South Central College

BIOL 152 Tropical Rain Forest Ecology

Common Course Outline

Course Information

Description  Tropical Rain Forest Ecology introduces students to fundamental ecological concepts, processes and dynamics within the tropical rain forest biome. Discussions of flora and fauna will be framed within the context of evolution with an emphasis on adaptations. A special focus will be made on the rain forests and culture of Costa Rica and the Galapagos Islands. This course includes a one-week study abroad to Costa Rica or the Galapagos Islands. (MNTC Goal Areas 3 & 10)

Career Cluster  Liberal Arts & Sciences

Total Credits  4.00
Total Hours  80.00

Types of Instruction

Instruction Type  Credits
Lecture  03
Lab  01

Pre/Corequisites

Prerequisite  READ 90 or a score of 78 or higher on the reading portion of the Accuplacer test

Institutional Core Competencies

1  Analysis and inquiry: Students will demonstrate an ability to analyze information from multiple sources and to raise pertinent questions regarding that information.

2  Civic knowledge and engagement- local and global: Students will understand the richness and challenge of local and world cultures and the effects of globalization, and will develop the skills and attitudes to function as “global citizens.”

3  Critical and creative thinking: Students will develop the disposition and skills to strategize, gather, organize, create, refine, analyze, and evaluate the credibility of relevant information and ideas.

4  Ethical reasoning and action: Students will develop ethical and social responsibility to self and others, and will collaborate with others to address ethical and social issues in a sustainable manner.

5  Foundations and skills for lifelong learning: Students will display an understanding of learning as a lifelong process through demonstration of a desire to learn, the willingness to apply learning to other areas of their lives, the ability to think and act independently, be willing to take the initiative to get projects done, and demonstrate the ability to reflect upon what has occurred and how it impacts the student and others.
6  Intercultural knowledge and competence: Students will recognize and understand the rich and complex ways that group and individual inequalities and interactions impact self and society.

7  Teamwork and problem-solving: Students will demonstrate the ability to work together cohesively with diverse groups of persons, including working as a group to resolve any issues that arise.

8  Written and oral communication: Students will communicate effectively in a range of social, academic, and professional contexts using a variety of means, including written, oral, numeric/quantitative, graphic, and visual modes of communication.

Course Competencies

1  Develop an understanding of the nature of science and scientific inquiry.
   Learning Objectives
   Describe the key properties of science and why they are important.
   List the basic steps included in scientific methodologies.
   Differentiate between basic science and applied science.
   Differentiate between discovery science and hypothesis-driven science.
   Evaluate the reliability and limitations of science.

2  Summarize what the science of ecology entails.
   Learning Objectives
   Describe a concise history of ecology as a science.
   Articulate and appreciate the importance of ecological information.
   Compare and contrast ecology and environmental science.

3  Compare and contrast the levels for which ecology is studied.
   Learning Objectives
   Describe the key properties of an ecosystem and explain how they are related.
   Describe the key properties of a community and explain how they are related.
   Describe the key properties of a population and explain how they are related.

4  Develop an understanding of fundamental concepts in ecology.
   Learning Objectives
   Describe the ecological niche concept and explain its implications.
   Explain and evaluate ecological disturbances and ecological succession.
   Compare and contrast the classic biomes on earth.
   State the three levels of biodiversity and explain their importance.

5  Describe the interrelationship between evolution and ecology.
   Learning Objectives
   Demonstrate a working knowledge of the theory of evolution by natural selection.
   Evaluate and analyze the evidences for evolution by natural selection.
   Describe the basic roles of genetics and the environment in the process of evolution.
   Explain how ecology provides the template for evolution to occur.

6  Explain the climate and geography of tropical rain forests.
   Learning Objectives
   Analyze the distribution of tropical rain forests on Earth.
   Differentiate between the various types of tropical rain forests.
Analyze several factors that contribute to the tropical rain forest climate.
Describe the characteristics of tropical rain forest soils.

7 Explain various aspects of tropical rain forest dynamics.
Learning Objectives
Compare and contrast energy flow and chemical cycling in the tropical rain forest.
Describe trophic structure and food webs of the tropical rain forest.
List and describe interspecies interactions common in tropical rain forests.

8 Summarize the flora and fauna of tropical rain forests.
Learning Objectives
Summarize the biodiversity of tropical rain forests.
List and describe several species of plants indigenous to the tropical rain forests.
List and describe several species of animals indigenous to the tropical rain forests.
Develop an understanding of evolutionary adaptations in tropical rain forest species.

9 Observe and describe the natural history of Costa Rica/Galapagos Islands.
Learning Objectives
Observe and describe the geology and physical geography of Costa Rica/Galapagos Islands.
Investigate and describe the flora and fauna of Costa Rica/Galapagos Islands.
Observe and describe the unique interactions and evolutionary adaptations of species native to Costa Rica/Galapagos Islands.

10 Evaluate and articulate the major human impacts on tropical rain forests.
Learning Objectives
Explain what environmental science entails.
Describe how human activity has affected chemical cycling in tropical rain forests.
Describe how human activity has affected biodiversity in tropical rain forests.
Evaluate the practice of deforestation in the tropical rain forests.
Evaluate the effects of climate change on the tropical rain forests.

11 Observe and evaluate the major human impacts on the natural systems of Costa Rica/Galapagos Islands.
Learning Objectives
Observe and explain the causes and consequences of habitat destruction and fragmentation.
Observe and explain the causes and consequences of biodiversity loss.
Observe and describe the causes and consequences of invasive species.

12 Observe and describe conservation and preservation efforts in Costa Rica/Galapagos Islands.
Learning Objectives
Tour and describe biodiversity hot spots.
Tour and describe nature reserves and research stations.
Investigate environmental laws and regulations.

13 Observe and describe the culture of Costa Rica/Galapagos Islands.
Learning Objectives
Summarize the settlement and history of Costa Rica/Galapagos Islands.
Describe the political system and government of Costa Rica/Galapagos Islands.
Describe the religions and customs of Costa Rica/Galapagos Islands.
Identify major regions and cities of Costa Rica/Galapagos Islands.
Become familiar with basic words and phrases in Spanish.
SCC Accessibility Statement

If you have a disability and need accommodations to participate in the course activities, please contact your instructor as soon as possible. This information will be made available in an alternative format, such as Braille, large print, or cassette tape, upon request. If you wish to contact the college ADA Coordinator, call that office at 507-389-7222.

Disabilities page http://southcentral.edu/academic-policies/disability-rights.html