Food and the Environment Certificate Outline

The *Food and the Environment Certificate Program* ties together several of the most critical issues facing us today: the environmental impacts of food production, the importance of food justice and accessibility, the complexity of international food systems, and most importantly, the positive changes we can make every day with our food choices. Over 15 nutrition, policy, public health, and environmental thought leaders will guide you through the main sectors of the food system—farming, economic, social, and environmental—and highlight the many interconnections between them.

Our Sustainability Experts

Over 15 nutrition, policy, public health, and environmental thought leaders will guide you through the main sectors of the food system—farming, economic, social, and environmental—and highlight the many interconnections between them. Experts include:

Drew Harvell, PhD

Dr. Harvell is a professor at Cornell University. Her research on the hygiene subsidies of marine ecosystems and damage of marine plastics has taken her from the reefs of Mexico, Indonesia, and Hawaii to the cold waters of the Pacific Northwest and resulted in over 170 academic articles in journals such as Science, Nature, and Ecology.

Raj Patel, PhD

Dr. Patel is an award-winning author, filmmaker, and academic. He has testified about the causes of the global food crisis to the US House Financial Services Committee and is a member of the International Panel of Experts on Sustainable Food Systems.

Malik Yakini

Mr. Yakini is the co-founder and Executive Director of the Detroit Black Community Food Security Network, which operates a seven-acre farm in Detroit. He served as Food and Community Fellow at the Institute for Agriculture and Trade Policy from 2011-2013 and was a Business Alliance for Living Local Economies (BALLE) Localist Fellow from 2014-2015.

Bruce Monger, PhD

Dr. Monger is a Senior Lecturer and Researcher in the Department of Earth and Atmospheric Sciences at Cornell University. His research involves the use of satellite remote sensing methods to study environmental controls of ocean primary production at global scales. Dr. Monger received his BA from the University of Washington and his PhD from the University of Hawaii. He currently serves as a member of NASA's Ocean Biology and Biogeochemistry Science Team.

Emelie Peine, PhD

Dr. Peine is Associate Professor of International Political Economy at the University of Puget Sound in Tacoma, Washington. She earned her bachelor's degree from The Evergreen State College and her Master's of Science and PhD in Development Sociology from Cornell University.

Alizé Carrère, MSc

Ms. Carrère is a National Geographic Explorer, filmmaker, and environmental anthropologist researching and documenting human adaptations to environmental change. Alizé is currently pursuing her PhD at the University of Miami in Environmental Anthropology.

Doug Gurian-Sherman, PhD

Dr. Gurian-Sherman is a consultant on agriculture with Strategic Expansion and Training, LLC, in Minneapolis, Minnesota. He advises civil society coalitions, organizations, and others in the United States and internationally on issues of climate change and agriculture, pesticide alternatives, and genetic engineering. He holds PhD and MS degrees in plant pathology from the University of California, Berkeley, and a BS in natural resources from the University of Michigan.

Dan Imhoff, MA

Mr. Imhoff has written for more than 25 years on topics related to ecological sustainability. Dan is the president and co-founder of Watershed Media as well as president and a co-founder of the Wild Farm Alliance, a national organization that works to promote agriculture systems that support and accommodate wild nature. He holds an MA in international relations from Syracuse University and a BA in international relations from Allegheny College.

Peter Lehner, Esq

Mr. Lehner is Managing Attorney of Earthjustice's Sustainable Food & Farming Program, developing strategies to promote a more environmentally sound agricultural system and to reduce health, environmental, and climate harms from production of our food. Peter holds an AB in philosophy and mathematics from Harvard College and is an honors graduate of Columbia University Law School.

David Montgomery, PhD

Dr. Montgomery is a MacArthur Fellow and professor of geomorphology at the University of Washington. He is an internationally recognized geologist who studies landscape evolution and the effects of geological processes on ecological systems and human societies. An author of award-winning popular-science books, he has been featured in documentary films, network and cable news, and on a wide variety of TV and radio programs, including NOVA, PBS NewsHour, Fox and Friends, and All Things Considered.

