BIOL 299-901 – Tropical Biodiversity & Ecology 3 credits (counts as Gen Ed IVA lab) January 2018 Tentative Syllabus

Instructor: Eric B. Liebgold, Ph. D. Department of Biological Sciences, Salisbury University <u>ebliebgold@salisbury.edu</u>; Office hours: pretty much the whole trip

Course Objectives: This course will teach students how to investigate and understand biodiversity and compare the ecology of tropical forests and other ecosystems, using the diverse habitats in Costa Rica as an example. The emphasis will be on understanding why particular tropical ecosystems have much higher biodiversity than other ecosystems. Field studies in forests of Costa Rica will build on lectures by teaching students to identify tropical wildlife and to utilize techniques for surveying wildlife. Then students will use this knowledge to survey biodiversity of organisms, including birds and mammals, record this data, calculate biodiversity indices, compare them among habitats and levels of human disturbance, as well as teach them to report this data. The goal of this class is to help students understand and appreciate a unique part of the natural world, focusing on how and why the tropics are so diverse and also understanding threats to tropical ecosystems.

Learning objectives:

- To experience ecotourism in a foreign country and understand its impacts on wildlife
- To be able to find and identify tropical fauna (birds, mammals, reptiles, and amphibians)
- To be able to use animal field guides to identify fauna
- To be able to collect biological and abiotic field data and take scientific field notes
- To understand how animals in the tropics interact with their abiotic and biotic environment
- To be able to measure and analyze species diversity
- To be able to compare and contrast ecological features of diverse habitats
- To recognize why tropical ecosystems need to be conserved and the critical issues for their conservation
- To write about and present species diversity data

Textbook & required materials:

- *Biodiversity* (edited by EO Wilson) (free online text)
- Amphibians and Reptiles of Costa Rica: A Pocket Guide by Chacon and Johnston
- Plus, one of the following (student choice): The Birds of Costa Rica by Garrigues & Dean
- OR The Mammals of Central America by Mark Wainwright
- Binoculars (but can be borrowed from the Biology Department with signed agreement)
- Rite-in-the-Rain #391 horizontal lined notebook or similar notebook (5x7 inches) required

Prerequisites: Permission of instructor. There are currently no other prerequisites for this course other than good standing at your university. It is hoped that all students will have an enthusiastic attitude and desire to learn about the Biodiversity of Costa Rica.

My Classes @ SU: Everyone registered for this class is automatically registered for our campus classroom management system, MyClasses **@** SU. MyClasses **@** SU is where I will post your assignments, reading materials, etc. This is important for the week on campus. To use this system, go to the site (http://myclasses.salisbury.edu or click on the "My Classes" link at the top of the SU Homepage) and log in using your username and password. Your username and password will be either the same ones you use to check your e-mail in Groupwise (SU students) or those provided to you by the SU Center for International Studies (students from other universities). You must have access to MyClasses **@** SU for this course before and after our trip.

Grading: Your grade for the course will be based on the following: Quizzes 25% Field Notebook 25% Participation & data collection 25% Final report 25% Grades will be assigned as follows: 90-100% = A, 80-89% = B, 70-79% = C, 60-69% = D, < 60% = F

Quizzes (25%): At the end of the pre-departure week in Salisbury, in country, or when we return, there will be two-three quizzes on the material we covered: the importance of tropical biodiversity, field techniques, methods for species identification, biodiversity indices, threats to tropical biodiversity. These quizzes will help us appreciate and understand the work we do in the field.

Field Notebook (25%): All students will be required to maintain a Field Notebook. Rite-in-the-rain notebook or other 4x6 or 5x7 inch notebook is required. Prior to departure, we will go over what is required for collecting data (biological observations, weather, and other parameters) in a field notebook. The goal is to create a semi-permanent record of your observations and collect data while on the trip. Reflections on the day's activities will likewise be required.

Participation & data collection (25%): Participation in in-class discussions of selected chapters from the text and articles read in class goes towards this grade as does participation in field activities in Costa Rica. Data collection on datasheets in groups also counts towards this grade.

Final presentation (25%): After we return from Costa Rica, students will use their knowledge of tropical biodiversity (notes from pre-trip and in trip lectures and discussion as well as the text), field notebooks, and data collection and analysis (calculation of biodiversity indices), to present a report comparing biodiversity of different tropical forest habitats of birds, mammals, or reptiles (e.g. lowland rainforest vs cloud forest) using the scientific format (introduction, methods, results, discussion).

