COSTA RICA PROGRAM: CONSERVATION ECOLOGY & SUSTAINABLE DEVELOPMENT

April 9 - May 22, 2024

ACADEMIC SYLLABUS

Faculty: Tara Ruttenberg, Ph.D.

Contact Hours: We will be in close contact for the duration of the course, and there will be plenty of opportunities for students to meet with the faculty. Additionally, there will be a number of "check-in days", where we will arrange student-faculty meetings. Students are encouraged to engage with faculty to discuss assignments or any other personal issues or concerns as needed.

Class Meetings: The Wildlands Studies Program in Costa Rica involves seven days per week of instruction and field research with little time off. Faculty and staff work directly with students 6-10+ hours a day and are available for coursework discussion before and after scheduled activities. The daily schedule will fluctuate but typically we will begin before 8 am, with breaks for meals. Some days may start as early as 5 am (for wildlife-related activities and day hikes) and end later (night data collection activities), so flexibility is requisite while on the program. Scheduled activities will include a variety of modes of learning, including but not limited to: lectures, discussions, guided hikes, independent projects, participation in monitoring and conservation projects, and field research. Students should also expect to spend a few hours a day studying, writing in their journals, working on assignments, and completing readings. It is necessary to be flexible and able to accommodate a variety of class times, activities, and independent study times.

Course Credit: Students enrolled in a Wildlands Studies Program receive credit for three undergraduate courses. These three courses have distinct objectives and descriptions, and we integrate teaching and learning through formal learning situations (lectures, seminars, and discussion groups), fieldwork, field surveys and hands-on activities. Academic credit is provided by Western Washington University. Extended descriptions follow in the course description section of this syllabus.

1. **ESCI 497T, Environmental Wildlands Studies (5 quarter units / 3.35 semester credits)** – Field study of environmental problems affecting the natural and human-impacted ecosystems of our study region, including the role of human interactions.
2. **ESCI 497U, Environmental Field Survey (5 quarter units / 3.35 semester credits)** – In this field-based course we conduct on-site examinations and analyses of environmental problems affecting wildlands and wildlife in our study region.
3. **ESCI 497V, Wildlands Environment and Culture (5 quarter units / 3.35 semester credits)** – Field studies course involving on-site research in our field locations, studying the relationships among cultural groups and the environment. Using region- and culture-specific case studies, students assess historical and current cultural and environmental uses of wildland and/or wildlife communities. Course examines outcomes of environmental policies and wildland/wildlife management, including both sociological and natural consequences.

Readings: Students will be required to complete readings from a Course Reader. Each student is individually responsible for bringing a printed copy of the reader with them to Costa Rica. Please print double-sided and have the reader bound (spiral bound works best). Field guides and textbooks to supplement the Reader will be available in reference libraries at different field stations for student use, and we will carry the essential reference materials with us throughout the course.

Contents of this syllabus:

I. Program Overview

Costa Rica is globally recognized as a leader in conservation and marketed as such to promote a thriving national tourism economy in one of the most biodiverse places on the planet. However, tourism overdevelopment and industrial agriculture now threaten to undermine biodiversity conservation, affecting ecosystems and local ways of life. Many of these challenges are attributed to the country's neoliberal environmental governance model and growth-based economic development strategies unable to reconcile conservation and development objectives beyond the very short term. As a laboratory for conservation and sustainable development initiatives, the southern zone of Costa Rica is an ideal field location for exploring rainforest ecology and the impacts of biodiversity conservation on tropical forest and marine ecosystems.

Flanked on both sides by national parks, surrounded by the Golfo Dulce and Pacific Ocean, and representing 2.5% of the Earth's biodiversity, the southern zone of Costa Rica has become an epicenter for conservation, nature-based tourism and sustainable development priorities. Students will journey through coastal towns, national parks, conservation areas, and ecolodges to experience the rich diversity of flora and fauna; interact with local residents, foreign ex-pats, and indigenous communities; and develop critical research skills in multiple field sites set within primary and secondary tropical forests. The southern zone provides numerous opportunities for hiking and backpacking into the Corcovado and Piedras Blancas National Parks and ocean exploration around the Isla del Caño reef and the Golfo Dulce, the only tropical underwater fjord in Central America and home to four river estuaries supporting protected mangrove ecosystems.

