fluctuating exchange rates.
- Programs developed with AUIP have excellent health and safety standards, because AUIP provides local 24-hour support and risk management support.
- AUIP staff are qualified academics with local expertise and contacts. This enables us to integrate lectures from local experts and field activities into the course syllabus, increasing the depth of experience for students.

- AUIP has years of experience in building customized study abroad programs, so there is no need for 'trial and error'. We have established relationships with suppliers throughout our region.

Program Fees

We are pleased to offer services for this program for the following price per student based on the expected enrolment of students outlined below. The faculty/staff free of charge (FOC) are also outlined herein.

Program fee for:

10-11 students with 1 FOC: US\$5,705

12-15 students with 1 FOC: US\$5,485

16-20 students with 1 FOC: US\$5,130

Inclusions

This quote includes the following items. Please note that alterations can be made to this list that may change the program fee (for example, in meals and activities).

- Welcome packs for students and staff, including emergency wallet cards, maps, public transport information and other orientation information.
- Assistance with student, parent and administrative queries prior to and during the program.
- 24-hour emergency contact (phone and email) during the program for students, parents, and the home institution.
- One local cell phone with local currency \$50 credit (this number can be given to parents and administrators prior to the program) and a first aid kit. The phone can receive unlimited incoming calls for no charge. Other program supplies can be provided as required (e.g., guide books, DVDs, maps, field guides, etc).
- Accommodation in the following locations with 1 faculty in private ensuite room (except for while at Billabong Sanctuary, Reef HQ, and aboard Adrenalin Snorkel & Dive where space is shared with students) and students in single-sex (except as noted for shared communal room), multi-share rooms:
 - City Oasis Inn: 10 nights
 - Hidden Valley Cabins: 8 nights
 - Billabong Sanctuary: 1 night (shared communal room)
 - Bungalow Bay Koala Village: 9 nights
 - Reef HQ: 1 night (shared communal room)
 - Adrenalin Snorkel & Dive: 3 nights (please note: students of the same-sex may have to share a "bed platform", however, a divider is present in the middle of the bed to create two twin beds that are on the same base.)
- Meals as follows:
 - Breakfasts: 32
 - Lunches: 12
 - Dinners: 15
- Ground transportation with experienced driver, as detailed on the itinerary
- Educational content and program activities, as detailed on the itinerary

- Program activities and excursions, as detailed on the itinerary

Insurance

Excluded from the quoted price is travel health and emergency medical insurance, which we require that all students have prior to embarking on a study abroad program serviced by AUIP. We can provide travel insurance (including cancellation insurance) if requested.

Health and safety considerations

One of the key advantages in working with AUIP is our local infrastructure, which helps programs to maintain excellent health and safety standards. We offer a 24-hour emergency contact for program participants, staff, their families and university administrators. In addition, we provide the group with a local cell phone with unlimited in-coming calls to facilitate communication with the AUIP office and the home university.

AUIP is a limited liability company and has full public liability insurance coverage with a NZ\$10,000,000 limit of liability, and statutory insurance with a limit of NZ\$250,000.

Payment policies

We do not require a deposit to confirm this program, but we do require confirmation of whether the program will run (based on sufficient enrolment) 90 days prior to the program start date. Prior to this date, we will ask for regular enrolment updates to gauge the program's likelihood of running.

Final participant names, dietary and medical requirements and rooming lists are required by April 15, 2017. Prior to this date, we will ask for regular updates on participant numbers but no charges will be made for any changes in numbers. After final names are given to AUIP on April 15, any cancellations are non-refundable in full.

Full payment for the program is required by May 1, 2017. Payments should be made by telegraphic transfer to our New Zealand bank account.

Please note that the earlier a contract can be arranged, the more able we will be to fulfil your requests and to secure the best rooms and services possible.

Thank you for the opportunity to submit this proposal and I look forward to hearing from you. Please do not hesitate to contact me if anything requires clarification.

