BIO-2020: TROPICAL BIOLOGY

Cuyahoga Community College

Viewing: BIO-2020 : Tropical Biology

Board of Trustees:
2018-05-24

Academic Term:
2018-08-27

Subject Code
BIO - Biology

Course Number:
2020

Title:
Tropical Biology

Catalog Description:
Introduction to biology of the tropics. Topics include major tropical biomes, biodiversity, conservation, sustainability, and consequences of human impact on the tropics. Studies include identification of flora and fauna and adaptations of tropical organisms. In addition to on-campus lecture/lab during an academic term, students are required to participate and travel to a tropical location for a real-world experience. A portion of the laboratory hours will be completed during the mandatory field trip to a tropical ecosystem. Field trip requires additional costs.

Credit Hour(s):
4

Lecture Hour(s):
3

Lab Hour(s):
3

Requisites

Prerequisite and Corequisite
Departmental approval and any 1000 level science course.

I. ACADEMIC CREDIT

Academic Credit According to the Ohio Department of Higher Education, one (1) semester hour of college credit will be awarded for each lecture hour. Students will be expected to work on out-of-class assignments on a regular basis which, over the length of the course, would normally average two hours of out-of-class study for each hour of formal class activity. For laboratory hours, one (1) credit shall be awarded for a minimum of three laboratory hours in a standard week for which little or no out-of-class study is required since three hours will be in the lab (i.e. Laboratory 03 hours). Whereas, one (1) credit shall be awarded for a minimum of two laboratory hours in a standard week, if supplemented by out-of-class assignments which would normally average one hour of out-of-class study preparing for or following up the laboratory experience (i.e. Laboratory 02 hours). Credit is also awarded for other hours such as directed practice, practicum, cooperative work experience, and field experience. The number of hours required to receive credit is listed under Other Hours on the syllabus. The number of credit hours for lecture, lab and other hours are listed at the beginning of the syllabus. Make sure you can prioritize your time accordingly. Proper planning, prioritization and dedication will enhance your success in this course.

The standard expectation for an online course is that you will spend 3 hours per week for each credit hour.

II. ACCESSIBILITY STATEMENT

If you need any special course adaptations or accommodations because of a documented disability, please notify your instructor within a reasonable length of time, preferably the first week of the term with formal notice of that need (i.e. an official letter from the Student Accessibility Services (SAS) office). Accommodations will not be made retroactively.

For specific information pertaining to ADA accommodation, please contact your campus SAS office or visit online at http://www.tri-c.edu/accessprograms (http://www.tri-c.edu/accessprograms/). Blackboard accessibility information is available at http://access.blackboard.com.
III. ATTENDANCE TRACKING

Regular class attendance is expected. Tri-C is required by law to verify the enrollment of students who participate in federal Title IV student aid programs and/or who receive educational benefits through other funding sources. Eligibility for federal student financial aid is based in part on enrollment status.

Students who do not attend classes for the entire term are required to withdraw from the course(s). Additionally, students who withdraw from a course or stop attending class without officially withdrawing may be required to return all or a portion of their financial aid based on the date of last attendance. Students who do not attend the full session are responsible for withdrawing from the course(s).

Tri-C is responsible for identifying students who have not attended a course before financial aid funds can be applied to students’ accounts.

Therefore, attendance is recorded in the following ways:

- For in-person and blended-learning courses, students are required to attend the course by the 15th day of the semester (or equivalent for terms shorter than five weeks) to be considered attending. Students who have not met all attendance requirements for in-person and blended courses, as described herein, within the first two weeks or equivalent, will be considered not attending.
- For online courses, students are required to login at least two times per week and submit one assignment per week for the first two weeks of the semester, or equivalent to the 15th day of the term. Students who have not met all attendance requirements for online courses, as described herein, within the first two weeks or equivalent, will be considered not attending.

At the conclusion of the first two weeks of a semester or equivalent, instructors report any registered students who have “Never Attended” a course. Those students will be administratively withdrawn from that course. However, after the time period in the previous paragraphs, if a student stops attending a class or wants or needs to withdraw, for any reason, it is the student’s responsibility to take action to withdraw from the course. Students must complete and submit the appropriate Tri-C form by the established withdrawal deadline.

Tri-C is required to ensure that students receive financial aid only for courses that they attend and complete. Students reported for not attending at least one of their registered courses will have all financial aid funds held until confirmation of attendance in registered courses has been verified. Students who fail to complete at least one course may be required to repay all or a portion of their federal financial aid funds and may be ineligible to receive future federal financial aid awards. Students who withdraw from classes prior to completing more than 60 percent of their enrolled class time may be subject to the required federal refund policy.

If illness or emergency should necessitate a brief absence from class, students should confer with instructors upon their return. Students having problems with coursework due to a prolonged absence should confer with the instructor or a counselor.

IV. LEARNING OUTCOMES ASSESSMENT

Occasionally, in addition to submitting assignments to their instructors for evaluation and a grade, students will also be asked to submit completed assignments, called ‘artifacts,’ for assessment of course and program outcomes and the College’s Essential Learning Outcomes (ELOs). The artifacts will be submitted in Blackboard or a similar technology. The level of mastery of the outcome demonstrated by the artifact DOES NOT affect the student’s grade or academic record in any way. However, some instructors require that students submit their artifact before receiving their final grade. Some artifacts will be randomly selected for assessment, which will help determine improvements and support needed to further student success. If you have any questions, please feel free to speak with your instructor or contact the Learning Outcomes Assessment office.