During our program, we will explore Costa Rica's tropical forest, mangrove and coral reef ecosystems and learn from species biologists, botanists, wildlife conservationists, non-profit leaders, indigenous people, farmers, fishermen, eco-tourism operators and naturalist guides. We will be observing and interacting with a myriad of plants, wildlife, and invertebrate diversity, learning about their biology and ecology. We will also meet and interact with the many cultures that comprise modern-day Costa Rica. Through open-minded and guided discussions, we will gain an understanding of their histories, traditions, economic and daily activities, and everyday life challenges.

We will study and gain experience in three main inter-related academic domains: 1) principles of tropical ecosystems and their ecologies by studying focal wildlife species and their habitats; 2) field research methods through hands-on instruction, ethnography and practice of ecological and biological field sampling techniques; and 3) wildlife conservation, landscape histories, natural resource management, environmental governance, and sustainable development with particular attention to the complex relationships between nature and people.

We will approach our field studies through a variety of formats. There will be introductory lectures, field lectures, group discussions of readings, small group projects, and individual work completing journal and fieldwork assignments. Students should come prepared to work individually as well as in group settings. Working collaboratively and cooperatively are important skillsets for any career, but particularly in the science fields and in conservation practice. Because teamwork is so highly emphasized in this program, each student will be expected to fully prepare for each day's activities, including completing reading assignments, coming prepared to ask questions and contribute thoughts and ideas during discussions, and understanding and functioning as a full member of the larger group activities. This also includes being prepared for a full day as soon as we leave our campsite each day, often requiring preparation the evening prior to departing for the field or a new location.

II. Learning Objectives

This program endeavors to teach vital research skills relevant to conservation ecology, expose students to the complexities of wildlife preservation efforts and community development priorities, and offer a life-changing immersion into the wild nature of tropical rainforest ecosystems and coastal landscapes in southern Costa Rica. We will familiarize students with the diverse ecologies and cultural histories of the area and participate in conservation research initiatives from base camps in national parks, indigenous communities, farms, jungle environments, and rural ecolodges. As we develop wildland naturalist skills over the course of the program, student learning is focused on participant observation and field research methods, as well as course discussions, lectures, assignments, exams, field notes, and journaling.

Our Costa Rica program strives to highlight the intricacies and interconnectivity among conservation ecology, sustainable development, tropical rainforest ecosystem studies, and human wellbeing in one of the most stunning and biodiverse environments on Earth. Engaging with conservation landscape histories, tropical forest and marine ecology, eco-tourism approaches, endangered species research, and sustainable development practice, students can expect to come away from this program with field experience and broad insight into the complexities of reconciling conservation objectives with sustainable development priorities.

Upon completion of this program, students will have gained in-depth practical knowledge related to the following learning objectives:

1. Species Identification and Observation
This program will provide a comprehensive introduction to tropical ecology and wildlife species observation and monitoring. Using field guides and learning from local species experts, students will learn to identify, track, and evaluate plant and animal species of the rainforest, mangroves, and marine ecosystems, while learning important methods for researching these species in the wild. As scientific field-based practice, students will learn specific techniques for recording and presenting field observations, including natural history sketching, species descriptions, recording diagnostic characteristics, and landscape or habitat characteristics.

2. Biodiversity Conservation
Learning from and working alongside conservationists and biologists, students will be exposed to the complexities of biodiversity conservation while supporting local organizations' initiatives through applied field research. We will explore government-operated, private non-profit, community-based and integrative conservation efforts, and wildlife management approaches in the context of conservation ecology, eco-tourism and sustainable development. Through a series of lectures, field exercises, workshops and independent projects, students will gain an in-depth understanding of the complex political ecological relationships among environmental policies and human land-use practices, as well as their impacts on regional biodiversity and conservation objectives. Exploring different land/resource management strategies and recognizing the primary threats to Costa Rican ecosystems, students will be able to articulate the main challenges and opportunities facing biodiversity conservation today.

3. Tropical Rainforest and Coastal Landscape Ecologies
Our field studies will take us into diverse ecosystems ranging from tropical forests, rural farms and fjords, to mangroves, river estuaries and coral reefs. We will study diverse ecologies and ecosystem functions while observing the flora and fauna and monitoring natural resource quality across varying ecosystems. Together we will examine how land and marine species are faring in the wake of climate change, conservation efforts, increased tourism and agricultural production. Students will also learn how to apply the ecological concepts they learn to conservation issues and strategies as an integral approach to ecosystem restoration and conservation ecology.

