



## Global Sustainability, Natural Sciences, and Environmental Studies Track

Fall 2020

Fulfill requirements for Natural Sciences majors and minors, including Biology, Environmental Sciences, Ecology, Geology, Marine Studies, Botany, Sustainability Studies, and other certificate programs by taking virtual classes from a wide variety of our international partners - with more countries and universities announced soon!

Popular courses to choose from include:

- Climate Change and Natural Hazards
- Coastal Environments
- Tropical Marine Biology
- Tropical Ecology
- Microbiology
- Environmental Politics and Policy
- Conservation Biology
- Molecular Cell Biology
- Climate Change and Adaptation/Natural Hazards
- Ecological Systems
- Rural and Urban Development in Costa Rica: Global and Local Perspectives
- Population Ecology
- Water Resource Management in Arid Climates

Remember, this is just a small sample of the virtual courses available—talk with an API advisor or browse the links at the end of this document for more options!

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### POPULAR COURSES

[Climate Change and Natural Hazards](#) at Massey University: Analysis of climate change and natural hazards including in-depth exploration of their causes, inter-relationships, impacts, and management.

[Coastal Environments](#) at Massey University: An examination of coastal processes and landforms, coastal hazards, the management of contemporary coastal environments, and the evolution of coastal environments in response to climatic changes.

[Conservation Biology and Endangered Marine Species](#) at Universidad Veritas: This course is aimed to highlight the importance of conservation biology in managing endangered marine

species by emphasizing recent conservation efforts of umbrella species such as sea turtles and sharks in the Pacific of Costa Rica. Marine ecosystems of the eastern tropical Pacific provide a baseline source for species of high commercial interest in satisfying humans demand for food worldwide. However, numerous marine species are threatened by unsustainable human activities, such as overfishing and habitat destruction. We will develop a critical understanding of conservation biology, by emphasizing the general concept of biodiversity and in current case studies that focus on scientific investigations to answer critical life history aspects, recovery programs, species management, community conservation actions and Marine Protected Areas (MPAs). The students will also be introduced to a wide range of practical activities by visiting field stations and natural laboratories in Costa Rica. (3 credits online only, 4 credits with fieldwork/lab in country).

[Ecological Systems](#) at Universidad Pablo de Olavide: The course includes basic concepts in Ecology moving from the organism level to the biosphere, including populations, communities, biomes and landscapes. Special importance is given to processes and organization in terrestrial habitats. The course also includes practical activities that led the student to learn by doing and applying the knowledge explained in the lectures.

[Environmental Politics and Policy](#) at Griffith University: This course highlights the important role of environmental politics and policy in furthering understanding of and addressing constructively questions such as: Who is responsible for protecting the Australian environment? What is being done? How might more be done to achieve ecological sustainable development? How do we analyse this? As such, Environmental Politics and Policy introduces key environmental political institutions; policy actors, processes and policies; and issues, in the ecopolitical terrain, central to achieving effective environmental management for long term environmental sustainability. The course is essential for the fields of environmental politics, policy, management and planning.

[Fundamentals of Microbiology](#) at Griffith University: This course will introduce students to the Fundamental Biology of Microbes, including Bacteria, Viruses and Eukaryotes. The course will cover how Microbes survive in niche environments, Microbes as Pathogens, and will include focus areas of Medical Microbiology, Industrial and Applied, and Environmental Microbiology.

[Molecular Cell Biology](#) at Griffith University: Spectacular advances have been made in molecular cell biology in recent years. The course aims to integrate the biology of cells, sub-cellular compartments, cellular communication and signalling, and cellular processes. The course will address the functions of the many different types of proteins and lipids in eukaryotic cells, how cells interact with their environment, and how these processes are regulated normally and in disease.

[Rural and Urban Sustainable Development](#) at ICDS in Costa Rica: This course analyzes the global context of urban and rural development with a focus on local issues from Costa Rica and

Latin America. It is designed to provide a historical understanding as well as the current context surrounding urban and rural development. A multi-dimensional approach will be taken to analyze the causes and effects of development from social, environmental, and economic perspectives. This is a distance learning and online course, yet uniquely set in the Costa Rican context giving access to professors with several decades of experience teaching and researching in Latin America, with detailed case study understanding knowledge in an array of environmental development fields, and first-hand research experience and interest in the Costa Rican pioneering model in sustainability.

