



## **CENTER FOR INTERNATIONAL PROGRAMS**

**Course name: Land Vertebrates of Costa Rica**

**Course code: ENV 3120**

**Total contact hours: 60 hours**

### **COURSE DESCRIPTION**

This course is an introduction to the zoology of terrestrial vertebrates in Costa Rica. Students will gain insight about various biological characteristics of the groups of land chordates in the country. Costa Rica has an immensely rich animal biodiversity, with an influence of both North American and South American fauna and is a world-renowned hot spot for animal research and conservation. Emphasis will be given to the study of Costa Rican species, but others will be discussed as well.

**General goal:** Learn about the main vertebrates occurring in Costa Rica and Neotropic.

#### **Specific goals:**

1. Learn about the origins and basic characteristics of the Vertebrata group
2. Recognize the different groups of land vertebrates in the country and their characteristics
3. Study and recognize the specific vertebrate species that live in the different Costa Rican terrestrial environments
4. Learn about the survival and conservation status of key animal groups in the country

### **AUDIENCE**

This course is structured for International Students attending the Study Abroad program at Universidad Veritas. However, courses are not exclusive to foreigners so a few native student could enroll in this course.

### **METHODOLOGY**

This course will allow the student to identify main groups of land vertebrates, and including aspect such as their evolution, taxonomy, ecology, natural history and conservation issues. The course will include magisterial classes, field trips; invited specialists and research methodologies and case studies.

### **ATTENDANCE**

Students are only allowed 2 absences (justified or not). The student will fail the course if he/she has more than 2 absences. Students will have a 0 on any assignment evaluated in class (presentations, evaluations, field trips, etc.) if he/she is absent in this class, unless an official

document is presented no later than one week after the absence. In this case the assignment will be due this day. An unjustified absence to a fieldtrip will immediately mean failing the course. You can only have two total **nonconsecutive absences** in your elective. Three late arrivals to class (15 minutes later) are treated as one absence. If you tend to be late for class, you will lose 25% of your total grade.

## **BEHAVIOR**

Professors have the right to expel a student from the classroom should he / she:

- 1) Be disruptive in the classroom.
- 2) Behave in a disrespectful way.
- 3) Be under the influence of alcohol or even smell like alcohol.
- 4) Be under the influence of any illegal drug.
- 5) Hygiene problems that may disturb other students.

## **ELECTRONIC DEVICES**

The use of cell phones, smart phones, or other mobile communication devices is disruptive, and is therefore prohibited during class. **Please turn all devices OFF and put them away when class begins.** Devices may be used ONLY when the professor assigns a specific activity and allows the use of devices for internet search or recording. Those who fail to comply with the rule must leave the classroom for the remainder of the class period.

## **CONTENTS**

### **UNIT I. What a Vertebrate is?**

1. Evolution of Vertebrates
2. Basic characteristics of the Vertebrata group
3. Groups of Vertebrates in the world and Costa Rica

### **UNIT II. Amphibians**

1. Evolution
2. Basic characteristics
3. Ecology
4. Amphibians in Costa Rica
  - a) Gymnophiona
  - b) Caudata
  - c) Anura
5. Conservation issues.

### **UNIT III. Reptiles**

1. Evolution
2. Basic characteristics
3. Ecology
4. Reptiles in Costa Rica

- a) Squamata
- b) Testudinata
- c) Crocodilia
- 5. Conservation issues.

#### **UNIT IV. Birds**

- 1. Evolution
- 2. Basic characteristics
- 3. Ecology
- 4. Birds in Costa Rica
  - a) Tinamiformes
  - b) Anseriformes
  - c) Apodiformes
  - d) Caprimulgiformes
  - e) Charadriiformes
  - f) Ciconiiformes
  - g) Columbiformes
  - h) Coraciiformes
  - i) Cuculiformes
  - j) Falconiformes
  - k) Galliformes
  - l) Gruiformes
  - m) Passeriformes
  - n) Pelecaniformes
  - o) Piciformes
  - p) Podicipediformes
  - q) Procellariiformes
  - r) Psittaciformes
  - s) Strigiformes
  - t) Trogoniformes
- 5. Conservation issues.

#### **UNIT V. Mammals**

- 1. Evolution
- 2. Basic characteristics
- 3. Ecology
- 4. Mammals in Costa Rica
  - a) Didelphimorphia
  - b) Chiroptera
  - c) Artiodactyla
  - d) Carnivora
  - e) Cingulata
  - f) Lagomorpha
  - g) Perissodactyla
  - h) Pilosa
  - i) Primates
  - j) Rodentia
  - k) Sirenia
- 5. Conservation issues.

## **EVALUATION SYSTEM**

|   |             |
|---|-------------|
| Individual Research topic                                 | <b>20%</b>  |
| Class Participation (debates, quizzes, internet practice) | <b>20%</b>  |
| Midterm Test  | <b>15%</b>  |
| Field trip 1  | <b>10%</b>  |
| Field trip 2  | <b>15%</b>  |
| Final Test  | <b>20%</b>  |
| <b>TOTAL</b>  | <b>100%</b> |

## **RUBRICS AND ASSIGNMENTS**

### **Assignments**

#### **Individual Presentation (Colloquium)**

Students will have to make an individual presentation (PPTX or Prezi) through the course. The presentation must be about any subject concerning tropical ecology, taxonomy, diversity or case studies, approved by the professor. It must last about 15 min. The presentations will be carried on during our colloquium. The class will assign 30% of the grade and the professor will assign the remaining 70%.