4. Nature and Culture
As an essential feature of the program, we will visit diverse local communities and experience the unique connections among cultures and natural environments. Through conversations and interactions with farmers, tourism providers, indigenous communities, business owners, fishermen and local residents in a number of towns and communities, students will gain deeper insight into the interdependent relationships forged between people and planet at the intersections of conservation and development. Linking field experiences with course readings, lectures and theoretical frameworks related to political ecology and development studies, students will strengthen their critical thinking and research skills as a basis for understanding the implications of power, discourse, and structural complexity in nature-culture dynamics.

5. Sustainable Development
As a principal course topic, students will explore sustainable development theory and practice through analysis of primary and secondary texts, class lectures on mainstream and critical approaches to development, and field experiences linking macro-level development policies to micro-level community-based socio-ecological initiatives. We will gain insight and experience into the interconnected political and social science aspects and impacts of Costa Rica's landscape histories, conservation models, resource management strategies, and socioeconomic development approaches in a range of field contexts, including national parks, community organizations, regenerative farms, indigenous communities, and ecotourism projects. Journal entries describing field experiences and analyzing their links to sustainable development theories and practices as explored in lectures and readings will center personal reflections and ethnographic methods such as interviews and participant observation to support students' assignments and final research projects.

6. Field Research Methods and Naturalist Skills
Throughout this program, students will participate in adaptive scientific fieldwork and learn practical research methods for resource sampling, species identification, observation, tracking, monitoring, evaluating, recording and reporting field data. Similarly, field exposure and backpacking experience equip students with broader naturalist skillsets useful for future wildlands research endeavors. Through individual and group fieldwork at active research stations, students will learn how to design and conduct a field research project, collect and analyze field data, and present research findings. Ethnographic field methods including formal and informal interviews, participant observation, and reflexivity will be taught to complement environmental science methods through sociological and political ecological frames.

Our overarching goal is for students to leave the program with extensive knowledge of southern Costa Rican conservation ecology and sustainable development experiences linked to macro-level policies, strategies and critical theories. Students will also develop a greater understanding of the unique methods for studying tropical ecology, biodiversity conservation and nature-culture dynamics in tropical and Global South field contexts. Students will gain broader skills and understanding of environmental and social science issues, allowing them to critically evaluate information in other settings in their future lives and careers. ***Note that prior field research experience is not required, and all field methods will be taught on-site in Costa Rica.*** Our primary requirement is that you are enthusiastic, adaptable, open-minded, ready, and willing to learn in a field setting. We look forward to you joining us and sharing this once-in-a-lifetime experience together.

III. Course Descriptions
We teach these three courses in an integrated format in the field. However, students will receive transcript credit for the following three courses, as introduced on page 1.

ESCI 497T, Environmental Wildlands Studies (5 quarter credits) – A field study of environmental challenges and opportunities of southern Costa Rica's diverse natural and human-impacted ecosystems.

This course will introduce students to the ecology and biodiversity of tropical ecosystems (wet tropical rainforests, wetlands, mangrove forests, and coral reefs) found in southern Costa Rica. Students will learn what factors influence these ecosystems and how they are interconnected. This course will cover the ecological concepts informing biodiversity conservation, land tenure and landscape management planning across Costa Rica and beyond and explore how these principles are applied in ongoing efforts to protect and restore local and bioregional ecosystems.

Experiences/Activities: Students will study first-hand the characteristics of southern Costa Rica's ecosystems and examine the flora and fauna they support. Through observation and rigorous field note-taking skills, students will participate in natural history investigations and rapid research biological assessments across the sites visited. Students will use a combination of field guides, scientific literature, direct field observations and assessments, and rely on the knowledge of local guides as well as some assistance with identification using phone apps to build our collective knowledge of Costa Rican biodiversity and ecology. Through direct observation and pilot study, students will learn how to formulate interesting and testable questions using the scientific process.

Outcomes: Students will understand the factors that drive the distribution of ecosystems and global biodiversity patterns. Students will acquire the skills to recognize and differentiate among different ecosystem types and learn how these ecosystems are interconnected, from mountain ridges and dense tropical forests to watersheds and coral reefs. Students will be able to extrapolate these ideas and concepts to their own ecological landscapes or in future studies wherever they are. Through direct experience, our participants will gain a better appreciation and understanding of why biodiversity matters and develop advanced knowledge about the function and form of evolutionary processes that drive the speciation and connectedness that characterize life in the tropics.

