



Course Syllabus

Tropical Field Biology and Primatology

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Instructors

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Course Objectives

The goals of this course are two-fold: first, to give participants advanced training in field techniques important to primate conservation and research, and second, to expose them to the most diverse community of plants and wildlife anywhere on the planet. This course emphasizes field exercises and learning over classroom-based lectures, and students will also read selected literature on applied tropical biology research and primate conservation.

Course Topics

<i>Topic of Study</i>	<i>Activity</i>	<i>Description</i>
I. Introduction <ul style="list-style-type: none"> Threats to the Amazon in the Madre de Dios Department, Peru; conservation efforts of the Amazon Conservation Association (ACA); conservation efforts of Primates Peru Field ethics, safety precautions, rules, and useful tips. 	Lecture Discussion	A review of the major conservation approaches in the MDD, the conservation efforts of ACA, and Primate Peru's research and conservation goals. Keeping your footprint to a minimum while working with wildlife in the tropics, and ensuring your safety and the safety of the wildlife around you.
II. Navigation & Recording Spatial Data <ul style="list-style-type: none"> Basic functions of a handheld GPS and compass Waypoint data and how they are used Track data and how they are used Visualizing spatial tracks and points 	Demo Exercise Exercise Exercise	Getting familiar with the most important pieces of equipment you will have in the field. Recording key features of the research station with waypoints. Outlining the station perimeter and main buildings with track data. Manipulation of GPS data; creating a digital map in the field.
III. Radio telemetry <ul style="list-style-type: none"> Navigating to stationary signals Navigating to moving objects 	Exercise Exercise	Using the radio telemeter to locate close-range, stationary signals in and around camp. Using radio telemetry to navigate to moving objects both close to camp and in the field.
IV. Working with forest trail systems <ul style="list-style-type: none"> Navigating the trail system 	Exercise	On-trail hiking and learning to read a trail map while making basic wildlife observations in the field.

<p>V. Neotropical Primates</p> <ul style="list-style-type: none"> • Neotropical primates • Tracking primates by vocalizations • Trail census • Primate behavioral follows (focal and scan sampling) 	<p>Lecture</p> <p>Exercise</p> <p>Exercise</p> <p>Exercise</p>	<p>Neotropical primate diversity, with an emphasis on the 11 species at the field site.</p> <p>Recognizing vocalizations and testing your echolocation skills to census primates.</p> <p>Conducting primate surveys using the trail systems</p> <p>Conducting half-day follows of individually identified primate groups: sunrise-midday and midday-sunset.</p>
<p>VI. Amazonian Mammals</p> <ul style="list-style-type: none"> • Neotropical mammals • Motion sensing cameras 	<p>Lecture</p> <p>Exercise</p>	<p>Learning common mammals you are likely to encounter at camp and on the Los Amigos River.</p> <p>Censusing mammals using camera traps</p>
<p>VII. Amazonian Birds</p> <ul style="list-style-type: none"> • Neotropical birds • Bird watching • Mist-netting birds 	<p>Lecture</p> <p>Exercise</p> <p>Exercise</p>	<p>Learning the most common birds you are likely to encounter at the field station.</p> <p>Making species identifications by observing feather coloration, calls, habitat, and flight patterns.</p> <p>Capturing and identifying birds by hand.</p>
<p>VIII. Recognizable Plants of the Amazon</p> <ul style="list-style-type: none"> • Neotropical plants • Plant identification • Identification of primate feeding trees 	<p>Lecture</p> <p>Exercise</p> <p>Exercise</p>	<p>Recognizing tropical plant families and species.</p> <p>Learning the basics of plant morphology, identifying characters, and taxonomy.</p> <p>Collecting plant samples from marked feeding trees and bringing them back to camp for identification.</p>
<p>IX. Amazonian Reptiles and Amphibians</p> <ul style="list-style-type: none"> • Neotropical herpetofauna • Nightwalks 	<p>Lecture</p> <p>Exercise</p>	<p>Basic reptile and amphibian biology and their diversity in the tropics.</p> <p>Surveying trails at night for amphibians and reptiles.</p>
<p>X. Amazonian Insects</p> <ul style="list-style-type: none"> • Introduction to insects and arachnids • Ant and dung beetle feeding experiments • General insect surveys 	<p>Lecture</p> <p>Exercise</p> <p>Exercise</p>	<p>Learning to quickly recognize the major insect orders.</p> <p>Experimenting with inter- and intraspecific feeding behaviors and resource competition.</p> <p>Using butterfly nets to collect insects and practice specimen identification.</p>
<p>XI. Tree Climbing</p>	<p>Exercise</p>	<p>Learning to safely ascend and descend small and emergent trees.</p>

XII. Presentation and discussion of scientific articles about the Amazon	Exercise	Students will lead a group discussion on peer-reviewed research articles on Amazonian ecology and fauna.
XIII. Viewing the Amazon Through Different Lenses		
<ul style="list-style-type: none"> • Wildlife excursion to the Los Amigos Conservation Concession 	Trip	Boat safari up and down the Los Amigos river, stopping at beaches for mammal tracks.
<ul style="list-style-type: none"> • Canopy tower 	Hike	Observing the forest from a 60 m-high canopy tower.
<ul style="list-style-type: none"> • Mammal clay lick visit 	Trip	Boat ride across the Los Amigos river and a hike to a mammal clay lick.
<ul style="list-style-type: none"> • Palm swamp and oxbow lakes 	Hike	Visit to the Anaconda palm swamp and Giant River Otter oxbow lake.

