Syllabus for BIO 596Z - Amazon Aquatic Ecology
Dr. Cristina Cox Fernandes

Overview
This course will provide an on-site introduction to the world’s epicenter for aquatic and terrestrial diversity – the Amazon Basin of South America. We will examine the Amazon’s fauna, flora and ecosystems and we will have a chance to interact with people in small villages.

The first part of the course, to take place during the spring semester, will introduce general principles in Amazon ecology. In 6 meetings, we will discuss some basic chapters of John Kricher’s (1997) book “A Neotropical Companion: an introduction to the animals, plants and ecosystems of the New World Tropics”, including climate, ecology, diversity, conservation, fisheries and forests, and cultural aspects of Amazonian people. This is an important step to help students build background knowledge about the Amazon region. During these meetings we will also search for topics of interest to which students will explore during the field section of the course.

In mid-May, we will travel for 12 days in the Brazilian Amazon. The first habitats we'll explore during the course will be seasonal floodplains, channels and lakes of Careiro and Marchantaria Islands, in the Amazon River. Along the Amazon, the seasonal water level fluctuation is tremendous, about 10 m per year. In May, the level of the waters will be almost at its peak, which will allow us to access many sites by canoe. These islands offer an ideal opportunity to observe wildlife and to visit communities of people living along the island’s margins. We will observe how both the wildlife and people are adapted to cope with the annual flood cycles. At the same time these islands are close to Manaus, which allow us to visit the city before moving to the second part of the trip. In Manaus we will spend a day at the National Institute of Research in the Amazon (INPA - www.inpa.gov.br) where will visit the Natural History Collections, the manatee project, observe the electric eels, caimans and many other wildlife.

The second habitats we will explore on our trip are the flooded igapó forest of the Negro river, the terra firme forest, minor watercourses, and islands of Anavilhanas. The waters and vegetation of the Negro river differ dramatically from those of the Amazon – this is the famous distinction between white and black waters. Novo Airão (Map 2, A) is a small town on the south bank of Negro river, about 100 km from Manaus, in the vicinity of the Anavilhanas Archipelago. At Novo Airão we will meet with local people to learn about their culture and the socio-economic options available to them, such as Fundação Malaquias Altamira (NGO). We’ll visit the Anavilhanas, examine vegetation, and measure the chemical properties of the black water. We’ll learn about the electric fishes and their different species electric organ discharges.
This course will provide a practical opportunity to apply concepts and skills from other courses in the Biology department. Students will be expected to work on projects in small groups, and to present ideas and observations about a group of organisms or a subject chosen by the group. Research about the topic will start before trip, and discussion/presentation will take place at the end of the course, during the last days on our field trip. A written essay should be handed in a week after the field trip and will be considered part of the grade (see grading details below).

This is an introductory course designed to familiarize students with the aquatic ecology of the Amazon region. Readings and discussions will introduce students to the major topics in major aquatic ecosystems and organisms in the Amazon prior to the fieldwork. During the discussions, we will identify project topics to be developed during the course. No prior course is required, but students are expected to have a general biology interest and to be enthusiastic about learning about Amazonian topics.

**Schedule**
- Lectures will be held weekly during March and April 2013. Primary reading for the lectures is John Kricher’s (1997) book “A Neotropical Companion”, and will cover topics including climate, ecology, diversity, conservation, fisheries and forests, and cultural aspects of Amazonian people.
- Field trip will begin on the 17th of May and end the 29th of May, 2013.

**Grading**
- Reading and discussion (10%) – students are expected to read the papers and participate in the discussion.
- Research (10%) – students, in groups of two, should identify and explore their topic before the field trip.
- Project during the field trip (20%) – topic will be explored during the field trip, through interviews, observation, examination of material, etc., depending on the subject.
- Participation (10%) – attendance and positive attitude during the field trip.
- Presentation (20%) – group oral presentation at the end of field trip, on the boat.
- Written essay (30%) – a maximum of 10 pages double spaced, with figures at the end, should be turned in to one week after our return. This essay should contain information on the topic of research prior and after field trip, including the ideas that worked, changed, or expanded during or after the trip.

**Additional information**
- Books (field guides) and reading material for the field trip will be provided by CCF.
- Students are welcome to bring their laptops to the field trip to keep their project organized. They should also bring specific material related to their projects.
- A pair of binoculars and camera are also recommended.