Evaluation/Assessment:

Daily Field Journal	20%
Field Quizzes	20%
Topic Presentation	10%
Participation & Engagement	20%
Mid-term	15%
Final Exam	15%

ESCI 497U, Environmental Field Survey (5 quarter credits) - Field studies focused on field survey methods used for tropical wildlife studies, on-site biodiversity analysis and assessment as part of individual and group research.

In this field-based course, students will investigate a research question, conduct data collection, and analyze and present findings to the class. Moreover, as a group, we will conduct rapid research assessments and surveys of habitats visited during the program. Students will learn methods and techniques used to assess biodiversity characteristics across a variety of spatial and temporal scales in tropical landscapes and learn what types of analyses are utilized by scientists, conservationists, and managers to protect and restore diversity in protected areas as well as human-dominated landscapes.

Experiences/Activities: Through hands-on learning opportunities with scientists and local experts at research stations and field sites, students will learn ecological field techniques to study and assess tropical ecosystems and their resident species. We will learn the importance of proper experimental design, data collection techniques, analysis of field data, and report writing. Taught in conjunction with ESCI 497T and ESCI 497V.

Outcomes: Students will gain experience and skills in field studies research, including observation, collection, identification, data management and analysis of data. Students will also learn to communicate their research through writing and an oral presentation to their peers and faculty. During field outings and workshops, students will learn the necessity of using various methods of recording field observations, including field guides, sketching, descriptive text, photography, mapping, field notetaking, and use of local knowledge of species by guides when assessing diverse tropical ecosystems.

Evaluation & Assessment:

Field Journal Species Lists	20%
Field Biodiversity Inventories	10%
Camera Trap Research Project	15%
Project Write Up/Presentation	15%
Workshop and Field Methods	20%
Participation and Engagement	20%

ESCI 497V, Wildlands Environment and Culture (5 quarter credits) – Field-based examination and critical analysis of interconnectivities among humans, wildlife, and natural resources as related to conservation ecology and sustainable development at local, bioregional, and global levels. Using region- and culture-specific case studies, students assess historical and contemporary nature-culture dynamics related to environmental governance models and sustainable development practices in Costa Rica's "eco-laboratory".

This course introduces the postcolonial sociocultural landscape of Costa Rica, where conservation and development policies are experienced differently across ethnic groups, nationalities, cultures, social classes and distinct landscapes. Interacting with diverse communities and local cultures in different geographical settings allows for a deeper understanding of how social, cultural, and environmental uses of land and wildlife relate to natural resource conservation and sustainable development priorities.

Experiences/Activities: Due to the traveling nature of the course, students will interact with different cultural groups across southern Costa Rica. Interactions with local groups will be both structured and formal, including dinners, workshops, discussions, presentations by community leaders, and ethnographic surveys, to more informal activities, including cooking and skills-based classes, casual conversations, and volunteer opportunities. Students will examine many social, economic, and environmental issues through a political ecological lens to understand the complexities of nature-culture dynamics. Students will learn the economic uses of local natural resources (crops, species, traditional medicines, building materials, culturally significant plants, and animals) and compare cultural differences and similarities. Students will observe and discuss the cultural, social, economic, and environmental impacts (both positive and potentially negative) of the tourist industry on Costa Rican communities. Students will prepare and lead a group discussion on a specific case study provided by faculty. Taught in conjunction with ESCI 497T and ESCI 497U.

Outcomes: Students will gain a better understanding of the relationship between society and the environment through in-depth exploration of relevant literature, lectures, and ethnographic research engaging with communities on an individual, local, and regional level.

Evaluation & Assessment:

Reading Discussion Prompts	30%
Weekly Journal Entries	20%
Opinion Piece/Essay	10%
Participation and Engagement	20%
Case Study Presentation	20%

IV. Assessment

An overview of the academic requirements for the program are listed below. Some of the assignments are ongoing (journaling, field quizzes and preparing for discussions of readings) and some will be given specific due dates. Due dates are subject to adjustment in response to unplanned events and circumstances. Final grades for each course listed above will be based on the following items:

