

# Program Outline 1



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| <b>Program Name</b>   | <b>Environmental Technology Diploma</b> |  |
| <b>Program Number</b> | <b>022</b>                              |  |

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## Program Description

The Environmental Technology Program is a two year diploma program that incorporates classroom, lab, and fieldwork to develop the necessary skills for graduates to find employment as environmental practitioners [i.e. natural resource management, fish and wildlife conservation, waste management, environmental protection, parks management.] or continue studies at a university or other institution.

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|------------------------|-------|
| STUDENT RECORDS SYSTEM |       |
| P & P Motion #         | _____ |
| B of G Motion #        | _____ |
| Date Approved          | _____ |
| Date Deactivated       | _____ |

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## Inuit Qaujimaningit

The awareness, transfer, and respect of Inuit Qaujimajatuqangit (IQ) are integral components of the Environmental Technology Program. IQ is integrated throughout the program in three key ways. First, elders, hunters, and Inuit professionals are regularly brought into classroom, lab and field settings to transfers skills, knowledge, and/or share experiences. Second, ETP students are encouraged to share and incorporate their cultural knowledge throughout their time in the program, while also learning from the cultural knowledge, skills and experiences of their classmates. And third, program staff strives to create an environment where IQ values are respected and promoted on a practical and daily basis.

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## Program Objective

Students who successfully complete the program will receive a Nunavut Arctic College Environmental Technology Diploma. Graduates from the Environmental Technology Program will have the necessary skills and knowledge qualifying them for employment opportunities with the territorial and federal governments, land claims organizations, institutions of public government, private industry and other agencies.

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## Applicant Assessment

The Environmental Technology Program encourages academic upgrading as a direct part of the course of studies. Applicants wishing to apply to this program must:

1. Be 17 years of age or older;
2. Have completed Grade 12 – preferably with credits in English, Mathematics, and General Science;  
[Applicants lacking the above will be considered on the basis of prior learning and experience. They will be required to complete standardized tests in English, Math and Science];
3. Accompany their application with three (3) letters of support from persons acquainted with the employment and/ or study skills of the applicant;
4. Submit a hand written letter of intent outlining past work experience in environmentally related areas, their career goals and aspirations, and any other information that may be relevant and useful in determining their admissibility into the program;
5. Submit a current resume listing all relevant work experiences, education, and skills;
6. Be in good overall health

## Program Admission

Applicants are to be admitted to this program based on eligibility requirements, the applicant's assessment results, and overall strength of their application.

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## Program Information

1. For advanced credit consideration, applicants must submit complete and official transcripts and course outlines of their post-secondary training. The student must be registered in the program at Nunavut Arctic College in which that course is offered. The appropriate Program Coordinator and Registrar will determine the credit to be granted. If granted the advanced credit will be recorded in the student's academic record as a pass credit but will not for part of any subsequent calculations of the student's grades or grade point average. Applications for advanced credit or challenge examinations must be received by the Program Coordinator and filed with the Registrar in accordance with the official published policies of Nunavut Arctic College.
2. Credit for Work Experience / Skills: It has been recognized that students entering the program may already possess certain required skills. If a student feels competent in a

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# Program Outline 3



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certain area, the student will be given the opportunity to demonstrate his/ her competence through Recognition of Prior Learning.

## Completion Requirements

Students are required to successfully complete 60 course credits to graduate or receive a diploma.