[Population Ecology](#) at Universidad Congreso: Learn the importance of biological diversity and the possible measures for conservation. Comprehend how species are assembled into communities and how they can change in space and time.

[Sustainable Food and the New Global Challenge](#) at LdM Florence: This course explores food and gastronomy in the light of environmental preservation, sustainable agricultural practices, the conservation of biological and culinary diversity and global justice. Drawing on a multi-disciplinary perspective which brings together academic research and the traditional knowledge of farmers and producers, students will explore the complexity of food and food systems through an analysis of their nutritional, social, and environmental aspects. They will be encouraged to reflect on the sustainable food movement in a holistic manner, and to question the roles of individuals and consumers in today's global food system.

[Tropical Ecology](#) at Universidad Veritas: This course will provide students with a general overview of tropical ecology. Students will gain insight into basic ecological concepts and be able to explore a variety of ecosystems, their animals and the multiple and complex ecological interactions that can be found in these areas. Costa Rica is a tropical country with an immensely rich biodiversity and for this reason a very representative area to these studies. Emphasis will be given to the study of the ecosystems found in Costa Rica, but others will be discussed as well. (3 credits online only, 4 credits with fieldwork/lab in-country which will be assessed an additional fee).

[Tropical Marine Biology](#) at Universidad Veritas: The oceans were formed between 4400 and 3500 million years ago, and they occupy about 71% of the Earth's surface. Tropical seas hold the highest ecosystem and species diversity of the oceans. This course introduces the basic concepts of oceanography, marine geology, marine ecology and marine biology, with emphasis on the interaction between species, between species and their environment and between ecosystems. It also provides information on the natural and human environmental impact, and the utility, management and conservation of the ecosystems. (3 credits online only, 4 credits with fieldwork/lab in country which will be assessed an additional fee).

[Water Resource Management in Arid Climates](#) at Universidad Congreso: In this course, students will learn the economics of water, how to allocate water and improve water

management in arid climates.

*Please note some classes have prerequisites and might require minimum enrollments; please choose backups where available. Each course title is linked to their respective syllabus.*

International University	Country	Virtual Start Date	Virtual End Date	US semester credits per class	Type of Virtual Instruction
Griffith University	Australia	July 13, 2020	Oct 25, 2020	3-4	Recorded (time zones don't matter!)
Massey University	New Zealand	July 20, 2020	Nov 9, 2020	3-4	Recorded (time zones don't matter!)
Universidad Veritas	Costa Rica	Sept 28, 2020	Dec 17, 2020	3-4	Recorded and live classes
Universidad Pablo de Olavide	Spain	Sept 28, 2020	Dec 17, 2020	3	Recorded and live classes
ICDS	Costa Rica	Sept 9, 2020	Dec 4, 2020	3	Live classes
Universidad Congreso	Argentina	Aug 3, 2020	Nov 20, 2020	3	Recorded and live classes
LdM Florence	Italy	Sept 14, 2020	Dec 11, 2020	3	Live classes

## Want more options?

Additional Environmental Science and Biology classes can be found at the following links:

- [Massey University Biology Classes](#) (Wellington, New Zealand)
- [Massey University Environmental Studies Classes](#) (Wellington, New Zealand)
- [Massey University Sustainability Classes](#) (Wellington, New Zealand)
- [Griffith University Biology Classes](#) (Brisbane and Gold Coast, Australia)
- [Griffith University Environmental Studies and Sustainability Classes](#) (Brisbane and Gold Coast, Australia)
- Universidad Veritas - (San José, Costa Rica). Other courses include:

- [Freshwater Ecology](#)
- [Marine Molecular Biology](#)
- [Environmental Impact and Social Development](#)
- [Agroecology and Sustainable Food Systems](#)
- [Biotechnology and Sustainability](#)
- [Land Vertebrates](#)
- [Wildcats of Costa Rica](#)
- [All Universidad Congreso classes](#) (syllabi available on request)