Course Number	Assessment Item		Date Due	Percent of Grade
ESCI 497T	Daily Field Journal Ecosystems and Activity Entries		weekly	20%
	Field Quizzes		weekly	20%
	Midterm Exam		Week 3	15%
	Topic Presentation		staggered	10%
	Active Participation and Engagement		ongoing	20%
	Final Exam		Week 6	15%
ESCI 497U	Field Journal Species Lists		ongoing	20%
	Field Biodiversity Inventories		ongoing	20%
	Research Project	Proposal and Data Collection	ongoing	15%
		Final Report and Presentation	Week 6	15%
	Workshop and Field Methods Assessments		tbd	10%
	Active Participation and Engagement		ongoing	20%
ESCI 497V	Readings Discussion Prompts and Contribution		ongoing	30%
	Weekly Journal Reflection Entries		Weekly	20%
	Opinion Piece/Essay		Week 4	10%
	Active Participation and Engagement		ongoing	20%
	Case Study Presentation		Week 5	20%

Daily Field Journal Entries – Applies to all three courses (ESCI 497T, ESCI 497U, and ESCI 497V) –
****Please plan to keep several pages in the front open so that you can create and maintain a running table of contents including the page numbers so entries can be more easily located. Also, put your name, address, and email in the front. Keep your journal on your person or in your day pack at all times during the course. The contents of the journal are irreplaceable and a permanent record of your work.

The field journal is a critical component of this program and helps to hone observational and descriptive skills, encourages thought and reflection, and provides a record of your experiences and irreplaceable species lists and natural history observations. A journal is different from a lecture notebook (you will want to bring a different notebook for lecture notes).

The field journal is a key grade component for all three courses and should be regarded as an academic and professional undertaking throughout the program. Journals include field observations, thoughts and ideas related to field activities, drawings, sketches, maps, and other relevant information. Develop a habit of making journal entries while you are at a site, or if difficult, as soon as possible afterward.

**** **The selection of the right journal is important**. As we will be traveling and working in the tropics, I recommend finding a *Rite in the Rain* hardcover notebook and buying a pen with indelible ink (*Rite in the Rain* all weather pen). You will want to purchase a notebook larger than a 3" x 5 ". *Rite in the Rain* makes a hardcover field notebook that is 6.75'' x 8.75 '', which I recommend.

- **Two larger durable notebooks—** We strongly recommend Rite in the Rain notebooks: Hardcover products: #370F or #370G LG, https://www.riteintherain.com/4-75x7-5-hard-cover-book **or** https://www.riteintherain.com/6-75x8-75-hard-cover-book
- **Smaller durable notebooks** for taking notes during lectures and while in the field. For your smaller notebooks, we recommend *Rite in the Rain* pocket books (http://www.riteintherain.com/pocket-sized-field-flex-books). If you tend to write large, or take a lot of notes, consider bringing 2-3 small field notebooks. All notebooks are available directly from *Rite in the Rain* or Forestry Suppliers and sometimes at your university bookstore.

Journal Grading Criteria:
- **Orienting Information: All entries need orienting information, even for multiple entries on the same day**.
  - Always enter the date, and time (using a 24-hour clock format (e.g. 0830 for 8:30 a.m. 1330 or 1:30 p.m.).
  - Always enter the location (with arrival and departure times) right below the date.
  - Give route traveled to location if the area is not an obvious route.
  - Describe weather (including temperature wind, precipitation type, cloud cover, etc.)
  - Describe ecosystem and give specific habitat and vegetation type as well as land use when appropriate.
  - Species lists when doing biodiversity assessments should begin after the orienting information is entered.
  - Jot down shorthand ethnographic notes when engaging with human research subjects.
  - Make any drawings or sketches as neatly as possible and add notes or comments to drawings.
  - Record information about photographs that you take at each site.
- **Consistency of entries: This refers to regular and consistent use of the journal**.
- **Organized:** You should be able to use your journal as a reference. Information should be accessible and related to specific dates and locations. Include a table of contents in the beginning so we can find specific assignments.
- **Neatness/Readability**: Someone else should be able to use your journal as a reference (or grade it).
- **Diversity of Expression**: We encourage you to use a diversity of journaling techniques and we will discuss options.
- **Detailed Observation**: Attention to detail will improve your observation skills.
  - Record standard questions when giving an ethnographic interview and then list the name (at least first name) and description of the person you are interviewing (unless they wish to be anonymous).
  - Record your general observations, comments, and reflections, using concise and complete sentences when possible.
- **Invested Effort**: We expect your field journal to improve throughout the course and will assess this accordingly.

