

## Earth Institute Executive Education Certificate Program in Conservation & Environmental Sustainability

### Fall 2014 COURSES

#### MODULE 1

##### **Environmental Sustainability and Corporate Decision-Making**

*Jeffrey Potent, Adjunct Professor, Columbia's School of International and Public Affairs, & Environmental Protection Specialist, United States Environmental Protection Agency*

This course explores how leading corporations are innovating to address environmental and social issues from a business perspective -- minimizing associated costs and risks and capturing business opportunities to improve competitive advantage. You examine how the business landscape is changing in response to expanding stakeholder expectations, the need to reduce real world environmental and social impacts that equate to business risks and costs, and the growth of markets for products and services that offer environmental and social attributes as well as satisfying customers expectations for quality, timeliness and price. The course focuses on ecosystem service valuation as a practical tool that corporations are beginning to employ to assess company-specific impacts and dependencies, identify associated risks and opportunities, and develop strategies to create product and company differentiation and gain competitive advantage -- essentially doing well by doing good!

- Meets: Mondays, Sept. 8, 15, 22, 29, Oct. 6 (5 sessions; 6:10-8:10PM)

*Jeffrey Potent develops and teaches courses in corporate sustainable development, ecosystem services and environmental markets, and systems and sustainability. He also leads corporate partnerships with the US Environmental Protection Agency in Washington DC; advancing sustainable development and market-based approaches to environmental protection. From 1999 to 2008, Mr. Potent served as an EPA/US Department of Agriculture liaison, facilitating collaboration among Land Grant Universities, EPA, USDA, and other agencies and academic institutions. In 2001 he established the regional component of the USDA National Integrated Water Quality Program, serving as regional coordinator and member of the program's national leadership team. Earlier in his career, Mr. Potent led an energy and environmental services engineering consulting practice, managed pollution prevention programs for a large environmental agency, and planned international telecommunications facilities for a leading telecommunications corporation.*

##### **Environmental Economics**

*Urvashi Kaul, Education Manager for Robert K. Kennedy Compass & Adjunct Assistant Professor, School of International and Public Affairs at Columbia University*

This course provides an introduction to environmental economics through a discussion of the basic principles of microeconomics as they apply to environmental issues and analysis of case studies that illustrate how economics can guide conservation practice and policy. Class discussion also includes a review of solutions to such market failures, such as taxes and subsidies, fees and quotas, especially tradable emissions permits, e.g., carbon markets.

- Meets: Tuesdays, Sept. 2, 9, 16, 23, 30 (5 sessions; 6:10-8:10PM)

**Urvashi Kaul** is the Education Manager for RFK Compass. She works with the investment community to encourage the use of sustainability as an integral part of their strategies. Prior to joining RFK Compass in 2012, Ms. Kaul was an Assistant Director for Economic Research and Analysis at the New York City Economic Development Corporation, where she evaluated economic and fiscal impacts of development projects and events, and analyzed policies and proposals related to New York City's economic development. She served as the standing advisor for the New York City Labor Market Information Service at the Center for Urban Research, City University of New York. Before that, she was an Economist for Fiscal and Budget Studies at the Office of the New York City Comptroller. Ms. Kaul is an Adjunct Assistant Professor of International and Public Affairs at Columbia University, where she teaches graduate level courses in Economics and Finance. She serves as the chair of the board of directors of Adhikaar, a New York based not-for-profit organization promoting social justice and human rights. She also serves as a member, board of directors of Asia Initiatives. A native of Kashmir, India, her education includes an MPA from Columbia University, with a concentration in International Finance and Economic Development; a Masters Degree from the Delhi School of Economics, University of Delhi; and an Undergraduate Degree from Miranda House College, University of Delhi.

### **Sustainability on a Smarter Planet**

**Richard Lechner**, Vice President, Cloud & Services Marketing, IBM

The world is becoming increasingly instrumented, interconnected, and intelligent - in a word, 'smarter'. We now have the ability to see the exact condition of practically everything in near real-time. A nexus of forces - cloud, analytics, mobile, and social - are enabling organizations to turn this information into insights and action in order to achieve financial, environmental, social, and operational benefits. This course will use case studies to provide a broad overview of how technology can be leveraged to optimize all aspects of an organization's infrastructure and operations for energy, carbon, water, and waste.

- Meets: Wednesdays, Sept. 3, 10, 17, 24, Oct. 1 (5 sessions; 6:10-8:10PM)

**Rich Lechner** has over 30 years experience in helping organizations leverage technology to address critical business challenges and to change the way the world works. He has held senior leadership positions at IBM in business development, marketing, strategy, sales, and product development across the hardware, software, and services organizations.

