

**VIRGINIA TECH NORTHERN VIRGINIA CENTER  
COLLEGE OF NATURAL RESOURCES**

*Course Syllabus*

**Ecosystem Management**

**NR 5714, CRN 17156, 3 credits**

**Spring Semester 2009**

Virginia Tech, Northern Virginia Center  
7054 Haycock Road  
Falls Church, Virginia U.S.A. 22043

**Class Location:**

Virginia Tech Northern Virginia Campus, Room TBD.

**Meeting Times:**

Wednesday evenings, 7:00 - 9:45 p.m.

For weather cancellations, please check [www.nvc.vt.edu](http://www.nvc.vt.edu) and the Weather Alert Line 703-538-8325

**Instructor:**

Milagros Alvarez, Ph.D.

Office Hours: by appointment.

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**Course Description:**

Long term sustainability of ecosystems has been a stated goal of natural resource agencies. Ecosystem sustainability is accomplished through ecosystem management. Even though ecosystem management has received a great deal of attention over the past few years, the basic principles remain elusive. Forest ecosystem management can be viewed simply as working ecological principles and land management policy and practice or as a holistic concept for dealing with large spatial scales, longer time frames, and involving many ecological and socio-economic variables. During the course you will develop a sustainable management plan for a piece of forest privately or publicly owned. Guest lecturers from major federal agencies will describe how their agency has implemented ecosystem management.

**Course Prerequisites:**

Baccalaureate degree and professional experience.

**Goal and Educational Objectives:**

Course Goal: For Students to develop an understanding of the ecosystem management approach to natural resource stewardship. Students will learn how to become better stewards of the environment, by exploring the social, political, economic and ecological factors that drive current management direction. We would like to stimulate critical thinking in this area, and motivate interest and continued learning about ecosystem sustainability.

Educational Objectives: Upon completion of the course students will be able to:

- Examine the ecological, social and economic processes and how they are essential components of sustainable ecosystem management.
- Apply sustainable practices into management plans and policies.
- Describe and understand the application of new tools and technologies available to address ecosystem management at large spatial and temporal scales.
- Demonstrate the ability to access accurate, up-to-date, comprehensive information for decisions at the appropriate ecosystem scale.
- Define, analyze and advance the principles embraced by ecosystem management through the examination of case studies and practices by different federal agencies.
- Explore the linkages between science, social changes, political theory, and management that are the underpinnings of ecosystem management.

## **Course Calendar:**

**January 21** *Welcome class – Overview of Forest Ecosystems (Oregon’s Generous Forests).*

**January 28** *Introduction to Ecosystem Management & Course Project (Writing a Forest Ecosystem Management Plan)*

**February 4** *Criteria for Ecosystem Management. Sustainability.*

**February 11** *Ecosystem Management Framework – Spatial / Temporal Scales. Landscape analysis.*

**February 18** *Ecosystem Management as Implemented by the Bureau of Land Management*

Guest lecturer: Carol Spurrier, Botanist, U.S. Bureau of Land Management, Washington, DC

**February 25** *The Ecological Component of Ecosystem Management: Ecological Processes and Principles – Structure.*

**March 4** *The Social Component of Ecosystem Management: Community Based Forestry, Recreational Opportunities.*

- March 11**     **Spring Break - No Class**
- March 18**     ***The Policy and Political Dimensions of Ecosystem Management***  
 Guest lecturers: Michael Goergen, Executive Vice President and CEO of the Society of American Foresters.  
 Michael Mortimer, Forest Policy and Law Professor, Virginia Tech.
- March 25**     ***The Economic Component of Ecosystem Management.***
- April 1**        ***A global perspective – assessing the World’s Forest Ecosystems.*** (FAO report)
- April 8**        ***The Challenges of Sustainable Forest Management and Conservation from an International Perspective***  
 Guest lecturer: Denise Ingram, International Programs (Policy), U.S. Forest Service, Washington, DC
- April 15**     ***Linking forest certification with global efforts to achieve sustainable development***  
 Guest lecturers: Adela Backiel, Director, Sustainable Development. USDA  
 William H. Banzhaf, President. Sustainable Forestry Board.
- April 22**     **The Greatest Good – A Forest Service Centennial Film**
- April 29**     ***Tools and technologies. Fundamentals of Decision Analysis. Ecosystem Management***
- May 6**         ***Project presentation.***  
 Oral Presentations of the ecosystem management plan.  
 Course evaluation
- May 13**       ***Final exam***