Details on specific assessments per course are as follows:

ESCI 497T, Environmental Wildlands Studies (5 quarter credits):

1) Daily Field Journal – 20%
Give a daily record of your travel and experiences during the six-week field study, including a description of each of the ecosystems and habitat types visited, approximate distances traveled, and important details of the landscape and cultural information observed along the route to the destination. Describe specific activities, observations, and experiences and name the person or persons with you and leading the group. Note the most important details and try to keep entry times to 15-20 minutes, depending on the circumstances. Besides the orienting information, include information about each ecosystem we encounter.

Ecosystem Descriptions – Here are a list of components of ecosystems you'll want to include:

- Terrestrial, aquatic (freshwater or saltwater or a mix), or semi-terrestrial
- General topography
- Primary features or physical characteristics (forested, geologic features, land use)
- Climatic description
- Dominant wildlife seen or studied
- Human use or impacts

2) Weekly Quizzes – 20%
Short quizzes (5-10 questions each) which assess the student's class and experiential attentiveness, retention of information, their understanding of concepts discussed, or techniques performed, and recollection of field observations. These quizzes, although short, will focus on comprehension, synthesis, and application of the material.

3) Midterm Exam – 15%
The midterm exam will cover key concepts and theories as related to tropical ecology, conservation and development, terminology, and their applications to various real-world situations, including social and cultural perspectives.

4) Topic Presentation – 10%
Prior to the start of the program, students will choose a topic subject from a list provided by faculty related to Costa Rican culture and ecology, and will be tasked with researching the cultural, economic, and ecological significance of the topic assigned. Also prior to the start of the course, students will prepare a 10-minute presentation on their subject to be presented for their peers and faculty on a staggering schedule throughout the program.

5) Active Participation & Discussion – 20%
Includes general engagement with the subject matter and participation in group readings, discussions, questions, field trips, workshop activities, and guest lectures.

6) Final Exam – 15%
The final exam will mainly test the material covered after the midterm exam (although students will be expected to know concepts that were covered both before and after the midterm), particularly related to biodiversity conservation principles and practices, flora and fauna species studied, biological corridors, landscape management, field techniques used to assess biodiversity, coral reef ecology and the connectivity and restoration of southern Costa Rican ecosystems. Students will be assessed through short answers and essay questions, diagram labeling, situation analysis, case study analysis, and decision-making scenarios.

ESCI 497U, Environmental Field Survey (5 quarter credits)

1) Daily Field Journal – 20%
Just as you will make journal entries of daily activities, you will also keep a list of all the wildlife and interesting plant species or plant families we encounter during those activities. Each list of birds and other wildlife will also require the same orienting information as described on page 8, similar to that required for all journal entries. If you cannot identify the animal or plant right away, take a photo or make a quick sketch of the main characteristics or notes that you can use when you have a field guide or expert available. If you take a photo, make a reference note for later use to provide information on the date, time, and habitat for which that species or type of animal was seen. You will be required to make at least three entries per site visit on specific animals or plants as well as provide as thorough a list as possible for new organisms encountered. We will also make daily group lists, so you can work with your team members to make taxa-specific lists by interests. At several sites, we will be doing 10-, 20- or 30- minute observation stations or transects, where you will work in pairs or small groups to make rapid assessments. Your lists again will contribute to our course taxonomic lists compiled during the entire six weeks. We will require that you download *iNaturalist* and *eBird* phone apps before you arrive in Costa Rica as some of our surveys will use these tools to keep track of our data, but these tools will not be a substitute for the required field journal entries.

2) Field Biodiversity Inventories – 20%
Beyond the opportunistic species lists that will be kept on a site-by-site basis, at several sites, we will be doing 10, 20 or 30-minute observation stations or transects, where you will work in pairs or small groups to make rapid assessments. Depending on the habitat type, we will choose a specific group (birds, insects, plants, amphibians, or mammals) and conduct rapid inventories of all species observed. Where possible, we will also conduct timed animal behavior surveys and note foraging or resting behavior. For these organized practicums, we will provide data sheets and you will complete those and return them to the instructors for grading. Again, some of our surveys will use *iNaturalist* and *eBird* phone apps as tools to keep track of our data, though they will not be a substitute for required field journal entries or data sheet completion. We will also be using guidebooks and your personal sketches or photos when necessary for identification.