Sincerely,

Eleanor H. Mitchell

Eleanor H. Mitchell

Business Development & Custom Programs Manager, American Universities International Programs Ltd

Curriculum Vitae

GEOFFREY W. BELL

Curriculum for the Environment & Ecology
University of North Carolina at Chapel Hill
Campus Box 3275
Chapel Hill, NC 27599
919-843-9713
gwbell@email.unc.edu

EDUCATION

- Ph.D.**, Marine Science (Biological Oceanography), 2008
North Carolina State University, Raleigh, NC
- M.S.**, Marine Science (Biological Oceanography with **Statistics minor**), 2002
North Carolina State University, Raleigh, NC
- B.S.**, Environmental Science (marine studies option), 1997
Rutgers University, New Brunswick, NJ
- A.A.**, Liberal Arts, 1994
County College of Morris, Randolph, NJ

PROFESSIONAL EXPERIENCE

- 04/10 – Present: **Adjunct Assistant Professor** – Marine, Earth, and Atmospheric Sciences (MEAS) Department, NC State University, Raleigh, NC
- 07/09 – Present: **Lecturer** – Curriculum for the Environment and Ecology (CEE), University of North Carolina, Chapel Hill, NC
- 01/09 – 08/09: **Postdoctoral Research Associate** – MEAS Department, NC State University, Raleigh, NC
- 08/07 – 06/09: **Course Instructor** – MEAS Department, NC State University, Raleigh, NC
- 08/05 – 08/08: **EPA Science to Achieve Results (STAR) fellow**
- 08/99 – 08/05: **Graduate Research and Teaching Assistant** – MEAS Department, NC State University, Raleigh, NC

PEER-REVIEWED PUBLICATIONS

- 1) **Bell, G.W.**, D.B. Eggleston, & E.J. Noga. 2010. Can molecular keys unlock variable survival responses of blue crabs to hypoxia? *Oecologia* 163:57-68.
- 2) **Bell, G.W.**, D.B. Eggleston, & E.J. Noga. 2009. Hydrodynamic and physiological controls of blue crab avoidance behavior during exposure to hypoxia. *Biological Bulletin* 217:161-172.
- 3) Eggleston, D.B., **G.W. Bell**, & S.P. Searcy. 2009. Do blue crab spawning sanctuaries in North Carolina protect the spawning stock? *Transactions of the American Fisheries Society* 138:581-592.
- 4) Eggleston D.B. & **G.W. Bell**. 2005. Interactive effects of episodic hypoxia and cannibalism on juvenile blue crab mortality *Journal of Experimental Marine Biology and Ecology* 325:18-26.

- 5) **Bell, G.W.**, & D.B. Eggleston. 2005. Species-specific avoidance responses to chronic and episodic hypoxic disturbances. *Marine Biology* 146:761-770.
- 6) **Bell, G.W.**, D.B. Eggleston, & T.G. Wolcott. 2003. Behavioral responses of free-ranging blue crabs to episodic hypoxia: I. Movement. *Marine Ecology Progress Series* 259:215-225.
- 7) **Bell, G.W.**, D.B. Eggleston, & T.G. Wolcott. 2003. Behavioral responses of free-ranging blue crabs to episodic hypoxia: II. Feeding. *Marine Ecology Progress Series* 259:227-235.
- 8) **Bell, G.W.**, D.E. Witting, & K.W. Able. 2003. Aspects of metamorphosis and habitat use in the Conger eel, *Conger oceanicus*. *Copeia* 3:544-552.
- 9) **Bell, G.W.**, J.A. Buckel, & A.W. Stoner. 1999. The affect of alternative prey on the cannibalism of age-1 bluefish. *Journal of Fish Biology* 55(5):990-1000.

BOOKS

In-prep:

- 1) **Bell, G.W.**, & B.S. Evans. In prep. Introduction to Environmental Science: a Mechanistic Understanding of Earth Systems and Global Change. Kendall Hunt, Dubuque, IA

Published:

- 2) Evans B.S., **G.W. Bell**, & E. Thurman-Irons. 2014. Introduction to Environmental Science Lab Manual, 3rd Edition. Kendall Hunt, Dubuque, IA, 165 pp
- 3) **Bell, G.W.**, B.S. Evans, & S.S. Schelegle. 2012. Introduction to Environmental Science Lab Manual, 2nd Edition. Kendall Hunt, Dubuque, IA, 180 pp
- 4) **Bell, G.W.**, B.S. Evans, & B.E. Lopez. 2011. Introduction to Environmental Science Lab Manual. Kendall Hunt, Dubuque, IA, 142 pp.