Document of  
Recognition

**Nunavut Arctic College Diploma in Environmental Technology  
(60cr.)**

## Core Courses

| Yr  | Number  | Course / Module Name                 | Credits | Cr Hrs | Semester |
|---|---------|--------------------------------------|---------|--------|----------|
| <b>Environmental Technology Certificate</b> |         |                                      |         |        |          |
| 1   | 022-020 | Introductory Fall Field Camp         | 3       | 45     | F        |
| 1   | 022-262 | Office Procedures /Management Skills | 3       | 45     | F        |
| 1   | 022-265 | Mathematical Foundations             | 3       | 45     | F        |
| 1   | 022-110 | Communications I                     | 3       | 45     | F        |
| 1   | 022-160 | Introduction to Canada's North       | 3       | 45     | F        |
| 1   | 022-264 | Earth Science                        | 3       | 45     | W        |
| 1   | 022-232 | Wildlife Biology                     | 3       | 45     | W        |
| 1   | 022-211 | Communications II                    | 3       | 45     | W        |
| 1   | 022-253 | Introduction to Environmental Law    | 3       | 45     | W        |
| 1   | 022-040 | Introductory Winter Field Camp       | 3       | 45     | W        |

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# Program Outline 4



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| Yr                                      | Number  | Course / Module Name                   | Credits | Cr Hrs | Semester |
|---|---------|--|---------|--------|----------|
| <b>Environmental Technology Diploma</b> |         |  |         |        |          |
| 2                                       | 022-331 | Marine Biology Field Camp              | 3       | 45     | F        |
| 2                                       | 022-252 | Spill Response and Hazardous Materials | 1       | 15     | F        |
| 2                                       | 022-050 | Small Engine Repair                    | 2       | 30     | F        |
| 2                                       | 022-350 | Wildlife Management                    | 3       | 45     | F        |
| 2                                       | 022-130 | Environmental Studies                  | 3       | 45     | F        |
| 2                                       | 022-244 | Map Use and Wayfinding                 | 3       | 45     | F        |
| 2                                       | 022-332 | Fisheries Management                   | 3       | 45     | W        |
| 2                                       | 022-346 | Environmental Assessment in Nunavut    | 3       | 45     | W        |
| 2                                       | 022-365 | Evidence and Legal Procedures          | 3       | 45     | W        |
| 2                                       | 022-348 | Geographic Information Systems         | 3       | 45     | W        |
| 2                                       | 022-251 | Limnology Field Camp                   | 3       | 45     | W        |

**Elective Courses:** A maximum of 15/60 credits may be earned through electives with approval of the Program Manager.

| Yr | Number  | Course / Module Name                              | Credits | Cr Hrs | Semester |
|----|---------|---|---------|--------|----------|
|    | 022-007 | International Studies in Environmental Technology | 15      | 225    |          |
|    | 193-641 | Circumpolar World                                 | 3       | 45     |          |
|    | 022-366 | Arctic Wilderness Training                        | 2       | 30     |          |
|    | 079-210 | Portfolio Development                             | 3       | 45     |          |
|    | 022-008 | Independent Studies                               | 3       | 45     |          |
|    | 022-009 | Environmental Technology Practicum                | 3       | 45     |          |

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# Program Outline 5



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|-------------|---|
| Revised By: | Jason Carpenter<br>Sr. Instructor - ETP |
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|       |               |
|-------|---------------|
| Date: | February 2014 |
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## Course Descriptions

### **022-020 INTRODUCTORY FALL FIELD CAMP**

This course is designed to introduce students to the skills and procedures required to work safely in a summer/fall arctic field camp environment. Students will learn proper planning and logistics management for a large group camp. Course components include gun safety (Canadian Firearms Safety Course certification), wilderness first aid (Wilderness First Aid certification), safe use and maintenance of common camp gear/equipment, land and water travel (boat safety and cold water survival), and field techniques for recording and collecting ecological samples and data.

### **022-040 INTRODUCTORY WINTER FIELD CAMP**

This course will build upon skills and procedures learned during the fall field camp. Students will practice wilderness first aid and emergency scenarios on the land under arctic winter environmental conditions. The course will emphasize winter survival skills for arctic tundra conditions including the importance of preparation and planning, survival priorities, survival psychology, group dynamics, survival gear, and specific survival skills such as making emergency snow shelters. Other course components will include mock emergency and SAR scenarios, polar bear deterrence, emergency climbing procedures, avalanche assessment and rescue, and a survival night scenario.