3) Field Research Project – 30% Total (Proposal and Data Collection (15%); Write up and Presentation (15%))
The research project is a group project. After introductory lectures and site surveys, students will choose from a list of possible topics related to conservation ecology investigated through the course of the program. Possible topics include: a comparative analysis of marine ecosystems and coral reef health, wildlife monitoring to analyze effects of conservation initiatives, tropical forest ecosystem restoration, ecotourism as a sustainable development strategy, and analysis of current land use practices in the region as related to environmental governance and contested landscape histories.

Research proposal and data collection – 15%
The proposal should include an Introduction that lays the foundation for the proposed questions/research topic. Introductions generally start broad and narrow towards the specific question to be addressed. The final sentence of the introduction should be a statement of the question to be addressed. Other components of the proposal include, if relevant; a detailed methods section, in which you will outline the study site(s), focal group(s), materials to be used, and observational/experimental techniques to be used; expected results, in which you outline your anticipated findings; and a discussion, in which you will discuss the implications of your expected findings, as well as the implications of your arriving at different results. Keep the proposal to 2 written pages.

Data collection will vary depending on the research topic, and may entail soil and water sampling, checking camera traps and organizing SD cards, ethnographic research and interviews, species monitoring and evaluation, field notes observations and photographs.

Written report and oral presentation – 15%
The written report will be a detailed account of every component of the research project, including an introduction to the study topic and questions addressed, methods, results, and a thoughtful discussion of the importance and implications of all findings. Results should be conveyed using appropriate charts, graphs, and tables in a way that clearly presents major results. We will discuss in detail the components of a scientific report.

The oral presentation is your chance to share your research with your peers. In a 10-minute presentation, with 2 minutes for questions, you will cover all the major components of the research project, including a brief introduction to the research topic, your methods, main findings, and future research ideas.

4) Workshops and Field Methods Assessments – 10%
Throughout the course, we will have opportunities to learn observation, monitoring, and assessment methods for different tropical taxa. Sometimes, this will require observing methods where specific training and certification are required for some activities. Certain parts of some workshops will be open to full participation, while other parts may require a hands-off approach. Faculty will hold group discussions and some individual assessments of what students learned after each workshop and field method exercise.

5) Active Participation & Involvement– 20%
Students will be evaluated according to their active participation and involvement during all field activities, and their contribution to group/peer projects. Full engagement is required, even for early morning and post dinner field excursions for scheduled activities.

ESCI 497V, Wildlands Environment and Culture (5 quarter credits)

1) Readings Discussions Prompts and Contribution – 30%
This is ongoing throughout the program and includes group discussions of many of the readings presented in the Course Reader, incorporating readings from political ecology, general natural history, biodiversity conservation, sustainable development, and landscape management theory. We will tailor the discussions and reading choices to our location and current topic focus so that knowledge is developed in a logical progression. We will discuss all readings as a group, with discussion hours variable to maximize our time in the field. Every student is expected to be prepared for all group discussions by having done the assigned readings prior to the discussion session. Your grade will be based on your prepared prompts (2-3 questions or comments related to the readings and prepared ahead of the discussion), as well as level of participation in the discussions and other readings-based activities (e.g., pre-discussion questions, student-led discussions).

2) Weekly Journal Reflection Entries – 20%
In addition to field notes and field journals, students are expected to keep a weekly journal specific to program-related reflections and analysis. Weekly journal entries of at least two written pages are meant for students to make analytical connections among course lectures, readings, field research and program experiences as a practice in reflexivity and strengthening critical thinking skills that link theory to field-based practice and research.

3) Opinion Piece/ Persuasive Essay – 10%
Students will prepare a concise 'opinion piece' (approx. 2-3 pages) on a social-cultural topic of their choice but one that is relevant to key themes and concepts encountered throughout the program. The format of the reflection is relatively open but should be seen as an exercise in science-based communication, e.g. magazine/newspaper op-ed, critique, review, letter to the editor, investigative report. Your task is to convey a potentially complex social-cultural topic in a succinct, engaging, and persuasive way. In this regard, aim to include, interweave and/or refer to personal stories/experiences from the field that help illustrate your point. Include references to literature or other sources.

Grading criteria are as follows:

Structure: the piece is logically ordered.
Accurate: the piece is factually correct (as far as one can know) and is transparent about conjecture.
Style: the writing style is succinct and engaging and effectively communicates key message(s)/themes.
References: the reflection draws on, refers to, and cites available literature or other sources.