THESES AND REPORTS

- 1) Curriculum for the Environment and Ecology Self Study for the Program Review (2013). *Wrote and compiles statistics for Sections III.a.i. and III.d.ii.*
- 2) **Bell, G.W.**, D.B. Eggleston, & K. Bridges. 2010. Timing and route of movement in mature female blue crabs in northeaster North Carolina. NC Blue Crab and Shellfish Research Program Report 09-POP-05-B, NC Sea Grant, Raleigh, NC, 36 pp.
- 3) **Bell G.W.** 2008. The impact of episodic hypoxia on blue crabs (*Callinectes sapidus*): from molecules to populations. PhD, NC State University, MEAS Dept., Raleigh, NC 152 pp.
- 4) Eggleston, D.B., **G.W. Bell**, S.P. Searcy, E.J. Johnson, T. Alphin, G.R. Plaia, & M. Posey. 2006. Field assessment of spawning sanctuaries and possible migration corridors for the blue crab spawning stock in North Carolina. NC Blue Crab and Shellfish Research Program Report 01-POP-08, NC Sea Grant, Raleigh, NC, 44 pp.
- 5) Eggleston, D.B., **G.W. Bell**, E.G. Johnson, & G.T. Kellison 2004. Fish and spiny lobster density, size-structure, and fish diversity within multiple back reef habitats of the Great White Heron National Wildlife Refuge, USA. Final Report in Partial Fulfillment of a Challenge Cost-Share Agreement between the Center for Marine Conservation and U.S. Fish and Wildlife Service for Contracts 1448-40181-99-6 and 1448-40181-00-6143, June, 2004, 75 pp.

- 6) **Bell G.W.** 2002. Behavioral responses of free-ranging blue crabs to episodic hypoxia. MS, NC State University, MEAS Dept., Raleigh, NC, 58 pp.

PRESENTATIONS

Contributed:

- 1) April 2008: "Environmental and physiological controls of blue crab avoidance behavior during exposure to hypoxia" Marine Benthic Ecology Meeting, Providence, RI
- 2) April 2007: "Are molecular biomarkers the keys to unlocking variable survival responses of blue crabs in hypoxia?" Marine Benthic Ecology Meeting, Atlanta, GA
- 3) September 2006: "Predicting ecological impacts of poor water quality: a mechanistic solution" EPA STAR-GRO Fellowship Conference, Washington, DC (**best poster presentation award**)
- 4) September 2005: "Do molecular keys unlock variable responses of blue crab survival to hypoxia?" American Fisheries Society National Meeting, Anchorage, AK
- 5) May 2005: "Blue crabs as indicators of poor water quality in North Carolina" Fellowship proposal to the board of NC Beautiful
- 6) March 2004: "Interactive effects of hypoxia and cannibalism on mortality of juvenile blue crabs" Marine Benthic Ecology Meeting, Mobile AL
- 7) June 2003: "Feeding responses of free-ranging blue crabs to episodic hypoxia in a highly eutrophic river" Crustacean Society Meeting, Williamsburg, VA
- 8) March 2002: "The effect of periodic and dynamic hypoxia on blue crab movement, abundance, and distribution patterns" Marine Benthic Ecology Meeting, Orlando, FL
- 9) March 2001: "Periodic hypoxia, blue crab movement patterns, and feeding behavior within a highly eutrophic river" Marine Benthic Ecology Meeting, Durham, NH
- 10) May 1999: "Cannibalistic behavior of age-1 bluefish in the presence of an alternative prey" Cooperative Marine Education and Research Program Symposium, Woods Hole, MA
- 11) April 1999: "The morphological and behavioral aspects of metamorphosis for the Conger eel, *Conger oceanicus*" NJ Academy of Sciences Meeting
- 12) August 1998: "Cannibalistic behavior of age-1 bluefish in the presence of an alternative prey" American Fisheries Society National Meeting, Hartford, CT

Invited:

- 13) August 2010: "Building a mechanistic understanding of hypoxia's impact on coastal ecosystems: can physiological responses to hypoxia predict population consequences in a changing world?", American Physiological Society Intersociety Meeting, Westminster, CO
- 14) March 2010: "How is physiology relevant to fisheries: the case of blue crab blood, behavior, and biomarkers.", NCSU Student Fisheries Society Meeting, Raleigh, NC
- 15) September 2007: "Can molecular keys unlock the mysteries of variable behavioral and survival responses to hypoxia?", NCSU Center for Marine Science & Technology Seminar Series, Morehead City, NC
- 16) August 2006: "The impact of poor water quality on North Carolina's largest fishery – blue crabs.", COSEE SE Ocean Sciences Education Institute teacher workshop, Emerald Isle, NC

AWARDS & GRANTS

Fellowships & Grants:

- Course Development Grant for *Conservation in Theory and Practice*, Assisting People in Planning Learning Experiences in Service (APPLES), 2015 – 2017 (\$5,000).
- Secured private donor funding for transportation and lodging expenses associated with a Capstone course, 2015
- Faculty Development Grant for Online Courses for *Introduction to Environmental Science*, UNC Summer School, 2013 – 2014 (\$11,000).
- Ueltschi Service-Learning Course Development Grant for *Restoration Ecology*, Assisting People in Planning Learning Experiences in Service (APPLES), 2011 – 2014 (\$8,000)
- Research grant, *Timing and route of movement in mature blue crabs in northeastern North Carolina*, NC Sea Grant Blue Crab and Shellfish Research Program, 2008 (\$6000)
- EPA Science To Achieve Results (STAR) Fellowship, 2005 – 2008 (\$105,000)
- NC Beautiful Dan K. Moore Graduate Fellowship, 2005 (\$10,000)
- Sigma Xi Graduate Student Research Grant, 2000 (\$350)

Awards/Accolades:

- Recognition from UNC's Office of Undergraduate Retention for support and dedication to four graduating seniors, 2015
- Tobias/Williams Award for outstanding Marine Science research, 2008
- Best poster presentation for EPA STAR-GRO Fellowship Conference, 2006
- MEAS Department Outstanding Teaching Assistant Award, 2005

TEACHING ACTIVITIES

Undergraduate Courses:

- Introduction to Environmental Science (UNC-CH; ENEC 202)
 - ✓ Awarded a 2-yr course development grant (2013) from UNC's Summer School to create an online version.
 - ✓ Selected for the Faculty Peer Visits Program Center (2015) to encourage other UNC faculty to implement interactive methods in a live classroom setting.
- Restoration Ecology (UNC-CH; ENEC 304)
 - ✓ Awarded a 3-yr Ueltschi Service-Learning Course Development Grant from UNC's APPLES program (2011).
- Conservation in Theory and Practice (UNC-CH; ENEC 264)
 - ✓ Awarded a 2-yr Service Learning Course Development Grant from UNC's APPLES program (2015).
- Environmental Capstone (UNC-CH; ENEC 698):
 - ✓ Secured private donor funds to support travel for research (2015)
- Marine Fisheries Ecology (UNC-CH; ENEC 352)
- Ecosystem Management (UNC-CH; ENEC 462)

- Internship in Environmental Studies or Science (UNC-CH; ENEC 293):
- Senior Honors Thesis (UNC-CH; ENEC 693H/694H):
- Earth Systems Sciences Laboratory (NCSU; MEA 100)
- Oceanography Laboratory (NCSU; MEA 210)
- Principles of Biological Oceanography (NCSU; MEA 449/549)
- Ecology of Coastal Resources (NCSU; MEA 469)

Graduate-level Courses:

- Classics in Animal Community Ecology (UNC-CH; ECOL 891)
- Current Issues in Ecology (*UNC-CH*; ENST 569)
- Marine Benthic Ecology (NCSU; MEA 750)

Experiential Education Programs:

- Sustainable Ecosystem Management in Australia (*in prep* for Summer 2017)
 - *Writing proposal with UNC Study Abroad Office to teach courses on Ecosystem Based Management (EBM) and restoration, as well as offer students research projects or internships with community partners conducting EBM or restoration.*

Professional Development:

- Helping Students Thrive in College Workshop: A Focus on Student-Faculty Interactions, Center for Faculty Excellence, April 2015
- Faculty Learning Community member, Center for Faculty Excellence, 2015 – present
- Innovation in Teaching and Learning Workshop 1, College of Arts and Sciences, Office of Undergraduate Education, and the Center for Faculty Excellence, 2015
- Innovation in Teaching and Learning Workshop 2, College of Arts and Sciences, Office of Undergraduate Education, & the Center for Faculty Excellence, 2015
- eQuality Essentials: Part 1, introductory course for teaching online, UNC Summer School, 2013
- eQuality Essentials: Part 2, introductory course for teaching online, UNC Summer School, 2013
- Certificate of Accomplishment in Teaching (CoAT) Program, NC State University, 2007 - 2009

ADVISING/MENTORING ACTIVITIES

Undergraduate Advising/Mentoring:

- Academic advisor for Curriculum for the Environment and Ecology undergraduates, 2009 - present
- Faculty mentor for Colonel Robinson Scholars Program, 2015 – present
- Faculty mentor for Colonel Robinson Scholars Program, 2010 – 2014