Claire O'Connor, JD

Dr. O'Connor is the Director of the Water & Agriculture, Water Division, Nature Program at the The Natural Resources Defense Council (NRDC). She focuses on the crucial relationship between water and agriculture, emphasizing solutions to water-resource challenges that will benefit both farmers and their non-farming neighbors. O'Connor is a graduate of the University of Nebraska-Lincoln and Georgetown University Law Center.

David Simon, Esq

Mr. Simon is the author of Meatonomics and a vegan lawyer, animal activist, and advocate for sustainable consumption. He serves on the advisory council of the Animal Legal Defense Fund (ALDF) and on the boards of Animal Protection and Rescue League (APRL) and the APRL Fund. Dave received his BA from UC Berkeley and his JD from the University of Southern California.

Tristram Stuart

Mr. Stuart is an international award-winning author, speaker, campaigner, and expert on the environmental and social impacts of food. He is an Ashoka Fellow, a National Geographic Emerging Explorer, and a World Economic Forum Young Global Leader.

Gwyn Whittaker

Following a successful decades-long career in IT, Ms. Whittaker became passionate about nutrition and health. She was inspired to provide plant-based jumpstarts, documented in the film *PlantPure Nation*. She also opened the GreenFare restaurant, bringing organic whole-plant foods to her community. She continues running jumpstart programs with incredible results.

Steven Disla

Mr. Disla is the instructional designer for the Food and the Environment course and is a soil food web technician. He is also the co-founder of the RAICES Land Institute in the Dominican Republic, a non-profit that focuses on regenerative agriculture as a way to inspire communities of health. In North Carolina, where he lives, he has a farm with a burgeoning nursery business.

T. Colin Campbell, PhD

Dr. Campbell is a Cornell University Professor Emeritus and world-renowned nutritional biochemist. He is the bestselling author of multiple books, including *The China Study*. Several documentary films feature Dr. Campbell and his research, including the highly acclaimed *Forks Over Knives*.

LeAnne Campbell, PhD

LeAnne Campbell is the CEO of the T. Colin Campbell Center for Nutrition Studies and Founder of Global Roots, a non-profit that promotes the growth of vibrant, inclusive and resilient communities of health through regenerative land practices. She has over 30 years of experience working with communities, universities and schools, in the US and abroad.

Part 1: Food Production and Sustainability

Introduction

Have you ever wondered how the food you love is produced? How that process affects the environment? What alternatives exist and how we might learn from them?

In this first part of our three-part program, you will answer these and many other questions related to food production. You will be introduced to the food system (how our food is grown, harvested, processed, packaged, transported, and consumed) before focusing on how industrial agriculture specifically is transforming the face of the planet. You will also learn how to identify sustainable options, which not only promote the continued health of our population but also

protect vital ecosystems, support biodiversity, and tackle the challenges of global food production.

At the center of this part — and the food system — are individual choices. Everyone eats, but few understand where their food comes from. With the help of experts in this course, you will soon have a much better understanding of that process, and the opportunities it presents. We're excited to guide you along the way.

Learning Objectives

- Describe how the food system affects climate change and the environment
- Identify industrial farming methods and their impacts on the environment
- Evaluate the relative sustainability of the foods you consume
- Identify foods with high and low demands on natural resources
- Describe how oceans and forests regulate climate change
- Identify ways to transition the food system toward a sustainable future

Part 1: Food Production and Sustainability

Module 1: Impact of Food Production on Climate Change

1.1 - Introduction

1.2 - Meet T. Colin Campbell, PhD

1.3 - *Wholism*

1.4 - Meet Alizé Carrère, MSc

1.5 - What is Climate Change

1.6 - Climate Change and Greenhouse Gas Emissions

1.7 - Meet Steven Disla

1.8 - Food Systems and Greenhouse Emissions

1.9 - Food Systems Defined

1.10 - Four Sectors of the Food System

1.11 - (Project) Journal Entry #1: What is Sustainability?