## **COURSE REQUIREMENTS AND GRADING:**

Class Participation: 20% of the final grade, making class attendance essential to receive a passing grade. Students are expected to be prepared in advance and to be ready to lead class discussions and support their analysis. Reading assignments will be provided during the previous class. (Some accommodation will be made for students who must miss a class due to travel associated with their employment or family emergency.)

Final Exam: 40% of the final grade.

Project: 40% of the final grade. Students, in groups of two, will develop a management plan for any selected piece of forestry land. It is highly recommended to choose an

acreage larger than 5,000 acres. The management plan will address the following elements:

- An analysis of the existing natural resources in the area.
- A justified definition of the considered management goals and how these goals fit with regional and national social and economical trends, and landowner needs (for both private and public lands)
- An analysis on goal relationships: competing vs. complementing goals.
- A study of the barriers and limitations
- A justified and detailed proposal of management strategies and time framework to implement on the area.

## **TEXTS AND OTHER MATERIALS:**

Davis, L.S. et al. 2001. Forest Management: To Sustain Ecological, Economic, and Social Values. Fourth Edition. McGraw-Hill. New York, NY.

### Suggested:

Cortner, H.J. and M.A. Moote. 1999. The Politics of Ecosystem Management. Island Press. Washington, D.C.

Vogt, K.A. et al. 1997. Ecosystems: Balancing Science with Management. Springer-Verlag. New York.

Floyd, D.W. 1999. Forest of Discord. Options for Governing Our National Forests and Federal Public Lands. Society of American Foresters. Bethesda, MD.

### Books on Library Reserve:

Davis, L.S. et al. 2001. Forest Management: To Sustain Ecological, Economic, and Social Values. Fourth Edition. McGraw-Hill. New York, NY.

Boyce, M.S. and A. Haney. 1997. Ecosystem Management. Yale University Press, New Haven, Connecticut.

Kohn, K.A. and J.F. Franklin. 1997. Creating a Forestry for the 21<sup>st</sup> Century: The Science of Ecosystem Management. Island Press. Washington, D.C.

Baydack, R.K. et al. 1999. Practical Approaches to the Conservation of Biological Diversity. Island Press. Washington, D.C.

Simpson, D.R. and N.L. Christensen, Jr. eds. 1997. Ecosystem Function and Human Activity – Reconciling Economics and Ecology. Chapman and Hall, New York.

The Keystone National Policy Dialogue on Ecosystem Management. Final Report. 1996.

The Keystone Center, Colorado.

Daily, G. 1997. *Nature's Services: Societal Dependence on Natural Ecosystems*. Island Press, Washington, D.C.

Szaro, R.C. and D.W. Johnson. 1996. *Biodiversity in Managed Landscapes*. Oxford University Press, New York.

### **Graduate Honor Code:**

The tenets of the Virginia Tech Graduate Honor Code will be strictly enforced in this course, and all assignments shall be subject to the stipulations of the Graduate Honor Code as outlined in the 2001-2003 Graduate Catalog. For more information on the Graduate Honor Code, please refer to the GHS Constitution, located online at <http://fbox.vt.edu/studentinfo/gradhonor/> Please contact the instructor immediately if you have questions.

### **SPECIAL ACCOMMODATIONS:**

Students with special needs or circumstances are encouraged to meet with the instructor after the first class or ASAP. Please do not wait till later in the semester. In all cases, please feel free to contact the instructor should you have any questions.

### **COURSE EVALUATIONS**

In the spirit of continuous improvement, the instructor seeks ways to improve this course and values your input. To that end, you will be asked to complete an evaluation on May 5. At any point during the course, your suggestions and comments are most welcome.

**NOTE: The course syllabus will reviewed throughout the course and may be changed to fit the needs of the students. Every effort will be made to accommodate the special interests of the students and the schedules of guest speakers.**