### **022-050 SMALL ENGINE REPAIR**

This course teaches students how to perform preventative maintenance and trouble-shooting skills related to the proper mechanical and safe operation of various kinds of engines. The course will concentrate on the proper set up, maintenance, trouble shooting skills and mechanical operation of machines and engines used through the ETP (i.e. snow machines, augers, outboard marine engines and ATVs).

### **022-110 COMMUNICATIONS I**

This course is designed to expand a student's written and oral communications skills. Students will learn about the writing process, and learn how to write business letters and memos/emails, job cover letters and resumes, and project reports. Oral communications will also be emphasized, and students will learn how to make effective presentations to a variety of groups.

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## **022-130 ENVIRONMENTAL STUDIES**

This course is designed to introduce students to contemporary scientific concepts that are important to the study and understanding of current environmental issues. The course focuses on the Earth's ecological and natural systems and how human activity affects these systems. A focus will be placed on global environmental issues that directly impact circumpolar regions and Nunavut in particular. Ecosystem dynamics, climate change, ozone depletion, environmental contamination, over population, resource consumption and management, and sustainable development will be some of the topics discussed.

## **022-265 MATHEMATICAL FOUNDATIONS**

This course will refresh and introduce students to the mathematical functions, processes and statistical concepts that will be used in other ETP course material and their future work as environmental practitioners. Topics covered include understanding, interpreting, and presenting numerical data, as well as basic geometry, statistics, algebra, and trigonometry. Students will also learn how to interpret and create various charts and graphs. In all cases practical problems and applications will be emphasized and practiced.

## **022-160 INTRODUCTIONS TO CANADA'S NORTH**

This course is designed to introduce the students to the northern environment. The physical setting is described in terms of the daylight regime, climate, atmosphere, terrain and seas. In the biologic component plant life, birds, mammals, fish and insects are discussed in their northern context. Students should be able to understand what makes the Arctic setting unique and how the plants and animals have adapted to live within this unique environment. Students should form a basis for understanding the environmental impacts of development on both the terrestrial and biological environment.

## **022-232 WILDLIFE BIOLOGY**

This course will examine a variety of fundamental biological topics such as evolution, natural selection, and taxonomy. In addition, the biology and adaptations to the Arctic of various Nunavut mammalian families/species will be discussed. Students will also acquire a basic knowledge of the structure and function of the skeletal and circulatory system of mammals. Lab exercises may be included to demonstrate dissection techniques.

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**022-251 LIMNOLOGY (FIELD CAMP)** Limnology is the study of the physical, chemical and biological properties of freshwater systems. This course provides a basic introduction to limnology, focusing on northern freshwater lakes. The course is theory and field-based, and so will provide students with sufficient knowledge to understand basic limnological processes, as well as enough practical experience in sampling water bodies and sediments for physical, chemical, and biological information. In addition, sampling that follows a rigorous protocol will be taught to allow understanding of scientific procedures during field settings.

**022-252 SPILL RESPONSE AND HAZARDOUS MATERIALS**

The course is directed at communities where land-based spills of hazardous materials are likely to occur. As most spills in Nunavut involve fuel products, emphasis will be placed on fuel spills, however, the course will briefly touch on other hazardous materials that are commonly found in the north and, if time permits, other more exotic materials will be discussed. The course attempts to demonstrate to the student through the use of verbal instruction, videos, overheads and practical exercises – effective measures which can be taken to prevent spills and/or reduce the damage that results from the spill of a hazardous material. Most importantly, the course emphasizes the need to avoid situations that are a potential danger to human health and safety.

**022-253 INTRODUCTIONS TO ENVIRONMENTAL LAW**

This course provides an introduction to the Canadian political and legal systems, and environmental legislation relevant to Nunavut. Relevant Acts will be studied, including: The federal and territorial Environment Protection Acts, the Environmental Rights Act, the Wildlife Act, the Fisheries Act, and the Nunavut Land Claims Agreement and others. Case studies and industry representatives will be used, where appropriate, to illustrate specific aspects of these acts and how various players interact.

