



Eco-Academy 2011-2012

Marine Conservation Science and Policy

Wildlife Conservation Studies

Deering Estate at Cutler

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ECO-ACADEMY for Youth and Parents Educators

The **ECO-ACADEMY** provides a hands-on curriculum to community youth and the general public in the fields of marine biology, zoology, comparative anatomy, biomes, anthropology and principles of conservation. Our team is a highly trained group of individuals that is dedicated to preserve and interpret the invaluable resources found at Deering Estate at Cutler. Our Eco-brigade is prepared to interact in a fun and educational way with every group regardless of age, special interests or grade level. They will encourage student and parent educator participation during educational programs. They are trained in South Florida and the world's ecosystems. With some of the highest quality and most diverse natural resources remaining in Miami-Dade County, our **ECO-ACADEMY** also educates our community about preserving our biodiversity through environmental stewardship, environmental sustainability, and overall resource management.



ECO-ACADEMY'S sessions engage participants in an interactive, positive and balanced activity to help them understand and appreciate, as well as think critically about, the world around them. The Deering Estate staff provides participants with fossils, artifacts and tools, living exhibits, preserved specimens, photographs and simple laboratory experiments to help illustrate the key points of a specific topic. The program will accommodate up to 30 people and will be offered once a week for 30 week during the academic year for 2 hours each session. The fee is \$35 per module (5 weeks). The cost of material is included in the fee. (Field Trip fees are not included).

Module Sessions

Module	Dates	Classes				
Marine Biology	August 29 th – October 1 st	Oceanography	Ichthyology	Cetaceans	Marine Adaptations to mangroves and seagrasses	Marine Adaptations to Sandy Beaches
Zoology	October 3 rd – November 5 th	Zoogeography	Animal Physiology	Species Interactions	Neuroethology	Ethology (Visit to the Zoo)
Comparative Anatomy	November 7 th – December 17 th <i>* No classes on Thanksgiving week</i>	Nervous Systems	Respiratory Systems	Circulatory Systems	Endocrine System	Deering Olympics
Biomes	January 9 th – February 11 th	Tundra	Forests	Dessert	Grasslands	Aquatics
Anthropology	February 13 th – March 24 th <i>* No classes on Spring Break Week</i>	Surviving in the Tundra	People of the Forests	Surviving in the Dessert	Seminole People and the Second Seminole War	People who depends on fresh and saltwater
Principles of Conservation	March 26 th – April 28 th	Conservation Actions	Wildlife of Florida	Human Impacts on Natural Resources	Diseases and wild population	Conservation Service Learning Project

Class Schedule

Tuesday AM 10:30-12:30

Tuesday PM 2:30-4:30

Saturday PM 1:00-3:00

Class Fee: \$35 per module (5 wks) plus \$12 annual Registration Fee

Marine Conservation Science and Policy Service Learning Program



Early in 2010, the Deering Estate at Cutler received a grant from the R. J. Dunlap Marine Conservation Program to design a curriculum and lesson plans for the **Marine Conservation Science & Policy Service Learning Program** so that teachers, students, and staff learn collaboratively in a hands-on environment that is convenient for all. Each of five, five week lesson plans, includes in depth study in Coastal and Ocean Habitats; Ichthyology; Ocean Connections; Marine Issues; and Management, Conservation, Research, and Action. In partnership with the Deering Estate at Cutler (an historic flanking protected resources of the Biscayne Bay Aquatic Preserve and listed on the National Register of Historic Places), the **MCS&P Service Learning Program** partnership provides a practical, hands-on marine science education and self-initiated research project opportunities for high school, undergraduate and graduate students in the marine science field. Fostering excitement, scientific understanding and stewardship of our native habitats, coastlines and bay resources, the proposed **MCS&P Service Learning Program** educates our community (particularly youth) about preserving our biodiversity through environmental stewardship, environmental sustainability, and overall resource management.

This program will be taught at Deering Estate at Cutler for 30 weeks during 2 hours sessions once a week. This program is designed for youth 9 yrs old and older. Parents are required to participate for students 9yrs -11 yrs old. The cost of the program is \$35 per module plus \$12 annual registration fee. A minimum of 25 participants is required.