1.12 - Wrap-up

Module 2: Industrial Agriculture

2.1 - Introduction

2.2 - Meet Doug Gurian-Sherman, PhD

2.3 - Prevalence of Industrial Agriculture

2.4 - Monocultures

2.5 - CAFOs

2.6 - Fertilizers and Farming

2.7 - Pesticides Overview

2.8 - Resistance to Pesticides

2.9 - GMO Overview

2.10 - Industrialized Farming and Yields

2.11 - Industrial Farming and Loss of Biodiversity

2.12 - (Project) Journal Entry #2: Consequences of Industrialized Farming

2.13 - Wrap-up

Module 3: Land and Water Use

3.1 - Introduction

3.2 - Meet David Montgomery, PhD

3.3 - Soil Degradation: Part 1

3.4 - Soil Degradation: Part 2

3.5 - Deforestation

3.6 - Agricultural Land Use Changes and Deforestation

3.7 - Meet Claire O'Connor, J.D.

3.8 - Fresh Water: A Vital Resource Becoming Scarce

3.9 - Understanding How We Use Our Water

3.10 - Food Production and Water Usage

3.11 - (Project) Journal Entry #3: Impact of Personal Choices on Land and Water Use

3.12 - Wrap-up

Module 4: Oceans, Streams, and Waterways

4.1 - Introduction

4.2 - Meet Bruce Monger, PhD

4.3 - Role of Ocean Life Support

4.4 - Nutrient Pollution

4.5 - Coastal Dead Zones

4.6 - Unsustainable Fishing Practices

4.7 - Impacts of Aquaculture

4.8 - Meet Drew Harvell, Ph.D.

4.9 - Ocean Acidification

4.10 - Coral Reefs

4.11 - What Does Food Have to Do witing Causes of Death

4.12 - Human Impact on Biodiversity

4.13 - (Project) Journal Entry #4: Oceans, Streams, and Waterways

4.14 - Wrap-up

Module 5: The Path Forward

5.1 - Introduction

5.2 - Watch: Climate Change and the Path Ahead: Part 1

5.3 - Watch: Climate Change and the Path Ahead: Part 2

5.4 - Project Drawdown

5.5 - Nutrition for People and Planet: Part 1

5.6 - Diet and the Lead

5.7 - Nutrition for People and Planet: Part 2

5.8 The Environmental Case for Free Range Livestock

5.9 - (Project) Journal Entry #5: Redefining Sustainability

5.10 - Wrap-up

5.11 - Continued Learning Opportunity: CNS Plant-Based Nutrition Certificate

Part 2: Navigating Food Systems

Introduction

Welcome to Navigating Food Systems! In the first part, you learned about global food production, its impact on the environment, and the importance of sustainability. In Part 2, you will continue to explore our food system but with an emphasis on human systems.

You will learn about public policy as an element of the food system, which requires an understanding of the institutions of law and economics; the unseen costs of food production, particularly as it relates to food waste and the true cost of different food groups; and finally, the social challenges inherent to the food system both at home and abroad.

This part digs deep into the humanity—and inhumanity—of the food system. If you can appreciate that the current system is a product of human choices and that human choices can radically improve the food system, then you will be one step closer to change.

