

ER311 Online Course Outline

Introduction to the Course

This course will introduce you to the field and to the issues involved in ecological restoration. It examines the physical and biological characteristics of ecosystems and processes and the need to maintain and restore them. The emphasis is on examples from British Columbia but the approach is applicable to issues around the globe. It examines natural and human-caused changes at ecosystem to species levels; discusses ecosystems and biodiversity; considers the philosophy and ethics of restoration and introduces legal and policy frameworks. The course introduces the process and techniques of assessing the ecosystems and developing recommendations through field visits. The course focuses on developing learners' abilities to combine and analyze factual scientific analysis of ecosystems in the context of human values and needs.

Course Goals

This course has seven main goals. They are to:

1. Introduce you to the physical, biotic and human issues of restoration of natural ecosystems and assist you to explore these in the broadest sense:
By: summarizing and examining the wide scope of topics related to modern restoration, providing readings and access to additional information including websites, and facilitating contacts with restoration projects.
2. Demonstrate the critical role of scientific description and analyses (biophysical sciences) and the importance of the integration of scientific data, models and approaches with human needs and attitudes (social sciences) for successful restoration.
By: introducing the basic principles of biological diversity, hydrology and soils, illustrating the use of rigorously collected data in the solution of social issues, involving field work and the writing of a restoration report, and assignments that require contact with local restoration practitioners in the community.
3. Demonstrate the importance of communication for the successful development and management of a restoration project, and introduce you to selected skills.
By: preparation of written assignments and a final project, participation in seminars conducted using Brightspace forums, and the development of community contacts in the field of the restoration of natural systems.
4. Provide you with the basic tools for carrying out restoration projects.
By: notes and readings, discussions with local restoration practitioners, guides to preparing and carrying out a restoration project, web site contacts, examples of restoration projects, practical assignments, video examples.
5. Link you to restoration activities in the community and to others carrying out restoration in the province of British Columbia.
By: Forum discussions, providing links to the Restoration of Natural Systems Program at UVic, assignments

requiring contact with local restorationists, contact data for restoration projects in BC.

6. Provide you with a solid introduction to your further study of courses in the Restoration of Natural Systems Program.
By: summarizing points and integrating content from many of the UVIC courses and explicitly linking parts of the course to specific RNS courses.
7. Integrate what you learn into practice.
By: examples of projects, practical assignments, and establishing contacts with restoration practitioners.

Course Synopsis

This course consists of seven modules, which have been divided into a total of seventeen units. The following outline provides a brief synopsis of each module.

Module One — Restoration: An Introduction

The first unit of this introductory module defines restoration, discusses the current need for such work in the light of human impacts on the natural environment, and outlines the scope of ecological restoration as it is practiced today. In the second unit, we explore elements of a restoration project as well as the basic skills and tools required to conduct a project successfully.

Module Two — Characteristics of Natural Systems

In Module Two we examine the components and processes of ecosystems before focusing on the concept of Essential Ecosystem Characteristics. Particular attention is given to climate change and its potential impact on ecosystems, and the work of ecological restoration. We discuss the importance of biological diversity and some current threats to it, and how to obtain and evaluate information on rare and endangered ecosystems and species. Finally the module introduces key concepts in soil description and hydrology as they apply to restoration.

Module Three — Philosophy, Ethics, and Legislation

In Module Three we explore the human dimension of restoration from two perspectives. First, we consider the role and importance of human perceptions and values in restoration, and examine the question of professional ethics for the practitioner of restoration. Second, we give an overview of public policy and legislation pertinent to restoration. Topics range from international conventions to understanding the role of municipal and other forms of local government.

Module Four — The Restoration Project

This module takes the reader through the stages of planning and carrying out a restoration project—from developing initial project objectives, through information gathering, then implementation, to post-project monitoring.

Module Five — Restoration of Wetlands, Forests, Streams, and Marine Ecosystems

In Module Five we look at three major areas of restoration activity practiced in British Columbia: wetlands, streams, forests, and briefly marine ecosystems. In each case we consider the importance of ecosystem type and essential

characteristics, as well as the restoration strategies and issues particular to that ecosystem type. Restoration examples and issues are described or covered in readings.

Module Six — Restoration and People: Sustainability, Traditional Ecological Knowledge, Agroecology

This module begins with a discussion of the concept of sustainability and follows with a description of methods for measuring and monitoring the sustainability of natural systems and of restoration projects. Next, the module demonstrates the value of traditional ecological knowledge as it applies to restoration. We conclude with an introduction to the developing field of agroecology.

Module Seven — Public Involvement, Urban Restoration, and Restoration in a Global Context

The final module examines the critical importance of public involvement in the success of restoration project, and lists strategies for engaging and gaining public involvement and support. We then discuss public involvement and public perceptions of restoration in an urban context. The course concludes with a case study from Asia (Iraq) that highlights several of the themes and principles developed throughout ER311 in the context of the political realities of the globe.

Assignments

Graded Discussions:

- **Graded Discussion #1 | Describing a Local Restoration Project | Grade: 10%**
- **Graded Discussion #2 | Essential Ecological Characteristics in Your Area | Grade: 10%**
- **Graded Discussion #3 | The Philosophical Basis of a Chosen End Point for a Restoration Project | Grade: 10%**

Written Assignments:

- **Assignment 1 | What are the Rare and Endangered Elements in Your Local Area? (10%)**
- **Assignment 2 | Name 10 Bylaws or Policies that Might Apply to Restoration (10%)**
- **Assignment 3 | Evaluating Practical Solutions (10%)**
- **Final Assignment | Case Study (40%)**