Writing across the curriculum:

Since 1984, Salisbury University has been committed to assisting our students to improve their writing via writing assignments in every academic course per a national program known as Writing Across the Curriculum. In BIOL 299, students will meet the requirement with written information in their final presentations and comprehensive field notebooks.

Finally, student misconduct (cheating and plagiarism) will not be tolerated. The University guidelines concerning academic honesty, as explained in the Undergraduate Catalogue and Student Handbook, will be strictly enforced. Ignorance of what constitutes student misconduct is not an excuse. For more information on what constitutes student misconduct, please visit the instructor or see: If you are unsure of what comprises plagiarism, <u>http://www.lib.usm.edu/legacy/plag/whatisplag.php</u> or http://www.salisbury.edu/library/plagiarism/student.html provides an explanation and some examples or contact the instructor. Any student found engaging in academic misconduct (cheating, plagiarizing, etc...) will be given a 0 for the assignment, reported to the appropriate University authorities, and dealt with as described in the Catalog. Some circumstances may involve receiving an F and expulsion from the course. In our often highly competitive campus and classroom environment, our desire to perform well so as to please ourselves, our parents, and others can make it very tempting to engage in these distasteful and dishonorable practices. Resist the temptation and keep your personal integrity intact.

Tentative class schedule: January 3-19, 2018

At SU, January 3:

Day 0 and Fall meetings: Lectures, discussions, activities calculating biodiversity indices, and tutorials on use of binoculars and wildlife field identification.

Day 0: Pre-departure <u>quiz</u> on readings from the textbook and final preparations

Trip to Costa Rica January 4-14, 2018

Day 1: Travel to Costa Rica. Initial introduction to the country, its people & culture, and tropical environments. Visit Poas Volcano (time permitting). Overnight in San Jose.

Day 2: Travel to and survey for wildlife on boat ride to Torteguero National Park (Caribbean lowland rainforest) including birds, sloths, monkeys, turtles, and crocodiles. Set up camera traps. Scientific literature discussion on tropical species diversity. Overnight in Torteguero.

Day 3: Boat wildlife tour through the Tortuguero Canals. Hiking and wildlife surveys through Tortuguero National Park. Take down insect traps. Overnight in Torteguero.

Day 4: Remove camera traps. Transfer to Sarapiquí region. Chocolate Tour and wildlife observations at Tirimbina Biological. Data management and calculation of species diversity indices. Set up camera traps. Overnight in Sarapiqui area.

Day 5: Wildlife surveys and ecological research at La Selva Biological Station, one of the most important tropical research stations and home to over 400 bird species. Discussion of current and previous research at La Selva. Optional whitewater rafting. Night hike at Tirimbina Biological Reserve. Overnight in Sarapiqui area.

Day 6: Travel to Monteverde Cloud Forest via La Fortuna town. Evening wildlife walk (tonight or tomorrow). Set up camera traps tonight or tomorrow morning. Overnight in Monteverde.

Day 7: Surveys of forest canopy on Canopy Tour. Set up camera traps if not yet done. Bird walk in Santa Elena Reserve. Scientific literature discussion on the impacts of ecotourism on biodiversity. Night hike if not on Day 6. Overnight in Monteverde.

Day 8: Hiking and wildlife surveys in the Monteverde Reserve (early morning and late afternoon) looking for birds and other wildlife. Overnight in Monteverde.

Day 9: Take down camera traps. Travel to Guanacaste. Use boats and hiking to survey wildlife of a grassland/lowland dry forest. Overnight in Guanacaste.

Day 10: Boat wildlife surveys in Pacific dry forest of Palo Verde National Park. Compare and contrast dry and rainforest habitats. Snorkeling tour in afternoon to observe marine wildlife. Overnight in Guanacaste.

Day 11: Fly back to USA. Field notebooks due.when we land.

SU classes after trip: January 15-18:

Camera trap identifications, statistical analyses and biodiversity indices. Final <u>quiz</u> and <u>Powerpoint</u> <u>Presentation</u> on species diversity of a birds, mammals, or reptiles of different Costa Rica ecosystems and human impacts on that taxon.