Center for International Programs and Sustainability Studies
Course name: Tropical Birds of Costa Rica
Course code: ENV 3100
Total: 60 hours
Prerequisite: None

COURSE DESCRIPTION

They are birds, described by the Costa Rican based naturalist Alexander F. Skutch. This course will introduce the major topics in ornithology, answering questions about birds: *their origin, their lives and ways*. With more than 900 species of birds, Costa Rica is a unique country as an introductory Neotropical ornithological and birding experience. The course focuses on the features that make Neotropical avifauna a highlight among bird studies, including their evolutionary relationships, the very high species diversity in the Neotropics, and the natural history of Costa Rican birds. Students will be introduced to the main groups of birds present in Costa Rica, their behavior, biodiversity and conservation threats. Throughout the course the students will be immersed in hands on experiences that include field work to observe bird biodiversity, analyze bird behavior and understand bird habitat use. These experiential field activities to observe and monitor birds in their natural habitat, will allow students to learn and master skills to identify them, and participate in bird reports that aid in science and conservation.

CLOTHING AND FOOTWEAR REQUIREMENTS

It is necessary for foreign students to have clothes both for warm climate and for cold (not extreme), as well as closed shoes (hiking shoes and rubber boots if possible) since many field trips are made to highlands, rainy zones, and sometimes to areas with the possible

presence of snakes, insects, and other animals. We've never had an accident under those circumstances, but we want our students to be as comfortable and safe as possible. The appropriate clothing and footwear also facilitate the field work of this course.

AUDIENCE

This course is structured for international students attending the Study Abroad Program at an LCI Education university campus. However, courses are not exclusive to foreigners so local degree-seeking students may enroll in this course. Some of the courses are also taught in Spanish as part of our Bachelor´s in Sustainability Management or Business Administration programs.

This is a theoretical-practical course and explores/responds to the following inquiry according to the professional/disciplinary profile:

What basic knowledge is necessary to understand the taxonomy, adaptations, evolution, ecology, and natural history of the tropical birds inhabiting Costa Rica, and promote their study and conservation?

In order to respond this question, we will study the following generative topics:

- Ornithology as a science.
- Biogeography.
- Anatomy and physiology of birds.
- Ecology and behavior of birds.
- Evolution and taxonomy of birds.
- Bird census techniques.
- Conservation issues.

Along the course, the following **skills** will be fostered:

- Ability to identify a tropical bird to family and species level.

- Ability to understand the endemic bird areas of Costa Rica.
- Ability to design and analysis bird census techniques.
- Capacity to understand the main threats to bird biodiversity.

Among the values and attitudes that will be promoted among the students are the following:

- Excellence in performance evidence.
- Responsibility to achieve goals.
- Tolerance to work in group.
- Respect to nature and their ecosystem (organism, stakeholder, and local community)
- Negotiating and knowing how to inspire trust and empathy

COMPETENCIES, CRITERIA AND EVIDENCE

The competencies for the Veritas University are reflexive and integral actions that respond to the professional profile and to the problems of the context, with suitability and ethical commitment, integrating the know-how, and the knowledge to know in a perspective of improvement.

Below are both the disciplinary and general competencies, linked to their criteria and evidence of performance for this course.

Competencies	**Key competences**	**Learning Assessments**
Disciplinary Integrates knowledge on evolution, anatomy, physiology, taxonomy, ecology, natural history,	Discusses the concept of ornithology as a science considering its main branches.	○ Oral presentations. ○ Field trip report. ○ Final research project.

distribution and conservation status of the of tropical birds of Costa Rica to promote their identification, appreciation, study and conservation in accordance with the field of Ornithology.	Analyzes the several biogeographical zones of birds in Costa Rica considering its main characteristics and conservation issues.	○ Oral presentations. ○ Analysis of scientific papers. ○ Web blog report.
	Applies basic identification techniques to classify Costa Rican bird species in taxonomic families and ecological niches.	○ Field trip report. ○ Field practices.
	Applies survey techniques to measure the bird diversity occurring in a specific area.	○ Field practices. ○ Field trip report. ○ Final research project.
Generals		
Integrates concepts, nomenclature and key elements from the course to be used in upcoming professional life.	Learning to learn.	○ Field practices. ○ Oral presentations.
Develops the knowledge, skills and attitudes necessary to learn how to communicate	Communicate disciplinary thoughts in an oral and written manner.	○ Oral presentations. Final research project. ○ Field trip report.

orally and in writing in the different areas.		
Integrates the knowledge, skills and attitudes necessary to learn the techniques of teamwork and leadership.	Teamwork and leadership.	○ Oral presentations. ○ Field practices.
Integrates the knowledge, skills and attitudes necessary to learn the interpersonal communication techniques.	Respect towards other handle and resolve conflicts. To negotiate knowing how to inspire trust and empathy. Critical and logical thinking	○ Final research project. ○ Field trip report.

COURSE CONTENT

Unit 1: Introduction to Aves

- Introduction to bird history. The link between birds and dinosaurs. Reptilian ancestors.
- Evolution of birds.
- Avian flight.
- Modern birds.

