



# 2010 Spring Courses

Virginia Tech  
*Natural Resources Program*  
National Capital Region

January 19 – May 12



**Application:** <http://www.grads.vt.edu/admissions/applying/index.html#online>  
**Registration:** [https://banweb.banner.vt.edu/ssb/prod/twbkwbis.P\\_WWWLogin](https://banweb.banner.vt.edu/ssb/prod/twbkwbis.P_WWWLogin)

**Application Deadline: 12/1/2009**  
**Pre-registration: 10/20 - 10/27/2009**  
**Registration: 11/30/09 – 1/ 25/2010**

## **NR 5884 Topics: Water Resources Management (3 credits, CRN 17623)**

This course provides the scientific basis for managing water resources and the importance of water resources in both human and ecologic terms. An overview of the management of water resources will encompass hydrological processes; physical, chemical, and biological properties of water; and the function of each in ecosystems. This course examines background knowledge on how civilization has managed water through history, the environmental impact of public policy, and the tools used in decision-making in water resource management. Given that early in the 21<sup>st</sup> Century, freshwater will become a limited and strategic economic resource, survival of civilization, economic development, and ecosystems as we know them, will require delineation of future management scenarios and the development of low energy cost advanced technologies.

Location: NVC, Falls Church, Mondays, 7:00 – 9:45 PM,  
Instructor: Dr. Michael Champ

## **NR 5884 Topics: Conservation Project Design and Planning (3 credits, CRN 17624)**

Faced with limited resources to confront growing challenges, conservation organizations must show that their efforts are strategic, systematic, and results-oriented. This course provides students with the skills and knowledge to design and implement effective conservation projects and to generate clear evidence of their progress toward achieving conservation results. The course provides training in adaptive management (AM), including planning, monitoring, implementing, analyzing, learning from, and adapting conservation projects -- essential knowledge and skills for current and emerging conservation practitioners. Graduate students in conservation-focused programs require experiential learning in the practical and applied processes (i.e. adaptive management) and skills (e.g. developing goals and objectives, budget drafting, and leadership) that are essential for achieving conservation results.

Location: NVC, Falls Church, Thursdays, 7:00-9:45 PM  
Instructor: Dr. Heather Eves

## **NR 5044 Environmental Conservation and the American Landscape (3 credits, CRN 17625)**

This course provides a comprehensive examination of American attitudes toward the environment and the history of our efforts to protect it. Early European settlers viewed the American landscape through particular lenses, and their attitudes toward landscape changed as they encountered new landforms and types of wilderness as the country expanded westward and matured. By the end of the nineteenth century, we recognized environments that needed to be protected and began to set aside large areas containing special natural features (national parks, monuments, and forests). Throughout the twentieth century, our definition of environments that required conservation expanded further, and we defined "wilderness" within national parks and forests for special protection. By the end of the twentieth century, public efforts to protect the environment were greatly enhanced by private conservation efforts, as the land trust movement matured. Thus, the course will examine changing definitions of the American environment in the context of national development and our evolving strategies of environmental conservation.

Location: Alexandria, Wednesdays, 7:00-9:45 PM.  
Instructor: Dr. Shelley Mastran

## **FOR 5134 Environmental Conflict Management (3 credits, CRN 17626 NVC, 17635 Blacksburg)**

This course will introduce students to the theories and practical approaches associated with understanding and managing for modern environmental conflicts, with an emphasis on both the processes and structures unique to the United States as well as those found in various international settings. The seminar-styled course will cover the causes, controls, and potential remedies for managing the intense conflicts routinely associated with natural resource management and environmental regulation.

Location: NVC Falls Church/Blacksburg (*Video Broadcast System*)  
Instructors: Drs. Michael Mortimer & Khaled Hassouna; Tuesdays, 7:00 – 9:45 PM.

### **NR 5224 Field Biology and Ecology (3 credits, CRN 16326)**

This course will provide opportunities to explore the ecological and biological diversity found throughout the mid-Atlantic states. Field trips will be supported by lectures focused on providing biological and ecological understanding of the different ecosystems and their components occurring from the coastal plains and estuaries along the Atlantic Ocean to the fields and forests of the Piedmont and Appalachian ecoregions. The course will feature field identification, observation, and documentation of the plants and animals in representative ecosystems, with special emphasis on mammals, birds, amphibians, and reptiles. Native trees, shrubs, grasses, and other flowering plants will also be examined in natural plant communities.

Location: NVC Falls Church; Saturdays and two overnight weekend trips

Instructors: Drs. Sheffield, Evans, Huff

### **NR 5834 Ecological Economics (3 credits, CRN 16329)**

This course provides a historical overview of various schools of economic thought, presents the major principles required to fuse ecology with economics, and helps students to analyze economic policies under the lens of ecological reality. Particular attention is paid to economic growth theory and policy as it pertains to the sustainability of human society and management of natural resources. This is a trans-disciplinary course, incorporating relevant principles and practices from political science, psychology, and physics in addition to ecology and economics. Students are not required to construct mathematical models. The course is organized in 4 modules (following an introductory session): 1) ecological principles; 2) economic principles; 3) integrating ecological and economic principles, and; 4) policy and political economy in relation to natural resources.

Location: NVC Falls Church; Wednesdays, 7:00 - 9:45 PM.

