

# APPLIED COASTAL ECOLOGY (ACE)

## ACE 045 45hrs 1XX Elect Cr ACE prefix

0 Credits

### Transfer Credits

Explore transfer credit opportunities by visiting the BC Transfer Guide (<http://www.bctransferguide.ca>)

## ACE 090 90hrs Elect Cred ACE prefix

0 Credits

### Transfer Credits

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## ACE 101 Applied Service Learning

2 Credits

One of the cornerstones of the ACE program is that its graduates are able to effectively and cooperatively work with a broad range of people, applying their learning and skills to the growth, development, enhancement and preservation of their communities. In this course, students will be required to participate in team building, professional networking and related community volunteer service activities.

### Transfer Credits

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## ACE 102 Traditional Ecological Knowledge

2 Credits

### Prerequisites

English Studies 10, English First Peoples 10 or equivalent

### Transfer Credits

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## ACE 134 Fishes of the Pacific Northwest Rearing

3 Credits

This course will introduce students to the ecology, physiology, life cycles, migration characteristics, identification traits, fisheries and management practices for key fish species that are harvested in commercial, recreational and Aboriginal fisheries in Northwest British Columbia, with particular emphasis on the different species of Pacific salmon. This course will outline key identifying characteristics of salmon, trout and key non-salmonid species, including groundfish, Pacific herring, and eulachon. This course will cover in-field enumeration and biological sampling techniques for salmon and other fish species. During the field component of this course, students will observe and participate in fisheries research projects coordinated by local conservation, government and First Nations organizations.

### Prerequisites

ENGL 10 or ENGL 030 and Principles of Math 10, Precalculus 10 or MATH 0301/0302

### Transfer Credits

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## ACE 141 Monitoring & Measuring Aquatic and Intertidal Zone Habitats

2 Credits

Students will be introduced to the techniques and methodologies relevant to the estimation of aquatic animal populations. Topics will include: methods of counting and capturing aquatic animals for study, tagging equipment technologies, removal and recapturing methods for estimating populations and passive quadrat sampling. Students will also be introduced to the methodologies of monitoring intertidal zone habitats. Physical substrate characteristics and biological features will be used to define and map the intertidal zone.

### Prerequisites

English 11 and Principles of Math 11 or PreCalculus 11

### Transfer Credits

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## ACE 142 Coastal Forest Measurements

2 Credits

This course introduces natural resources and data collection skills used to monitor and assess the health and vigor of coastal forests. Students will learn the methodologies of forest resource inventories and understand the importance of sustained yield and integrated resource management. Students will conduct silviculture plantability and free to grow surveys that assess the fulfillment of reforestation obligations.

### Prerequisites

English 11 or equivalent and Math 11

### Transfer Credits

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## ACE 154 Surveying

2 Credits

This introductory surveying course provides the student with skills in compassing, distance and slope measuring, profile and differential levelling, conducting closed and open traverses, and area determination. Familiarizations with various survey equipment including; use and care of magnetic compasses, levels, clinometers and various distance-measuring instruments. Basic surveying will draw upon the student's knowledge of algebra, geometry, trigonometry and drafting skills. The objective of the course will be to provide as much "hands on" experience with the survey equipment as possible while maintaining an appropriate amount of time with survey theory and methods. Field exercises will be based on actual survey procedures used in the natural resource field in industry and government. The appropriate selection of survey equipment to complete various data collection objectives will be discussed.

### Prerequisites

Principles of Math 10 co-requisite: Principles of Math 11

### Transfer Credits

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**ACE 175 Wildlife Conservation & Monitoring Population Management**

3 Credits

The course will provide students with experience in field methods used by wildlife biologists to study mammal, bird, reptile and amphibian populations. Students will learn common techniques of wildlife capture, marking and monitoring, and will practice proper handling and releasing methods of wild animals. Students will also examine the ethical and humane considerations that are involved in wildlife research. Students will also learn to recognize species and identify them to their family and order through the examination of their skulls and physical attributes. Students will understand each species' habitat requirements and preferences and gain knowledge of the laws, regulations and management strategies that maintain and enhance the health and diversity of British Columbia wildlife.

**Prerequisites**

English 11 or equivalent and Co-requisite: Biology 11

**Transfer Credits**

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**ACE 182 Stream Habitat Assessment & Restoration**

3 Credits

This course introduces the methodologies of conducting a fish and fish habitat assessment on stream ecosystems. Students will learn to provide information regarding fish species characteristics, distributions and relative abundance, as well as stream reach biophysical data for interpretation of habitat sensitivity and capability for fish production. Students will also learn how to sample for fish presence, collect data on stream habitat characteristics and gain an in-depth understanding of the stream habitat requirements for salmonid species. Students will be introduced to the natural processes and resource development activities that can affect stream ecosystems and learn to recognize signs of habitat degradation. Students will also learn techniques used to prevent and control damage of stream habitats and gain skills in improving and restoring stream ecosystems.

**Prerequisites**

English Studies 11, English First Peoples 11 or equivalent and Principles of Math 10 or equivalent

**Transfer Credits**

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**ACE 190 Temperate Rainforest Ecology**

4 Credits

This course focuses on the ecology of the North Coast temperate rainforest. It will introduce the concept of plant associations, forest types and Biogeoclimatic zoning. Emphasis will be placed on tree, shrub and plant identification at the species level. Assembly of a tree and shrub herbarium collection is the major course project. Students will also be introduced to the physical, chemical and biological properties, analysis, genesis and classification of soils with emphasis on factors which influence plant growth. Fish and forest interactions and the management issues surrounding these resources will also be explored in a holistic fashion. This course provides vital skills and understanding of the terrestrial component of the coastal environment.

**Prerequisites**

English Studies 11 or English First Peoples 11 or equivalent and Life Sciences 11 or equivalent

**Transfer Credits**

Explore transfer credit opportunities by visiting the BC Transfer Guide (<http://www.bctransferguide.ca>)

**ACE 197 Environmental Monitoring Techniques**

3 Credits

Environmental monitoring is an essential tool that aids in managing the impacts of various land use activities on British Columbia's diverse ecosystems and can become the basis of resolving land and marine use conflicts. In this course, students will study the principals of environmental monitoring and will learn the role of an environmental monitor. Students will learn techniques in water quality monitoring and marine sensor technology. Students will also be introduced to shore based coastal weather stations, air quality monitoring and explore wastewater management. Emphasis will be placed on using best management practices and the importance of quality assurance to accurately reflect and report on the risks associated with various industrial, recreational and residential development or land and marine use activities.

**Prerequisites**

Biology 11

**Transfer Credits**

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