**022-261 OFFICE PROCEDURES/ MANAGEMENT SKILLS**

This course will introduce students to basic office procedures and management concepts. It will provide students with methods for effective time management, short and long term planning strategies, stress management techniques, human relation skills, and organizational skills required to keep an office organized. Record management, storage, communications, budgets and finances will also be discussed. Management functions, styles and skills will be presented along with their effect to leadership, problem solving and decision-making skills.

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## **022-264 EARTH SCIENCE**

Earth Science is designed to introduce students to the history of the Earth and how external and internal forces have shaped the earth over millennia. Students will explore the Earth's origins, composition, structure, and processes. The rock and hydrological cycles, plate tectonics, ocean and atmospheric processes and other Earth processes will be examined. Students will also learn how the Earth's history has been deciphered from its geological record and surface evolution. Students will also learn about our solar system and universe.

## **022-331 MARINE BIOLOGY (FIELD CAMP)**

The focus of this course is to introduce students to the Arctic marine environment, and will provide students with a firm background in the identification, classification and biology of local marine life and the complexities of marine ecosystems. The course consists of both classroom and field camp instruction.

## **022-332 FISHERIES MANAGEMENT**

Students will hear about the historical development of fisheries management. Basic fish anatomy and classification will be discussed. Students also will learn aspects of stock assessment, length-weight relationships and various other techniques used during fisheries management work (age, growth determination, tagging, marking, population estimates). The life history of important Nunavut fish species will be explained. Several fishery types, such as exploratory/experimental, domestic/subsistence, commercial fishery will be used to explain Nunavut fisheries. Several important habitat aspects as related to Nunavut will be investigated. In addition, the political management bodies responsible for fisheries management in Nunavut will be explained.

## **022-346 ENVIRONMENTAL ASSESSMENT IN NUNAVUT**

The course will provide students with an in-depth understanding of how Environmental Assessment (EA) is undertaken in Nunavut, including the fundamental concepts, vocabulary and activities involved in preparing an EA for major project in Nunavut and the review process undertaken by the Nunavut Impact Review Board (NIRB) in accordance with Section 12 of the Nunavut Land Claim Agreement (NLCA).

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## **022-348 GEOGRAPHIC INFORMATION SYSTEMS**

This course is an introduction to Geographic Information Systems (GIS) with an emphasis on the use of GIS as a tool in various environmental careers. The course will focus on learning fundamental GIS concepts and capabilities using the industry leading GIS software package *ArcGIS*. Topics covered will include extracting information from digital maps, creating digital maps, geo-referencing, understanding spatial data, importing spatial data, creating spatial data, symbology, and the use of geoprocessing to solve problems and make decisions. The course is a hands-on computer based module incorporating Nunavut geoscience and ecological data where ever possible.

## **022-350 WILDLIFE MANAGEMENT**

This course examines a variety of wildlife management topics and techniques that will aid students in a wildlife-oriented career. Current management practices and techniques used for wildlife in Nunavut will be examined, focusing on key species such as caribou, polar bear and possibly marine mammals. General principles and techniques applied for most wildlife management will be discussed. In addition, the responsibilities of the various wildlife management bodies in Nunavut will be discussed.

## **022-365 EVIDENCE AND LEGAL PROCEDURES**

This course will examine enforcement techniques used by various environmental practitioners (i.e. Wildlife Officers, Fisheries Officers, Environmental Protection Officers, etc.) and will include investigative procedures, how evidence is collected and managed, and how statements are taken. Court structures, trial procedures, questioning of witnesses and the presentation of evidence will also be covered.