Unit 2: Phylogeny and Taxonomy

- Classification and Phylogeny.
- Taxonomy.
- Diversity of birds in Costa Rica.

Unit 3: Form and function

- Feathers.
- Flight.
- Physiology.
- Feeding.

Unit 4: Behavior

- Senses and neurobiology.
- Visual Communication.
- Vocal Communication.
- Navigation (migration).

Unit 5: Sex

- Mates.
- Nesting and parental care.
- Growth and development.

Unit 6: Conservation in the Neotropical Region

- State of the birds in the Americas, Latin America, and Costa Rica.
- Conservation issues.
- Climate change and birds.

METHODOLOGY

This course promotes the interaction between the students and the teacher, in order to develop an active feedback between the two parties. The course will be composed of participatory activities such as thematic discussions, oral presentations and fieldwork activities. Throughout the course the students will be immersed in hands on experiences that include field work to observe bird biodiversity, analyze bird behavior, bird habitat use, and participate in bird sightings to aid in science and conservation. Additionally, students will participate in current case studies in ornithology, with which they can propose solutions

for the conservation of birds. This in turn will allow students to learn and critically analyze different real life situations in which they can apply the theory to propose new ideas and strategies for conservation.

The role of the professor is to mediate, facilitate and guide the teaching and learning, allowing students to build and self-regulate learning, based on their previously collected information. The student is active, the teaching-learning process is collective and socialized. It also fosters social integration, the development of group work skills and community feeling, without neglecting individualization.

EDUCATIONAL RESOURCES

In order to guarantee a good development of the course, therefore to guarantee learning, the following resources are available: an updated bibliographic database, multimedia equipment that students can use for their individual presentations, whiteboards and other school equipment for weekly sessions, and readings provided by the educator. All of these complement the suggested projects and provide the students with higher possibilities of knowledge ownership. Most of the lessons will take place in the classroom.

During independent work periods students will be able to attend the institution. A campus library, study rooms, and computer labs are available for the students´ independent work time. Free Wi-Fi connection for students, educators, and staff is provided on campus, which gives students the possibility to work not only in the library or computer labs, but also around campus.

LEARNING ASSESSMENT

In order to make the course or program better competencies-based evaluation compiles and evaluates evidence by taking into account feedback providing pre-established criteria. The course evaluation must be aligned with the competencies and the teaching methodology. There is a rubric for each evaluation resource, and the details will be provided in **CANVAS LMS**. Even though the rubric grants a grade, it is also a quantitative and

qualitative description of the students´ performance. The rubrics include the core and discipline key competences.

Rubrics	Weight
Oral presentations: ○ Two oral presentations	**20%**
Fieldtrip Report ○ Report constructed after the field trip	**15%**
Field practices ○ Five field practices on bird identification and bird census techniques	**25%**
eBird Checklists ○ The student will present a checklist form of at least 20 eBird checklists (150 species at least)	**15 %**
Final research presentation: ○ Presentation about the individual or group research designed and applied throughout the course	**25%**
TOTAL:	**100%**

LEARNING STRATEGIES

The following learning strategies will be carried out:

1. **Oral presentation:**

By means of digital presentations (power-point) each group of students will explain the content pertaining to a topic assigned in advance by the teacher. The students must present

at the end of this presentation the bibliographic sources in APA format, Sixth Edition, with a minimum of 5 references and their respective connection link. It is intended that students through teamwork or individually can be able to formulate critical and logical ideas that can then be transmitted orally and encourage the rest of the audience (classmates) to issue different points of view.

2. **Video Field trip report:**

The field trip will be assessed by means of a video report where audiovisual material (photographs and/or video) will be included. Each of the activities performed in the field trip and the analyses of species behavior will be included in this report. The idea, in this case, is that students have the opportunity observe some bird species, to analyze their phenotype, bird song, habitat use and behavior. Therefore, all the information and experience acquired during the field trip will be translated into an audio-visual material (videos) where they will describe each of the activities performed, what they have learned, results, discussions, and their opinions.

3. **Field practices:**

Throughout the course students will apply count points, transects, and other sampling techniques for bird identification and census. These field practices are obligatory. The mandatory fieldtrips in this course are not excursions. Assistance and behavior during the fieldwork will be evaluated (punctuality, participation, etc.). Students must be on time for all fieldtrip related activities including departure, return and scheduled meal times. Students must carry **small notebooks** 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: each person will notice different observations and everyone could interpret similar things differently. It is highly recommended that students bring to the trips binoculars. These should be of magnification 7,8,10, and with an aperture ranging from 35-45 mm. 8x40 and 10 x42, are some of the best. The following site provides information of a wide range of binoculars of

different qualities and prices (https://www.allaboutbirds.org/best-binoculars-the-cornell-lab-review-2013/).

4. **eBird checklists**:

eBird is among the world's largest biodiversity related science projects, with more than 100 million bird sightings contributed annually. The goal of this platform is to gather information of birdwatcher checklists, archive it, and freely share it to power new data-driven approaches to science, conservation and education. During the course students will contribute to this citizen science platform and create checklists of bird species observed during field tours.