#### **For All Presentations**

It will be evaluated based on preparation (knowledge assimilation), presentation style (organization, smoothness, and clarity), slides (clarity, aesthetics), finishing the presentation in time, and answering questions. All presentations must be made on the assigned date, if not the grade will be 0 (unless the absence is justified).

### **Fieldtrips**

This course includes two mandatory Laboratory Field Trips: (choices will depend on climate and animal activity); probably one in the Pacific side, and one in the Caribbean side of the country. Lodging and main meals are covered by the course.

The mandatory fieldtrips in this course are not excursions. Only students enrolled in this course may attend. Field work might include volunteer work such as late night species monitoring, long walks on beaches or dense vegetation areas and other tasks that might be considered harsh or strenuous for students who have not taken an environmental science course or have not done fieldwork. Students must be on time for all fieldtrip related activities including departure, return

and scheduled meal times. All though many of the reserves and parks have nearby modest lodge accommodations some of the stations or research areas might require tent lodging. Some of the national parks and reserves are in far away areas of the country or places with difficult access so students who get motion sickness from long bus rides might be uncomfortable in these fieldtrips.

### **Fieldtrip Grade**

Students will carry small note books to write down anything they see or learn while in the field and what they think about it. Each person's journal will be unique to them, not only in that you will each notice different things, but you will each interpret similar things differently. This journal will help the students write their fieldtrip report, which is a formal paper of your journal information.

The fieldtrip report (70% of the fieldtrip grade) contains information of what the student sees and learns in the fieldtrip and what they think about the fieldtrip. The report should be no less than two 1.5-spaced pages (not including images) with #12 Times New Roman font, in letter size pages

Additionally, the behavior during the fieldtrip (30% of the fieldtrip grade) will be evaluated (punctuality, participation, interest, etc.)

### **For all Written Assignments**

All written assignments will be uploaded to Moodle. All assignments will have a deadline to be sent, and **will not be received after this deadline, without exceptions**. It is each student's responsibility to be aware of the deadline (shown on Moodle for each assignment).

### **DIDACTICS RESOURCES**

For this course the professor will provide scientific manuscripts and scientific web pages to the students. It is important for the student to have a flashlight and binoculars during the field trips or laboratories (visit to a natural history museum).

### **BIBLIOGRAPHY**

Janzen, H.D. 1983. **Costa Rican Natural History**. The University of Chicago Press. 789p.

Stiles, G.F. & Skutch A. 2007. **Guía de aves de Costa Rica**. 4ta. edición Trad. L.

Roselli, illus. D. Garner. **Instituto Nacional de Biodiversidad, Heredia, Costa Rica**. 576 pp.

Savage, Jay M. 2002. **The Amphibians and Reptiles of Costa Rica**. The University of Chicago Press.

Reid, F. 2009. **A Field Guide to the Mammals of Central America and Southeast México**, 2<sup>nd</sup> edition, Oxford University Press.

### **SCHEDULE**

| <b>Week</b> | Explore the evolutionary history of the group                          | <b>Contents</b>                           | <b>Teaching strategies</b>                  |
|-------------|--|---|---|
| <b>1</b>    |  | <b>¿What a vertebrate is?</b>             | Thematic discussion<br>Assigned manuscripts |
| <b>2</b>    | Learn about amphibians   | <b>Amphibians</b>                         | Thematic discussion                         |
| <b>3</b>    | Evolution, taxonomy, ecology, natural history, and conservation issues | <b>Amphibians<br/>Conservation issues</b> | Thematic discussion<br>Invited specialist   |
| <b>4</b>    | Learn about reptiles   | <b>Reptiles</b>                           | Thematic discussion                         |
| <b>5</b>    | Evolution, taxonomy, ecology, natural history, and conservation issues | <b>Reptiles<br/>Conservation issues</b>   | Thematic discussion<br>Invited specialist   |
| <b>6</b>    |  |   |   |
| <b>7</b>    | Learn about birds  | <b>Birds</b>                              | Thematic discussion                         |
| <b>8</b>    | Evolution, taxonomy, ecology, natural history, and conservation issues | <b>Birds</b>                              | Thematic discussion                         |
| <b>10</b>   |  | <b>Birds</b>                              | Thematic discussion                         |
| <b>11</b>   |  | <b>Conservation issues</b>                | Thematic discussion                         |
| <b>12</b>   | Learn about mammals  | <b>Mammals</b>                            | Thematic discussion                         |
| <b>13</b>   | Evolution, taxonomy, ecology, natural history, and conservation issues | <b>Mammals</b>                            | Thematic discussion                         |

|           |                              |  |   |
|-----------|------------------------------|--|---|
| <b>14</b> |                              | <b>Mammals<br/>Conservation issues</b> | Thematic discussion<br>Invited specialist |
| <b>15</b> | <b>Scientific colloquium</b> | <b>Oral presentations</b>              | Oral presentations                        |

### **General observations**

The student must comply with the provisions of the Veritas University student regimen regulation. To consult it you should go to the student self-management Portal at the following address: <http://autogestion.veritas.cr/> and download it.