Learning Objectives

- Identify food policies that allowed for the rise of consolidated agribusiness
- Explain how government subsidies in different sectors of the food system impact food production and consumption
- Track the path of food waste along each step of the production process
- Evaluate the hidden costs of food production and distribution
- Identify barriers to the accessibility of healthy food in under-resourced areas of the United States
- Identify the influence of multinational corporations, institutions, and trade organizations on global food production and access

Part 2: Navigating Food Systems

Module 6: Rise of the Industrial Food System

6.1 - Introduction

6.2 - Meet Emelie Peine, PhD

6.3 - Consolidation and Market Control

6.4 - Today's Industrial Food System

6.5 - The Great Depression and the New Deal

6.6 - The Agricultural Adjustment Act (AAA)

6.7 - Benson, Butz, and Agribusiness

6.8 - Mergers, Acquisitions, and Choice

6.9 - Government, NGOs, Academia, and Financial Institutions

6.10 - Journal Entry #1: Consolidation in the Food System

6.11 - Wrap-up

Module 7: American Food Policy

7.1 - Introduction

7.2 - Meet Dan Imhoff

7.3 - The Farm Bill Part 1

7.4 - The Farm Bill Part 2

7.5 - The Farm Bill Part 3

7.6 - Meet Peter Lehner, Esq

7.7 - The Environmental Protection Agency (EPA)

7.8 - The Food and Drug Administration (FDA)

7.9 - Journal Entry #2: Regulation and Subsidization of the Food System

7.10 - Wrap-up

Module 8: Understanding and Mitigating Food Waste

8.1 - Introduction

8.2 - Meet Tristram Stuart

8.3 - Food Production and Food Waste

8.4 - Measuring Food Waste Part 1: Food Production

8.5 - Measuring Food Waste Part 2: Consumers

8.6 - Measuring Food Waste Part 3: Developing World

8.7 - Retail Waste: Supermarkets

8.8 - Production Waste: Wholesale Manufacturers and Processors

8.9 - Post Harvest Waste: Farms

8.10 - Consumer Waste: Homes

8.11 - Mitigating Food Waste and the Fight Against Climate Change

8.12 - Mitigating Food Waste: Personal Choices

8.13 - Journal Entry #3: Food Waste

8.14 - Wrap-up

Module 9: The True Costs of Food

9.1 - Introduction

9.2 - Environmental and Social Impacts of Food Production

9.3 - Meet David Simon, Esq

9.4 - Unpacking the Happy Meal

9.5 - Where's the Beef?: An Example of Environmental Impacts

9.6 - Big Agribusiness: Social Consequences

9.7 - Sustainability: Meat vs. Plants

9.8 - Food Packaging: The Cost of Convenience

9.9 - Journal Entry #4: The True Cost of Food

9.10 - Wrap-Up

Module 10: Food Accessibility and Food Justice in the United States

10.1 - Introduction

10.2 - Meet Malik Yakini

10.3 - Food Desert: A Problematic Term

10.4 - The Logic of Capitalism and Food Access

10.5 - Race, Class, and Geography

10.6 - Composition of Food Outlets in Urban "Food Deserts"

10.7 - Community Self-reliance Efforts

10.8 - Food Justice in America

10.9 - Journal Entry #5: Food Accessibility and Food Justice in the United States

10.10 - Wrap-up

Module 11: Globalized Food Systems

11.1 - Introduction

11.2 - Meet Raj Patel, PhD

11.3 - Direct Food Aid

11.4 - Exporting the Industrialized Food System: The Green Revolution

11.5 - The World Bank and the International Monetary Fund

11.6 - The World Trade Organization

11.7 - Global Urbanization and Rural Void

11.8 - Modern Corporation in Food Systems

11.9 - Stuffed and Starved

11.10 - International Food Sovereignty

11.11 - Journal Entry #6: Globalized Food Systems

11.12 - Wrap-up

Part 3: Movements in Action

Introduction

In the first two parts of this certificate program, you focused primarily on the dominant features of the food system. Through that focus, you learned about systems of industrial agriculture, how they function, and their many consequences. You should now have a better understanding of what the status quo looks like in the food system and why it matters for individual, social, and environmental health.

