KIIS COSTA RICA, Summer 2015

BIOL 280/ENV 280 Introduction to Environmental Science

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Syllabus subject to change

Home page: https://sites.google.com/site/kiiscostarica2015envissues/
Readings and news articles are posted from this home page. You are encouraged to become familiar with these materials before departure. Hardcopies of this content will be provided to you upon arrival in Costa Rica.

Course Description: This cross-listed course presents an introduction to environmental science through an issue-based curriculum that links concepts from the biological, ecological, and social sciences. Through local trips and student-centered activities, participants will develop and analyze questions revolving around three topics: 1) the environmental costs and benefits associated with nature-based tourism; 2) the role of landscape ecology in conservation planning; and 3) the challenges of defining, measuring, and comparing biodiversity

Purpose: To introduce students to key questions, concepts, and methods in environmental science through the local context of Costa Rica

Course Objectives: Upon successful completion of this course, students will be able to:

1. Explain the advantages and disadvantages of ecotourism, agricultural tourism, and rural tourism in relation to conservation goals, environmental change, and economic development
2. Illustrate how habitat fragmentation impacts ecological processes and biological diversity
3. Define different kinds of biodiversity and discuss issues over its measurement

Course materials: Journal article readings, a word list, and a set of news articles about Costa Rica will be made available to the students upon arrival. No laptop is required. A bound blank journal book is required for recording and keeping track of your course content.

Instructional Activities: Group discussions of readings and field experiences; instructor lectures (infrequently, when mandated by the topic); guest lectures (when available and appropriate); field excursions.

Field Experiences: Independent research; organized group visits to natural and human-modified habitats, sometimes involving hiking and snorkeling; field mapping

Grading: Student performance in the course will be evaluated as follows:

Graded Work		Grading Scale	
Ecotourism discussion	20 points	> 90	A
Land use mapping	10 points	80-89	B
Biodiversity measurement	10 points	70-79	C
Biological classification	10 points	60-69	D
Participation	10 points	≤59	F
Final written exam	40 points		
TOTAL	**100 points**		

Participation: Participation will be assessed regularly throughout the course by the instructor. Quizzes will be periodically given to formalize the assessment for participation.

Final Exam: The final examination will consist of questions based on 1) a word list provided at the start of the semester

Ecotourism discussion: Each student will lead a 15 minute oral discussion that synthesizes perspectives on the costs and benefits of ecotourism, agricultural tourism, and rural tourism. How might their costs or benefits be measured? Material for this discussion will be assimilated throughout our month-long stay. You may use photos, interviews, and textual analysis, but be prepared to lead this discussion without use of a computer or projector. Discussions will be ranked from 1-10 based on how well they incorpórate local observations with the content originating from our readings and discussions.

Land use mapping, biodiversity measurement, and biological classification: These field labs will be assigned and completed at times and places to be determined once we are in Costa Rica. Each will require submission of a summary in written or oral form at some point prior to the final exam period.

Attendance Policy: Students are expected to attend every class and to participate in out of class activities as directed by the instructor. KIIS requires that any unexcused absence result in grade reduction, and multiple unexcused absences may result in expulsion from the program.

Academic Honesty Policy: Cheating, plagiarism (submitting another person's material as one's own), and doing work for another person which will receive academic credit are not permitted. Your signature on each assignment and exam represents a pledge that you have adhered to this policy.

Course Outline: (The sequence of topics will be adjusted in order to capitalize on opportunities offered by the travel itinerary and in coordination with activities of other courses.)

Week 1: Ecotourism, conservation, and environmental change

Curriculum: Word list, readings and news articles

Campbell, L. M. 2002. Conservation narratives in Costa Rica: conflict and co-existence. *Development and Change* 33 (1):29-56.

Horton, L. R. 2009. Buying up nature economic and social impacts of Costa Rica's ecotourism boom. *Latin American Perspectives* 36 (3):93-107.

Zambrano, A.M. Almeyda, E. N. Broadbent, and W.H. Durham 2010. Social and environmental effects of ecotourism in the Osa Peninsula of Costa Rica: the Lapa Rios case. *Journal of Ecotourism* 9(1): 62-83.

Activity: Teach these questions as part of an oral final discussion: what are the costs and benefits of ecotourism, agricultural tourism, and rural tourism. How might these costs or benefits be measured? These student-led discussions will be conducted during exam week.

Week 2: Landscape ecology and conservation

Curriculum: Word list

Activity: Land use classification and mapping exercise. Grade will be based on submission of exercise and in-class discussion of your findings.

Week 3: Biodiversity and its measurement

Curriculum: Word list

Activities: 1) Morphospecies identification and calculation of diversity indices 2) Folk and scientific classifications. Grades for each activity will be based on submission and in-class discussion of your findings.

Week 4: Wrap up, ecotourism presentation, and final exam

Word list

agricultural tourism
Blue Flag Program of Costa Rica
CST Program of Costa Rica
debt for nature swap
eco-certification
ecotourism
green neocolonialism
green washing
gringo trail
nature-based tourism
noble savage
NTFP
pristine myth
REDD
rural tourism
socionature
sustainable development
tragedy of the commons
underdevelopment
wilderness debates
commodity chain
anthromes
disturbance patch dynamics
ecological corridors
edge effects
environmental heterogeneity
extinction debt
gap analysis
grain and extent
habitat fragmentation
habitat matrix
hyperdynamism
island biogeography
landscape ecology
metapopulation
SLOSS
novel ecosystems
population
primary rainforest
secondary rainforest
alpha diversity
beta diversity
binomial nomenclature
biological species concept
cryptic diversity
functional diversity
gamma diversity
habitat diversity
interaction diversity
landscape diversity
morphological species concept
neutral-based ecological models
niche-based ecological models
phylogenetic diversity
phylogenetic species concept
species diversity
species evenness
species richness
taxonomic diversity
taxonomic hierarchy