Undergraduate Research:

- Austen Hughes (UNC-CH), Senior Honors Thesis Advisor, *The role of environmental drivers on the distribution of vermillion (*Sebastes miniatus*) and sunset rockfishes (*S. crocotulus*) in the southern Carlifornia*, 2014 – 2015
- Rebecca Rosemond (UNC-CH), Senior Honors Thesis Advisor, *Pinging fish in a barrel: developing a general target strength-size model for reef fish*, 2013 – 2014
 - ✓ Presented research at annual Ocean Sciences Meeting (February 2014)
- Morgan Bettcher (UNC-CH), Senior Honors Thesis Reader, *Aquatic invertebrates of an Andean cloud forest: community structure and environmental gradients*, 2013 – 2014
- Allison Amavisca (NCSU), Honors Thesis Mentor, *Interactive effects of episodic hypoxia and cannibalism on juvenile blue crab mortality*, 2002 – 2003
- James Trice III (NCSU), Alliances for Graduate Education and the Professoriate (AGEP) student research project Mentor, *Movement patterns of blue crabs in urbanized and natural salt marsh creek systems*, 2005 – 2006

Graduate Student Research

- Seth Theuerkauf, (MS, MEAS Dept, NCSU), Committee Member, *Comprehensive Oyster Metapopulation Modeling to Guide Oyster Restoration and Habitat Protection*, 2014 – Present
- Jason Peters (MS, MEAS Dept, NCSU), Committee Member, *Oyster Demographic Rates in Fished Areas: Recruitment, Growth, and Mortality*, 2013 – 2014
- Robert Dunn (MS, MEAS Dept, NCSU) Committee Member, *Effects of substrate type and boring sponges on oyster recruitment success across a salinity gradient*, 2011 – 2013
- Katherine Pierson (MS, MEAS Dept, NCSU), Committee Member, *Response of fish assemblages to large-scale oyster restoration in Pamlico sound, NC*, 2010 – 2011
- Ryan Rindone (MS, MEAS Dept, NCSU), Committee Member, *Predator-prey dynamics between stone crabs (*M. mercenaria*) and eastern oysters (*C. virginica*) in NC*, 2009 – 2010

SERVICE ACTIVITIES

- Interview with Daily Tarheel on Maymester courses (Published 4/8/15)
<http://www.dailytarheel.com/article/2015/04/students-dive-deep-in-summer-session-maymester-classes>
- Led Capstone class to conduct research and plant trees on reclaimed coal mines for Appalachian Regional Reforestation Initiative (Spring 2015). Lexington Herald-Leader news article wrote about class (published 3/15/15)
<http://www.kentucky.com/2015/03/15/3748878/group-plants-trees-in-eastern.html>
- Faculty member for the Faculty Peer Visits Program; Center for Faculty Excellence (UNC-CH)
<http://cfe.unc.edu/faculty-peer-visits-program/>
- Featured in UNC student produced news story on Jordan Lake water quality (aired 12/1/14 on UNCTV)

<http://video.unctv.org/video/2365379053/>

- Led undergraduates in my Restoration Ecology class to conduct monitoring and research projects for community partners including UNC-CH Institute for Marine, NC Department of Environment and Natural Resources, UNC-CH Botanical Gardens, UNC-CH Mason Farm Biological Reserve, UNC-CH Energy Services Department, and Town of Chapel Hill Public Works Department
- Faculty Liaison, UNC-CH Office of Instructional Innovation, 2015 – present
- Faculty Chair, CEE undergraduate curriculum committee, 2014 – present
- Faculty Representative, UNC-CH Office of Undergraduate Curricula and Study Abroad Office, 2011 – present
- Faculty Representative, UNC-CH Honors Program, 2014 – present
- Faculty Reviewer, UNC-CH Scholars Program, 2009 – Present
- Faculty Representative, UNC System Disciplinary Panel, 2011
- Graduate Student Representative, NCSU MEAS department committees, 2006 – 2008
- President, Vice President, Secretary, NCSU MEAS Graduate Student Association, 2004 – 2008
- Science Outreach Developer, Camp Seafarer, 2004
- Guest Speaker, NCSU, Center for Marine Sciences & Technology Open House, 2007
- Guest Speaker, Capital Area National Home School Honor Society's Career Day, 2005
- Science Judge, NC 4-H independent study contest, 2005
- Science Judge: NC Ocean Sciences Bowl, 2000 – 2004