In Part 3, the final part, the focus pivots toward sustainable alternatives. You will learn about farming practices that aim to cooperate with and leverage natural processes and build environmental resiliency, examples of activism in communities around the world, and innovative business models. Most importantly, you will learn about these alternatives directly from the people who are leading the way toward a more sustainable future.

You will come away with an enhanced understanding of sustainability based on the best practices of leading individuals and organizations around the world. By learning from them directly, you will be better prepared to join the solution yourself!

Learning Objectives

- Define methods and practices of growing and sharing crops in sustainable farming systems
- Describe sustainable practices in food production on individual, community, and national levels
- Describe the work of different organizations creating change in food production and distribution
- Identify solutions to drive a more socially just and sustainable food system
- Adopt a plant-based lifestyle as a part of a sustainable solution

Part 3: Movements in Action

Module 12: Approaching Agriculture Differently

12.1 - Introduction

12.2 - Sustainable Agricultural Practices

12.3 - Spotlight on Conservation Agriculture

12.4 - Meet Rodale Institute

12.5 - Rodale Institute

12.6 - Spotlight on Regenerative Agriculture

12.7 - How Do I Get Involved in the Regenerative Agriculture Movement?

12.8 - Community Supported Agriculture

12.9 - Industrial Agriculture and the Alternatives: Myths and Misconceptions

12.10 - Journal Entry #1: Approaching Agriculture Differently

12.11 - Wrap-up

Module 13: Engaging Business and Community Solutions

13.1 - Introduction

13.2 - Business Structures and Outcomes

13.3 - Meet Equal Exchange

13.4 - Equal Exchange

13.5 - Meet Friendship Donations Network

13.6 - Friendship Donations Network

13.7 - Food in Schools and Institutions

13.8 - Meet The Youth Farm Project

13.9 - The Youth Farm Project

13.10 - Meet Harlem Grown

13.11 - Harlem Grown

13.12 - Journal Entry #2: Community Food Systems

13.13 - Wrap-up

Module 14: Agriculturally Driven Environmental Regeneration

14.1 - Introduction

14.2 - Agricultural Capacity for Environmental Regeneration

14.3 - Meet Global Roots and LeAnne Campbell, PhD

14.4 - Global Roots

14.5 - Agroforestry Principles

14.6 - Home Fruit Tree Guild

14.7 - Garden: Start Your Own or Join One

14.8 - Regenerative Agriculture and Biodiversity: Integrating Agriculture and Conservation

14.9 - Journal Entry #3: Agriculturally Driven Environmental Regeneration

14.10 - Wrap-up

Module 15: Whole Food Plant Based Nutrition for Personal, Communal, and Ecological Health

15.1 - Introduction

15.2 - What is a Whole Food, Plant-Based Diet?

15.3 - Meet Ethos Farm and Ron Weiss, MD

15.4 - Ethos Farm

15.5 - Meet Gwyn Whittaker and GreenFare Organic Cafe

15.6 - Whole Food Plant Based Jumpstarts

15.7 - Jumpstarts and Businesses

15.8 - Organizing or Participating in a WFPB Jumpstart and Testimonials

15.9 - Three-day Whole Food, Plant-based Diet Challenge

15.10 - Whole Foods, Plant-Based Diet Sample Menu

15.11 - Get Involved: CNS Kitchen

15.12 - Journal Entry #4: WFPB Nutrition for Personal, Communal, and Ecological Health

15.13 - Wrap-up

Module 16: Taking Action

16.1 - Introduction

16.2 - The Sustainability Continuum and the Food System: Taking the Initiative Into Our Own Hands

16.3 - Economic: Consumers and The Food System

16.4 - Political — Food and Politics

16.5 - Social — Food and People

16.6 - Environmental — Impact of Our Food Choices

16.7 - Meet Natasha Lantz

16.8 - Get Involved: Whole Communities

16.9 - Get Involved: Educational Immersion Programs

16.10 - Journal Entry #5: Taking Action

16.11 - Wrap-up

Enroll Now