Module Sessions

Module	Dates	Classes				
Coastal and Ocean Habitats I	August 29 th – September 26 th , 2011	Ocean Zones	Salt Marshes	Mangroves	Intertidal Zones	Sea Grasses
Coastal and Ocean Habitats II	October 3 rd – October 31 st , 2011	Sandy Shores	Reefs	Coastal Dune Barrier Islands	Coastal Landforms	Everglades
Ichthyology	November 7 th – December 12 th , 2011 <i>* No classes on Thanksgiving week</i>	Introduction to Ichthyology	Structure and Form of Fishes	Bony Fishes	Cartilaginous Fishes	Shark Anatomy and Dissection
Ocean Connections	January 9 th – February 6 th , 2012	Marine Biodiversity	Species Interactions	Trophic Structures	Population Sampling	Ocean Resources
Marine Issues	February 13 th – March 19 th , 2012 <i>*No classes during Spring Break</i>	Coastal Development	Fishing and Bycatch	Pollution, Water Quality and Bioaccumulation	Climate Change	Invasive Species
Management, Conservation, Research and Actions	March 26 th – April 23 rd , 2012	The Scientific Method: Using Data	Fisheries and Management Strategies	Mercury Toxicity Data	Satellite Tracking Data	Principles of Conservation and Stewardship

Class Schedule

Monday AM 10:30-12:30

Class Fee: \$35 per module (5 wks) plus \$12 annual Registration Fee

Wildlife Conservation Studies

We understand that today's environmental issues are complex and require an educated citizenry. In its most general sense, environmental literacy means understanding how human actions and decisions affect environmental quality and acting on that understanding in a responsible and effective manner. Environmental literacy consists of four essential aspects (NAAEE, 2000): 1) developing inquiry, investigative, and analysis skills; 2) acquiring knowledge of environmental processes and human systems; 3) developing skills for understanding and addressing environmental issues; and 4) practicing personal and civic responsibility for environmental decisions.

The **WILDLIFE CONSERVATION STUDIES** curriculum will include student application of these four essential



elements in order *to increase environmental stewardship*. Through culminating activities that directly engage students in environmental practices, students will practice informed, responsible citizenship that is the ultimate aim of environmental literacy.

Isolating activities such as computers, video games, television, and emphasis on book work in the formal classroom offer few opportunities for kids to interact with their natural world, and as a result many of tomorrow's leaders and policy makers may grow up with little or no meaningful exposure to environmental education or opportunities to connect with the natural world that comes from exploring fields, marine environments, and tropical hammocks. Linking education and the environment can result in dramatic improvements to the quality of education. A report issued in 2000 by the National Environmental Education and Training found that reading and mathematics scores improved; Students performed better in science and social studies; Students developed the ability to transfer their knowledge from familiar to unfamiliar contexts; Students learned to “do science” rather than just “learn about science;” Classroom discipline problems declined; and All students have the opportunity to learn at a higher level

Module Sessions

Module	Dates	Classes				
Wilderness Survival	August 31 st – October 1 st	Photo Journalism	Wilderness First Aid	Orientation	Safety Biking	Water and Canoeing safety
Ecosystems I	October 3 rd – November 5 th	Interior Uplands I	Interior Wetlands I	Interior Waters I	Coastal Uplands I	Coastal Waters I
Ecosystems II	November 7 th – December 17 th <i>*No classes on Thanksgiving week</i>	Interior Uplands II	Interior Wetlands II	Interior Waters II	Coastal Uplands II	Coastal Waters II
Natural Resources Management	January 9 th – February 11 th	Soil Management	Water management	Plants Dendrology	Animal tracking	Designated Critical Habitats
Using Data	February 13 th – March 24 th <i>*No classes on Spring Break Week</i>	Sustaining Ecosystems	Carrying Capacity	Stimulating Succession	Tracking Endangered species	Investigating Legislation
Conservation and Stewardship	March 26 th – April 28 th	Hometown Conservation	Natives vs. Invasive	Reclamation Project	Captive Wildlife	Service Learning Project Presentation

Class Schedule

Wednesday AM 10:30-12:30

Class Fee: \$50 per module (5 wks) plus \$12 annual Registration Fee