As vice president of Energy & Environment, Mr Lechner was responsible for attainment of annual revenue targets in excess of \$4B across IBM's broad sustainability portfolio including energy efficient IT, intelligent buildings, smart urban infrastructure, and optimization of operations for energy, carbon, water, and waste. His responsibilities included strategy, marketing, portfolio management, ecosystem development, communications, and sales enablement.. Mr Lechner has had the privilege of working with hundreds of organizations around the world to help them address the issues and opportunities around energy, the environment, and sustainability. He is a well known speaker at industry and public sector sustainability events. He holds a Bachelors Degree in Computer Science from University of California, Los Angeles.

## **MODULE 2**

### **Evolutionary Adaptations and Behavior**

**Scott Silver**, Facility Director/Curator of Animals, Wildlife Conservation Society

Day to day survival in the animal kingdom is comprised of a nearly limitless catalogue of behaviors that individuals display throughout their lives. The interaction between physical adaptations, the environments within which animals live, and the behaviors they engage in generally maximize each individual's chances for survival and reproduction. Learn about the vast variety of adaptations and behaviors that are exhibited by everything from fruit flies to flying foxes, through an introduction to some basic concepts in animal behavior and evolution, as well as a survey of some of the more fascinating examples within the range of behavioral adaptations. This class includes a day trip to the Bronx Zoo or Queens Zoo to observe some of the behavioral phenomena covered in class.

- Meets: Tuesdays, Oct. 21, 28, Nov. 11 (3 sessions; 6:10-8:10PM) and Saturday Nov. 08 (11AM-3PM; Bronx Zoo or Queens Zoo trip)

*Scott Silver earned his Bachelor's degree in zoology from the State University of New York at Oswego. Scott began his zoo-keeping career at the Bronx Zoo in 1983, as an intern in the mammal dept while in college. He joined the mammal dept. shortly after graduation in 1984, and in 1989 he transferred to the zoo's education department. He earned his Master's degree in Biology from Fordham University in 1993, and left the education department to pursue field research of translocated howler monkeys in Belize, Central America. He earned his Ph.D. in biology in 1997 and in 1998 joined the Queens Zoo as the assistant curator of animals, becoming curator in 2000. He became the Director at the Queens Zoo in 2007. He has been the Andean (Spectacled) Bear Species Survival Plan coordinator for the Association of Zoos and Aquariums since 2000, and has a long history of jaguar research throughout central.*

### **Introduction to Ecology**

**Jenna Lawrence**, Department of Ecology, Evolution & Environmental Biology, Columbia University

This course examines the interaction between the living components of the earth with the environment, including the distribution and abundance of plants and animals and the impact of human activities on these distributions. Key ecological principles are illustrated with applied examples of how changes in the environment affect ecological systems, ultimately providing you with the tools to evaluate environmental issues.

- Meets: Wednesdays, Oct. 8, 15, 22, 29, Nov. 5 (5 sessions; 6:10-8:10PM)

*Jenna Lawrence received her Ph.D. from the department of Ecology, Evolution and Environmental Biology at Columbia University. Her research focuses on primate behavioral ecology, and her current lectures and interests extend to all biodiversity in both marine and terrestrial ecosystems. At Columbia University, she also teaches sustainability management at the graduate level and a Summer Ecosystem Experiences for Undergraduates (SEE-U) program that EICES provides in the Caribbean and Jordan.*

### **Agriculture & Wildlife Conservation: Coffee Agroforestry**

**Amanda Caudill**, *Postdoctoral Research Scientist at the Smithsonian Institute*

Habitat destruction threatens wildlife existence worldwide. While preserving tropical forests is a necessity for biological conservation, this must be coupled with other conservation strategies to provide a sustainable solution for wildlife conservation. Coffee agroforestry, the intentional management of shade trees within coffee farms, has shown promise as a conservation strategy to support wildlife diversity. This course explores the relationship of coffee agroforestry and wildlife conservation. We will examine coffee farms as habitat through case studies, learn about socio-economics and environmental issues associated with coffee, and assess coffee certifications such as shade grown, organic, Rainforest Alliance, and Smithsonian Bird Friendly.

- Meets: Thursday, Oct. 9, 16, 23, 30, Nov. 6 (5 sessions; 6:10-8:10PM)

**Amanda Caudill** is currently a postdoctoral research scientist at the Smithsonian Institute and is an alumni of the EICES certificate program. She is interested in sustainable agriculture as a means to provide wildlife habitat, foster ecosystem services, and conserve biodiversity, while simultaneously providing for human livelihoods. Her current research focuses on enhancing habitat value of coffee agroforestry for mammals. She has conducted field work in coffee farms of India, Costa Rica, and Mexico.