Instructor: Dr. Brian Czech

### **NR 5904 Project Report (1-6 credits, CRN 16331)**

### **NR 5974 Independent Study (1-3 credits, CRN 16333)**

## **Online Courses** <http://learn.vt.edu>

### **NR 5044 Environmental Conservation and the American Landscape (3 credits, CRN 17610, Online)**

This course provides a comprehensive examination of American attitudes toward the environment and the history of our efforts to protect it. Early European settlers viewed the American landscape through particular lenses, and their attitudes toward landscape changed as they encountered new landforms and types of wilderness as the country expanded westward and matured. By the end of the nineteenth century, we recognized environments that needed to be protected and began to set aside large areas containing special natural features (national parks, monuments, and forests). Throughout the twentieth century, our definition of environments that required conservation expanded further, and we defined "wilderness" within national parks and forests for special protection. By the end of the twentieth century, public efforts to protect the environment were greatly enhanced by private conservation efforts, as the land trust movement matured. Thus, the course will examine changing definitions of the American environment in the context of national development and our evolving strategies of environmental conservation.

Instructor: Dr. Shelley Mastran

### **NR 5114 Global Issues in Natural Resources (3 credits, CRN 17611, Online)**

Use of renewable natural resources has important global economic and environmental consequences. A thorough understanding of the international influences on the world's forest, fisheries, wildlife, and other living natural resources will help ensure the healthy, sustainable management and use of these resources, and the continued availability of ecosystem products and services. In particular, this course will enhance knowledge and understanding of the use of the world's living natural resources and the management of related industries. This course is well suited for those with work experience who wish to extend their job skills and gain a global perspective.

Instructors: Drs. Eves, Gripe, Hammett, Hassouna, Ruggiero, Zhou

### **NR 5194 Environmental Ethics (3 credits, CRN 15943, Online)**

Environmental ethics is an in depth analysis of current and past environmental issues in the context of ethical and philosophical considerations starting from individual and group ethics and moving toward more global and societal ethics. The course addresses influences and pressures such as social (in)justice, cultural traditions, politics, science, technology, and religion. In addition, the course explores practical application of professional ethics to the resource decision making process regarding current issues. Teaching methods emphasize but are not limited to class participation, case studies, role playing, technical and popular readings, guest lecturers, and video.

Instructor: Dr. Jennifer Plyler.

### **NR 5714 Ecosystem Management (3 Credits, CRN 17614, Online)**

Ecosystem management has received a great deal of attention over the past few years, but the basic principles remain elusive. Ecosystem management can be viewed simply as working ecological principles into land management policy and practice or as a holistic concept for dealing with large spatial scales and long time frames, as well as involving many ecological and socio-economic variables into the management scheme. This course will use a problem-based learning format to explore relevant content that places ecosystem management in context. Guest lecturers will provide insights into current applications within land management agencies, industries, and non-governmental organizations.

Instructor: Dr. Milagros Alvarez

### **NR 5834 Ecological Economics (3 credits, CRN 15947, Online)**

This course provides a historical overview of various schools of economic thought, presents the major principles required to fuse ecology with economics, and helps students to analyze economic policies under the lens of ecological reality. Particular attention is paid to economic growth theory and policy as it pertains to the sustainability of human society and management of natural resources. This is a trans-disciplinary course, incorporating relevant principles and practices from political science, psychology, and physics in addition to ecology and economics. Students are not required to construct mathematical models. The course is organized in 4 modules (following an introductory session): 1) ecological principles; 2) economic principles; 3) integrating ecological and economic principles, and; 4) policy and political economy in relation to natural resources.

Instructor: Dr. Brian Czech

### **NR 5954 Study Abroad: New Zealand (3 credits, CRN 16332)**

This 4-week study abroad course will examine the natural (and related social) history and resource conservation of New Zealand's South Island. New Zealand's isolation has left this island nation with a unique natural heritage. The plants and animals that have evolved here are unknown elsewhere in the world. Our program will focus on topics related to sustainable development (sustaining human societies and the natural environment) through educational travel, field trips, active participation, lecture presentations and seminars, and coursework exercises. The goal of this course is using the New Zealand case to integrate the different perspectives of diverse natural, biological, and social science disciplines to improve understanding of relationships between human societies and the natural environment. This course is being offered for the second year by VT/AUIP - lead by Virginia Tech faculty and organized and supported by AUIP. The course "Sustaining Human Societies and the Natural Environment" holds undergraduate and graduate credit, and fulfills core curriculum requirements.

Instructors: Dr. Tom Hammett

### **PSCI 5364 Public Ecology (3 credits, CRN 15959, Online)**

Today's environmental challenges (e.g., biodiversity loss, forest fragmentation, climate change, etc.) require us to think in new and innovative ways about the future of life on Earth. Public ecology emerges at the confluence of three major currents shaping the contemporary environmental arena: 1) the need for local communities to coalesce and use local knowledge and local action to address local concerns; 2) the need for dialogue and collaboration across the many disciplinary and cultural boundaries that divide environmentally concerned scientists, policy-makers, and citizens; and 3) the need for a vision of nature and human society that encourages people to create healthy human ecosystems and sustainable communities at local, regional, and global scales.

Instructor: Dr. David Robertson.

### **NR 5904 Project Report (1-6 credits, CRN 15948, Online)**

### **NR 5974 Independent Study (1-3 credits, CRN 15949, Online)**

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