V. CONCEALED CARRY STATEMENT

College policy prohibits the possession of weapons on college property by students, faculty and staff, unless specifically approved in advance as a job-related requirement (i.e., Tri-C campus police officers) or, in accordance with Ohio law, secured in a parked vehicle in a designated parking area only by an individual in possession of a valid conceal carry permit.

As a Tri-C student, your behavior on campus must comply with the student code of conduct which is available on page 29 within the Tri-C student handbook, available athttp://www.tri-c.edu/student-resources/documents/studenthandbook.pdf You must also comply with the College’s Zero Tolerance for Violence on College Property available athttp://www.tri-c.edu/policies-and-procedures/documents/3354-1-20-10-zero-tolerance-for-violence-policy.pdf

Outcomes

Course Outcome(s):
Investigate the biological, geographical, ecological, and physical components of tropical biology in both the classroom and the field.

Objective(s):
1. Discuss the effects of geography, sun, wind and water on tropical climates and weather patterns.
2. Demonstrate, in the field, the ability to use binoculars and guides to investigate and identify tropical flora and fauna.
3. Identify, on a map, geographical features that determine the boundaries of the tropics and the location of tropical biomes.
4. Identify and implement safety measures as they apply to travel in the tropics.

Course Outcome(s):
Identify and analyze different tropical ecosystems.

Objective(s):
1. Compare different ecosystems including tropical rainforests, dry forest, savannah, montane, cloud forest, mangroves, and coastal ecosystems and recognize organisms unique to each area.
2. Describe the structural complexity of a tropical ecosystem in terms of physiognomy, watersheds and soil composition.
3. Explain functions in a tropical ecosystem in terms of productivity, succession, forest gaps and symbiotic relationships.
4. Explain the impact of microorganisms and climate on nutrient cycling and decomposition in the tropics.

Course Outcome(s):
Analyze biogeography, evolution, adaptation, and classification to recognize and explain biodiversity in the tropics.

Objective(s):
1. Examine the role of the tropics in animal migratory patterns.
2. Interpret co-evolutionary patterns and how different organisms influence each other and contribute to species fitness.
3. Evaluate evolutionary patterns and their significance on species diversity in the tropics.
4. Identify and classify organisms into the appropriate taxa.
5. Recognize and evaluate plant and animal adaptations to tropical environments.
6. Explain the significance of the Panamanian land bridge in the biodiversity of the Americas.

Course Outcome(s):
Explain, discuss and analyze the value of tropical regions on a global scale and the impact of humans.

Objective(s):
1. Describe environmental issues that impact tropical ecosystems such as deforestation, agricultural practices, invasive species, habitat destruction, global warming, animal exploitation, and ecotourism.
2. Research and discuss conservation efforts in the tropics as related to environmental issues.
3. Examine and evaluate sustainability practices utilized in the tropics.

Methods of Evaluation:
1. Participation
2. Exams
3. Quizzes
4. Research paper
5. Class discussions
6. Field presentations
7. Field journal
8. Species list

Course Content Outline:
1. Concepts:
   a. Geography of tropical regions
   b. Climate of tropical regions
   c. Coriolis effect
   d. Weather patterns in the tropics
   e. Rain shadow effect
   f. Importance of the sun in impacting climate
   g. Effect ocean currents on climate and weather patterns
   h. Seasonal variations in the tropics
   i. Tropical ecosystems and biomes
   j. Morphology of tropical plants
   k. Adaptations of tropical plants
I. Epiphytes
m. Plant life cycles
n. Forest gaps
o. Species richness
p. Structural complexity: forest floor, understory, canopy
q. Primary productivity
r. Nutrient cycling
s. Tropical soils
t. Succession
u. Water cycle
v. Decomposition
w. Natural selection
x. Adaptations
y. Cryptic coloration
z. Warning coloration
aa. Adaptive radiation
bb. Speciation
c. Panamanian land bridge
dd. Coevolution
e. Ethnobotany
ff. Plant defense compounds
gg. Mimicry
hh. Tropical agriculture
  ii. Tropical watersheds
  jj. Mountain ecosystems
  kk. Tropical coastal ecosystems
  ll. Tropical rainforests
mm. Savannas
nn. Tropical dry forests
oo. Classification
pp. Migration patterns
qq. Diversity of tropical animals
rr. Adaptation of tropical animals
ss. Conservation
tt. Sustainability
uu. Role of national parks in tropical biology
vv. Binocular basics
ww. Tropical diseases

2. Skills:
a. On a map, identify the equator, tropic of cancer, tropic of Capricorn, global wind patterns and global weather patterns
b. On a map, identify tropical biomes
c. Trace the path of a chemical through the biotic and abiotic components of an ecosystem
d. In the field, identify characteristic organisms in their tropical biomes
e. In the field, identify adaptations of organisms in their habitats
f. Using general field markings differentiate classes of animals
g. Use binoculars in the field
h. Classify organisms into appropriate taxa
  i. In the field, identify examples of major biological concepts such as forest gaps, succession, etc.
j. Identify key plants used in ethnobotany
k. Demonstrate appropriate behavior in the field
l. Use field guides

3. Issues:
a. Deforestation  
b. Variations in agricultural practices  
c. Invasive species  
d. Sustainability  
e. Impact of Chytrid fungus on decline of amphibians  
f. Global warming  
g. Exploitation of animals  
h. Land use  
i. Ecotourism  
j. Safety in the field

Resources