5. **Final research presentation:**

At this point students will conduct a thorough investigation into the topic assigned at the beginning of the course. They will have to carry out the analysis of their own results, consult literature and if possible consult experts on their research topic. At the end of the course students will present the information collected and analyzed in scientific article format to the professor.

This work aims to confront the student to a scientific investigation, which implies introducing and familiarizing each person with the different activities that are carried out in an investigation in the real life or a compilation of research information with respect to a particular topic in Conservation Biology and Endangered Marine Species. The research will be carried out individually and will need to be contrasted with reported or published cases of studies and their subsequent interpretation of their results. All of these findings will be presented and explained to the rest of the class through an oral presentation. During the course, the student will be asked to present progress reports on their current research; the goal of this activity is for students to make small progress on their current research project (successes and misrepresentations) in front of the rest of the class and discuss possible suggestions for improving.

This final research presentation has a total value of **25%**, has three qualification rubrics which have a different evaluation percentage:

1) the first rubric has a scale of 1 to 5 and has a percentage of 20% where the work will be assessed is the formal writing and progress (during the course)

2) the second part, with a scale of 1 to 3 with a percentage of 5%, which include the performance of the student & the format of the oral presentation.

Along the sessions, several none valuated learning activities will be performed, such as group discussions, brainstorming, topic summaries, small in class research and result sharing, posters and summary cards creations, expert´s on specific topics visits and lectures, and laboratory activities when possible. The students will take advantage of the development of mental maps (systems mapping) through which they will be able to investigate, extract, summarize and expose the most important information. A roundtable will also be conducted related to several questions about a controversial documentary to produce ideas and points of view in order to generate a rich discussion in the class.

ATTENDANCE

Regarding classes:

1. Students are only allowed a two (2) **non-consecutive (back-to-back) class absences**. A student shall fail the course if more than two absences are registered by the professor. Administration does not control attendance.
2. Three **late arrivals** to class (arrival after the first 15 minutes) are treated as one absence. Attending class 30 minutes late without an official justification will also count as an absence.
3. In the case of an **absence from any assignment evaluated in class** (presentations, evaluations, field trips, etc.) a student will be given a grade of zero unless an official document is presented within **one week** of the absence.

4. If a student presents an official document to excuse the absence, the missed assignment is to be presented on that same day.

Regarding field trips:

5. An unjustified **absence on a field trip** will immediately result in the loss of all points assigned to that specific trip. However, if an official document justifying the absence is presented, 50% of the assignment points may be obtained upon presentation of a complementary research assignment, to be agreed upon with the professor, within one week of the field trip.
6. An absence on a field trip may be justified should two course field trips coincide. In such a case, and to avoid losing points, students shall be able to opt for carrying out a research assignment.

CODE OF CONDUCT

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

1. Be disruptive in the classroom.
2. Behave in a disrespectful way.
3. Be under the influence of alcohol.
4. Be under the influence of any illegal drug.
5. Shows hygiene or odor problems that may disturb other students.

ELECTRONIC DEVICES

The use of cell phones, smartphones, 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. Using devices while the professor or other peers are lecturing, or presenting is perceived as a lack of interest and disrespectful.

STUDY ABROAD PROGRAM POLICIES

The student must comply with the provisions of the Study Abroad Program Policies available on the Canvas/Omnivox platform.

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Stutchbury, B.J. & E.S. Morton. (2001). **Behavioral Ecology of Neotropical Birds**. Academic Press

Stotz, D. F., Fitzpatrick, J. W., Parker III, T. A., & Moskovits, D. K. (1996). **Neotropical birds: ecology and conservation.** University of Chicago Press

CHRONOGRAM

Week	Contents	Learning strategies
1	Discuss course syllabus / Program weekly / Field trip program/ Introduction	Thematic discussions, mental maps
	Origin of birds	
2	Origin of birds/ Introduction to eBird	Reports and discussion, Field practices
	Field practice 1	
3	Birds of Costa Rica	Oral presentation, Reports and discussions, thematic discussions
	Avian classification, taxonomy and phylogeny	
4	Avian classification, taxonomy and phylogeny	Field practice, Reports, Thematic discussions
	Field practice 2	
5	Bird biogeography and evolution	Oral presentation, Thematic discussions, Roundtable
	Bird anatomy and physiology	
6	Field practice 3	Field practice, Laboratory practice, Thematic discussions
	Bird anatomy and physiology/ Lab practice	
7	Behavior	Research, Reports and discussions,Field practice
	Field practice 4	
8	Senses and neurobiology	Reports and discussions, Research, Thematic discussions
	Communication visual and vocal	
9	Field practice 5	

	Migration	Reports and discussions, Research, Field practice
10	Reproduction	Thematic discussions, Research
	Reproduction	
11	Bird Conservation in the Tropics	Thematic discussions, Research
	Bird Conservation in the Tropics	
12	Work on final research project	Research, Oral presentation
	Final Research Presentation	

Please note that this chronogram is tentative and subject to change.