Course Work

Each student will be required to maintain specific data sheets throughout the course, including a daily observation and activity log, a primate census log, and a comprehensive species sightings list. Throughout the course, students are encouraged to identify each new plant and animal sighting to the lowest possible taxonomic level. In addition to these ongoing assignments, students will turn in brief reports that summarize the outcomes of course exercises pertaining to specific modules such as botany, entomology, herpetology, and primatology.

Coursework will help students think critically about the material we will cover and begin to see the value in high quality field notes. Students are able to leave the program with a complete record of everything they achieved. Species data collected by students will also be collated across the course and provided to the field station to contribute to overall biodiversity censuses at the site.

Please note that a laptop with a USB port is required in order to complete certain portions of the course, including the Navigation and Spatial Data module.

Reading List

A list of articles needed for this course will be sent to each student 4 weeks prior to the course start date. All articles **MUST** be read prior to arriving for the field course. Each student will be responsible for presenting one scientific article for group discussion. The class will analyze peer-reviewed articles for efficacy of methods, analysis of data, and reliability of conclusions. Some of the information from the articles may additionally be reviewed during lectures and appear on quizzes.

We encourage all students to bring electronic copies of the articles on their computers. If you choose to bring hardcopies, please print on double-sided paper.

Scholarly Integrity and Ethics

It is expected that all exams and assignments reflect only the work of the student whose name appears on the document. The use of another's word as your own, whether published literature or another student's answer, on any assignment or exam, will result in the loss of a course certificate. In instances where credit is being awarded by other institutions, any evidence of cheating will be reported to the appropriate authority at that institution and could result in formal charges of plagiarism.

Each student's behavior on the course towards the wildlife they see and handle, and the environment in which they live, will be held to the highest possible ethical standards.

Grading

At the end of this field course, all students that acquire a passing grade of 60% will receive a formal Certificate of Completion for the course. This certificate will include a formal acknowledgement of the techniques mastered during the course. Overall grades for the course are determined as follows:

<i>Criterion</i>	<i>Value</i>
Attendance (being present and enthusiastic during all activities)	20%
Participation (completeness of assigned work)	40%
Quizzes (3 mid-course + 1 final)	40%
Certificate of Completion	>60%

Daily Schedule

All activities are subject to the weather. The order of activities may change slightly and, in extreme circumstances, certain modules may be canceled entirely. Assignments and quizzes indicated in parentheses (e.g. A1/Q1).

<i>Day 1</i>	<ul style="list-style-type: none">• Depart Puerto Maldonado for CICRA• Brief tour of the campsite• Discussion: Field ethics, safety precautions, rules, and useful tips.	<i>Day 8</i>	<ul style="list-style-type: none">• Mist-netting birds (A7)• Afternoon off, time to study (Q3)• Lecture on herpetofauna and night hike (A8)
<i>Day 2</i>	<ul style="list-style-type: none">• Learning the forest trail system• Camera trap set-up• Navigation and recording spatial data (A1)• Lecture on threats to the MDD, efforts of the ACA, and the mission of Primates Peru	<i>Day 9</i>	<ul style="list-style-type: none">• Advanced tree climbing• Los Amigos River and clay lick visit - Group 1• Lecture on Amazonian insects
<i>Day 3</i>	<ul style="list-style-type: none">• Working without trail systems• Radio telemetry basics• Lecture on neotropical primates (Q1)	<i>Day 10</i>	<ul style="list-style-type: none">• Ant behavior and insect survey (A9)• Los Amigos River and clay lick visit - Group 2
<i>Day 4</i>	<ul style="list-style-type: none">• Primate census (A2)• Follow an unmarked primate group (A3)• Lecture on neotropical mammals	<i>Day 11</i>	<ul style="list-style-type: none">• Tower climb (Q4: Final)• Article presentations and discussion• Night hike
<i>Day 5</i>	<ul style="list-style-type: none">• Advanced radio telemetry• Follow of a radio-collared primate group (A4)• Lecture on Amazonian plants (Q2)	<i>Day 12</i>	<ul style="list-style-type: none">• Recovery of camera traps• Closing remarks, turning in of final assignments
<i>Day 6</i>	<ul style="list-style-type: none">• Botany activity around station• Primate feeding ecology (A5)	<i>Day 13</i>	Boat from CICRA to Puerto Maldonado
<i>Day 7</i>	<ul style="list-style-type: none">• Recover camera trap data (A6)• Tree-climbing basics• Hikes to palm swamp and oxbow lake• Lecture on neotropical birds	<i>Day 14</i>	Depart Puerto Maldonado