Corals, Koalas and Cassowaries
Great Barrier Reef and Tropics of Australia

COURSE GUIDE

Course Professor: Dr. Amanda Benson, Ph.D. (Harvard). Lecturer in Biological Sciences

Course Assistant: Jonathan Ertlet, M.A. (Green House Manager, Vanderbilt University) 3 credits:

Course Credit: Axel and Axel Lab, and Biology Major Credit

Course Dates: Approximately May 7th to May 22 at Vanderbilt; May 23th to Jun 6th in Australia

Textbooks:

- A Primer for Conservation Biology, Richard Primack

Evaluation Part I at Vanderbilt:

1. Presentation on Australia’s Biodiversity 150 points
2. Discussions 100 points
3. Quizzes
   a. Quiz I 50 points
   b. Quiz II 50 points
   c. Quiz III 50 points
4. Final Quiz -- Cumulative 100 points

Evaluation Part II in Australia:

1. Journal on Biodiversity & Conservation in Australia 500 points

Class Policies:

1. Attendance is extremely important for the class, as the quizzes will be heavily based on the lectures.
2. There is a stiff penalty for not attending discussions, and not completing the assignments.
3. Assignments must be passed in on time and a deduction will be taken for unexcused late assignments.
4. Assignments are to be done on your own, unless explicitly stated.

Learning Outcomes

1. Understanding the complexities of Biodiversity
   - Species Diversity
   - Genetic Diversity
Ecosystem Diversity’
Distribution of Biodiversity
Definitions of “Hot Spots”

3. Value of Biodiversity
   Ecological Economics

4. Evolution
   Biological Diversity through the ages
   Australia’s unique evolution
   Speciation & Biodiversity in Australia
   Extinction, the endless cycle

5. Dynamics of Ecosystems
   Trophic Level Interactions in the Tropics and the Ocean
   Why the world is Green.
   Case Study: Tropical Forest of Austral
   Case Study: The Great Barrier Reef

6. Threats of Biodiversity
   Global Climate Change
   HIPPO-- habitat destruction, invasive species, pollution, human over population, and over-harvesting

7. Conserving Populations and Species using case studies in Australia
   Conserving Species
   Island Biogeography & Conservation

8. Protection and Restoration using case studies in Australia
   Conserving Areas
   In Situ and Ex Situ Conservation Strategies
   Restoration

“The animal kingdom as developed in Australia presents us with anomalies and peculiarities...”

Alfred Russel Wallace, Australasia, 1893
Lectures to given here and in Australia:

**Biodiversity**

Lecture 1  
**Topic:** Introduction to Australia

Lecture 2  
**Topic:** Defining Biodiversity

Lecture 3  
**Topic:** Flora of the Tropics and Fauna of the Coral Reef

**Evolution**

Lecture 4  
**Topic:** History of life on Earth

Lecture 5  
**Topic:** Australia’s Unique Evolution

Lecture 6  
**Topic:** Speciation & Extinction

**Ecosystem Dynamics**

Lecture 7  
**Topic:** Trophic Interactions

Lecture 8  
**Topic:** Daintree Tropical Rainforest

Lecture 9  
**Topic:** The Great Barrier Reef

**Threats to Biodiversity & Conservation**

Lecture 10  
**Topic:** HIPPO I

Lecture 11  
**Topic:** HIPPO II

Lecture 12  
**Topic:** Conserving Populations

**Conserving, Protecting and Restoring**

Lecture 13  
**Topic:** Conservation Areas

Lecture 14  
**Topic:** Restoration

Lecture 15  
**Topic:** Sustainable Development