## **022-211 COMMUNICATIONS II**

This course builds upon Communications 1 to further enhance students' written and oral communication skills. Students will learn the foundations of effective interpersonal and group communication. Students will continue to practice writing skills, learn how to write effective proposals, project reports, letters and summaries. Other "public relations" skills will be covered, including dealing with the media. In addition, students will gain more experience in how to make an effective presentation, and how to prepare a poster presentation.

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## **022-244 MAP USE & WAYFINDING**

This course looks at the design, use and interpretation of maps; traditional and contemporary wayfinding techniques and tools; and the application of remotely sensed images used by environmental practitioners. The first part of the course will concentrate on how maps are produced, basic cartography, how to obtain information from a map such as distance and area, and how to interpret topographical maps. The second part of the course will teach students traditional and contemporary wayfinding methods as well as how to properly use a map/compass and a map/GPS (Global Positioning System) on the land. It will also teach students how to select and plan routes of travel, and manage GPS data using mapping applications. The final part of the course will examine various forms of remotely sensed images, how they are used and how to interpret and calculate various measurements from them using mapping applications..

## **022-007 INTERNATIONAL STUDIES IN ENVIRONMENTAL TECHNOLOGY**

Nunavut Arctic College recognizes the academic, professional and personal development that result from study abroad. Where the senior instructor deems the course and project work equivalent to one semester of study in the Environmental Technology program at Nunavut Arctic College, students who study at an international institution will be given 15 credits towards their diploma in Environmental Technology.

## **193-641 CIRCUMPOLAR WORLD**

The Circumpolar World introduces students to the landscape, peoples and issues of the region. Beginning with an examination of the geography, biological and physical systems of the Sub arctic and Arctic, it then turns to the aboriginal and contemporary peoples of the region. The history of the Circumpolar World is treated in a broad fashion, to provide grounding in the events and developments that have created the regions contemporary qualities. The second part of the course surveys some of the particular issues facing the region, including climate change, economic, political and social development. The prospects for the region in the future are discussed, as is the potential role for the University of the Arctic. This course ultimately is intended to stimulate interest in the circumpolar world and the University of the Arctic.

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## **022-366 ARCTIC WILDERNESS TRAINING**

The primary objective of this course is to transfer knowledge about proper field camp procedures and land skills to participants in order to better prepare them to work safely as environmental practitioners in Nunavut's unique winter environment and climate. Emphasis will be placed on the proper planning, risk assessment, packing, setup and management of multi-day, multi-person camps. Other components will include survival priorities and gear, survival psychology, snowmobile maintenance and troubleshooting, avalanche assessment and rescue, wildlife deterrence, and building emergency snow shelters. Both traditional and contemporary survival/land and camps skills will be taught, demonstrated and practiced.

## **079-210 PORTFOLIO DEVELOPMENT**

In the Portfolio Development course, learners will identify the skills, knowledge, and attitudes/values that they have learned from all areas of their lives, including family, community, and land experiences, work experiences, and formal and informal education and training experiences. Learners will create personal portfolios that include documentation (evidence) of their learning from all areas of their lives. Documentation will vary from learner to learner, depending on their specific life experiences, but it usually includes narratives, samples of work, photographs, transcriptions of oral commentary, certificates, letters of reference or verification, and other presentations of information about learners' life experiences. The completed portfolio may be used to apply for academic credit related to specific NAC programs, to find employment, to enhance current skills and knowledge in an existing program or position, and to make plans to achieve other important life goals related to family and community. The completed portfolio will also include a resume and cover letter. Developing a portfolio usually takes one semester. Some people may take longer, while others may complete it more quickly.

## **022-008 INDEPENDENT STUDIES**

This study provides the student with an opportunity to design and participate in the creation of academic learning experiences geared to individual needs, interests, aptitudes and desired outcomes within their chosen field of studies. The work of the course must not be able to be accomplished within an already existing course to which the student has access. The course must have a "product," such as a term essay, a series of short essays, laboratory or project reports, a portfolio, a performance, or a final examination and be approved by both the Program Head as well as the Senior Instructor

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