## **MODULE 3**

### **Disease Ecology**

**Peter Daszak**, *President, EcoHealth Alliance; Adjunct Senior Research Scientist, Earth Institute Center for Environmental Sustainability, Columbia University*

Sixty percent of emerging infectious diseases that affect humans originate in animals and more than two-thirds of those originate in wildlife. Human processes that infringe upon previously uninhabited areas have the potential to profoundly affect our exposure to diseases. Yet health assessments rarely take into account the principles of disease ecology, the interaction of the behavior and ecology of hosts with the biology of pathogens. Gain an overview of the principles of disease ecology with an emphasis on the effect of disease on human, wildlife, domestic animal, and ecosystem health. Explore the rise of emergent diseases as a result of various environmental factors and examine the impact of disease on biodiversity and rates of extinction.

- Meets: Mondays, Nov. 24, Dec. 1, 8, 15, 22 (5 sessions; 6:10-8:10PM)

**Peter Daszak** is President of EcoHealth Alliance, a US-based organization which conducts research and outreach programs on global health, conservation and international development. Dr. Daszak's research has been instrumental in identifying and predicting the impact of emerging diseases across the globe. His achievements include identifying the bat origin of SARS, identifying the underlying drivers of Nipah and Hendra virus emergence, producing the first ever global emerging disease 'hotspots' map, identifying the first case of a species extinction due to disease, coining the term 'pathogen pollution', and discovering the disease chytridiomycosis as the cause global amphibian declines. Dr Daszak is a member of the Institute of Medicine's Forum on Microbial Threats, the One Health Commission Council of Advisors, the CEEZAD External Advisory Board, and served on the IOM Committee on global surveillance for emerging zoonoses, the NRC committee on the future of veterinary research,

*the International Standing Advisory Board of the Australian Biosecurity CRC, and he has advised the Director for Medical Preparedness Policy on the White House National Security Staff on global health issues. Dr Daszak won the 2000 CSIRO medal for collaborative research on the discovery of amphibian chytridiomycosis, is the EHA institutional lead for USAID-EPT-PREDICT, and is Editor-in-Chief of the journal Ecohealth. He has authored over 200 scientific papers, and his work has been the focus of extensive media coverage, ranging from popular press articles to television appearances.*

### **Environmental Markets: The Nexus of Business, Regulation, and Sustainability**

**Richard Weihe**, Managing Partner, Karbone

Companies around the world are developing innovative solutions in the area of energy efficiency, water infrastructure, and waste management technologies. The leading companies in these markets are fast becoming major drivers of global economic growth as industries, governments, and societies come to terms with these challenges. Learn the history of the development of environmental markets and how they are used to solve environmental issues. Examine the political, business, and regulatory contexts of these markets using real-world examples through case study analysis. Topics include air quality, climate change, pollution, water, and renewable energy mandates.

- Meets: Tuesdays, Nov. 18, 25, Dec. 2, 9, 16 (5 sessions; 6:10-8:10PM)

*Richard Weihe has over eighteen years experience in the energy and environmental sectors in a variety of roles including investment management, environmental credit and energy trading, and engineering consulting project management. As Managing Partner at Karbone, he spearheads business development activities and oversees the firm's practices in renewable power and environmental credit brokerage, capital advisory services, and renewable energy market research. Prior to Karbone, Mr. Weihe was a senior investment analyst with RNK Capital where he originated and directed investment analysis on a variety of private equity and project-related renewable energy and environmental credit transactions. Prior to RNK Capital, Mr. Weihe has held a variety of commercial and management positions in the energy and environmental risk management sectors. In the energy sector, Mr. Weihe has completed transactions in solar, wind, geothermal, landfill gas, biomass power, and biofuels. In addition, Mr. Weihe has completed water rights related transactions in the Western U.S.*

### **Diversity and Conservation**

**Matt Palmer**, Senior Lecturer, Department of Ecology, Evolution & Environmental Biology, Columbia University

Human life and wellbeing are dependent on goods and services provided by nature. However, this natural capital is chronically undervalued and often poorly understood. Biodiversity – the variety of life on earth – supports many ecosystem functions and the loss of diversity can have both obvious and subtle consequences. This course explores the scientific issues related to the origin, distribution, and functions of biodiversity and the consequences of biodiversity loss. We discuss a range of tools for conserving biodiversity – including species recovery plans, protected area management, and ecosystem-based management.

- Meets: Thursdays, Nov. 13, 20, Dec. 4, 11, 18 (5 sessions; 6:10-8:10PM; skip Nov. 27; Thanksgiving)

**Matt Palmer** is a faculty member in the department of Ecology, Evolution and Environmental Biology (E3B) at Columbia University. His research interests are based in plant community ecology, with emphases on conservation, restoration and ecosystem function. Palmer has done research on the effects of microtopography and plant interactions on centimeter-scale diversity patterns in fens of the New Jersey Pinelands. He is currently doing research on the community dynamics and ecosystem functions of urban forests and green roofs, the population biology of rare plants and the effects of forest canopy disturbance on understory structure and function.