4) Active Participation & Engagement – 20%

Students will be evaluated according to active participation in everyday activities as well as their attitude and involvement when engaging with guests and local hosts. In this course, it is important that the student demonstrates active listening, a genuinely open mind, a willing attitude, and a respectful etiquette in interacting with team members and external parties. Finally, the student's consistent and positive contribution to the team dynamic (e.g., by embracing assigned directional roles and responsibilities) will be taken closely into account.

5) Case Study Presentations – 20%

Students will work in small groups to read and analyze a specific case study related to conservation or development in southern Costa Rica. Your team will prepare a 15-minute presentation to give to your peers and faculty.

V. Grading Scheme

To convert final grade percentages to letter grades for each course that will appear on your transcript, we will use the following grading scheme:

Letter Grade	Percentage		Letter Grade	Percentage
A	93.0 – 100		**C**	72.5 – 77.4
A-	90.0 – 92.9		**C-**	70.0 – 72.4
B+	87.5 – 89.9		**D+**	67.5 – 69.9
B	82.5 – 87.4		**D**	62.5 – 67.4
B-	80.0 – 82.4		**D-**	60.0 – 62.4
C+	77.5 – 79.9		**F**	< 60.0

VI. General Reminders

Academic Integrity is as relevant in this field course as it is at your home institution. Plagiarism, using the ideas or materials of others without giving due credit, cheating, or putting forth another student's work as your own will not be tolerated. Any plagiarism, cheating, or aiding another to cheat (either actively or passively) will result in a zero for the assignment. Cases of academic dishonesty may be reported to your home institution.

Assignment deadlines are established out of fairness to other students, and they are necessary so the instructors can get the grading done on time. Therefore, deadlines are firm, and work that is turned in late will be penalized and receive a 5% deduction. If the assignment is more than 2 days late, an additional 10% will be taken off. If you think circumstances may keep you from completing your work on time, talk to the instructor as soon as possible and certainly before the assignment is due.

Participation and attendance are crucial throughout this program. Because of the demanding schedule and limited time, all components of the program are mandatory (unless indicated) and missing even one lecture can have a proportionally greater effect on your final grade. Hence, it is important to be prompt and prepared with the needed gear and equipment for all activities.

Students should contact the lead faculty member as soon as possible to discuss any special accommodations that may be necessary.

VII. Academic Schedule & Course Content

Below is the schedule that we anticipate following during the Costa Rica program. Students should come with a flexible mindset and be willing to adapt to necessary changes that inevitably occur when doing fieldwork. We will provide a separate Course Reader, that you are required to print, bind, and bring with you to Costa Rica. You **will not** have an opportunity to print the readings in Costa Rica.

Location	Lecture Topics + Activities
San Isidro del General	Welcome and Introduction Costa Rican and Bioregional Ecosystems Tropical Ecology Research Methods Gear Testing + Prep
Terraba Indigenous Territory	Agroindustry v. Agroforestry Indigenous Conservation Climate Change Adaptation Watershed Management Forest Regeneration Biological Corridors
Drake's Bay	South CR Wetlands + Watersheds Mangrove + Marine Ecosystems Marine Ecology
Corcovado National Park	Biodiversity Conservation South CR Landscape History Conservation Ecology
Southern Osa Peninsula	Sea Turtle Conservation Conservation History Political Ecology Regenerative Agriculture Restoration + Connectivity Apex Predators + Prey
Puerto Jimenez	The Politics of Biodiversity Conservation Insects at Biosur Community-Based Development Community-Supported Agriculture Predatory and Pelagic Fish + Coral Reef Health

Matapalo	Ecotourism + Surf Tourism Sustainable Development Regenerative Networks Diverse Economies Mid-Term Exam and Check-Ins
Guaymi Indigenous Territory	Ngobe Indigenous Culture + History Indigenous Rights + Governance Payment for Environmental Services Traditional Ecological Knowledge
Playa San Josecito	Golfo Dulce Ecosystem Tropical Fjord, Mangrove + Coral Reef Ecology Sea Mammals – Dolphins + Whales Marine Conservation Coastal Ecology Coral Adaptation Strategies
La Cotinga	Tropical Reforestation Botany + Native Plants Mycology Ethnobotany Final Research Projects Final Exam