

# ENVIRONMENTAL MANAGEMENT (DENM)

## **DENM\*1000 Environmental Science and Issues Fall Only (LEC: 3, LAB: 2) [0.50]**

This course will expose the student to a broad range of environmental issues facing society today. The course will present the student with issues such as environmental quality and protection, the effects of industrialization and the need for conservation, global warming and the production and politics of food and its affect on the global, national, regional and local environmental quality.

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

## **DENM\*1120 Mathematics for Environmental Operators Fall Only (LEC: 3, LAB: 2) [0.50]**

This course will introduce students to mathematical concepts used by Wastewater, Water, Distribution and Collection Operators. The material taught will address the concepts required to write the optional Ministry of the Environment "Operator In Training Exams". Students will learn how to evaluate the efficiency of the individual process units of the plant and understand the basic mathematical concepts that are essential for maintaining efficient plant operation and compliance with environmental approvals and regulations.

**Restriction(s):** Registration in the Environmental Management Diploma Program.

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

## **DENM\*1200 Spills and Contaminated Site Remediation Fall Only (LEC: 3, LAB: 2) [0.50]**

This course will explore the environmental, legal, technical and ethical aspects of the management, control and abatement of reportable spills to the environment. Spill response reporting requirements, site remediation options, spill prevention and contingency planning will be included. Students will gain a detailed understanding of the site assessment process by completing a Phase 1 and Phase 2 assessment of a contaminated property and developing a decommissioning strategy for their chosen site.

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

## **DENM\*1300 Environmental Law and Ethics Fall Only (LEC: 4) [0.50]**

This course will introduce students to the Canadian legal process. The development of statutes, regulations and by-laws, and the roles and responsibilities of the various levels of government will be explored from an environmental and constitutional context. Environmental policies and treaties dealing with issues such as climate change, Alberta oil, and hazardous waste, as examples, will be discussed. Ethical issues, dilemmas and decision-making from an environmental perspective will be examined.

**Equate(s):** DENM\*1150

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

## **DENM\*2000 Occupational Health and Safety Fall Only (LEC: 3, LAB: 2) [0.50]**

This course provides an introduction to the topic of occupational health and safety. Topics to be covered include current Ministry of Labour Statutes and Regulations that pertain to the workplace. Students will become informed and conversant with topics including hazardous materials, hazardous chemicals, material safety data sheets, the Workplace Hazardous Materials Information System and health and safety planning.

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

## **DENM\*2020 Advanced Math and Water Chemistry Winter Only (LEC: 3, LAB: 2) [0.50]**

This course will cover both advanced math as well as water chemistry concepts. Students will be taught to determine process efficiency through the use of mathematical calculations rather than "trial and error" methods. Typical "In-plant" calculation and Labs that utilize actual plant samples are discussed. Student gain an understanding of basic chemistry concepts, chemical phases of treatment such as coagulation, sedimentation, softening, disinfection and chemical removal of the various undesirable substances.

**Prerequisite(s):** DENM\*1120

**Restriction(s):** Registration in the Environmental Management Diploma Program.

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

## **DENM\*2100 Ecology Fall Only (LEC: 3, LAB: 2) [0.50]**

An introduction to the science of ecology, the study of interactions between organisms and their environments. Major topics include adaptation, populations, communities, biodiversity, ecosystems and competition. The effects of climate and human activities on ecological processes are also considered. Ecological principles are used to explain the issues associated with several environmental problems.

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

## **DENM\*2150 Water Resource Management Winter Only (LEC: 3, LAB: 2) [0.50]**

Water is a precious resource that is all-too-often taken for granted. This course will demonstrate the significance of the various elements of the hydrologic cycle (e.g. precipitation, runoff, infiltration, groundwater recharge and discharge, etc.) It will focus on water supply systems, water wastewater perspective with other jurisdictions and the world. The students will learn of common water quality problems, including causes, and pathways that contaminants follow to reach water and groundwater.

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

## **DENM\*2200 Environmental Monitoring Fall Only (LEC: 2, LAB: 3) [0.50]**

This course will introduce the Environmental Management student to the various methods used to measure environmental impact. Students will achieve a summary understanding of the various government and other agency threshold limits and guidelines of environmental parameters such as water quality, vegetarian, terrestrial and social impact analysis.

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*3000 Data Analysis and Statistics Winter Only (LEC: 3, LAB: 2) [0.50]**

Introduction to the use of statistics in the field of environmental management. Basic concepts include probability, observations, generalization of means, normal distribution, standard deviation, standard error, sampling, principles of experimental design, use of correlation and regression, index numbers.

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*3100 Introduction to Applied Microbiology Winter Only (LEC: 2, LAB: 3) [0.50]**

Students will learn about the growth, classification, and differentiation of bacteria as well as the role microorganisms play in the environment.

The importance of pathogens in water treatment and the environment and sterilization and disinfection will be discussed. The laboratory components will focus on the basic tests to identify bacteria, use of a light and phase microscope, disinfection, quantification of bacteria, dilutions and microorganisms of surface water and wastewater.

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*3120 Introduction to GIS Fall Only (LEC: 1, LAB: 4) [0.50]**

This course will introduce the student to the basic principles of Geographic Information Systems (GIS), map reading and production.

They will learn how to read maps and to create their own maps using current GIS technology. Students will learn to use GIS software, the Global Positioning System (GPS) and how these tools are used to collect, organize and store spatial data. Finally, Remote Sensing techniques will be examined reviewing the range of technology from basic air photo interpretation to the full range of current electronic sensors utilized by the land management professionals.

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*3150 Agriculture and Environmental Stewardship Fall Only (LEC: 3, LAB: 2) [0.50]**

This course examines the impact and role of farming in the agroecosystem. Lectures and case studies will be used to explore potential pathways of soil degradation, resource contamination from agricultural activities, site assessment of environmental risk associated with specific farm operations and the utilization of best management practices for the conservation of soil, water and other natural resources.

**Prerequisite(s):** 1 of DAGR\*1300, DEQN\*2040, DHRT\*2230, DHRT\*3230

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*3160 Agricultural Chemicals in the Environment Winter Only (LEC: 3, LAB: 2) [0.50]**

An introduction to the environmental, human health and economic issues associated with the use of chemicals, especially pesticides, in agriculture and landscape environments. Students will become informed and conversant on the benefits and possible risks of pests, pesticides, bio-controls and transgenic organisms that are used for pest management.

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*3200 Water Treatment Fall Only (LEC: 2, LAB: 3) [0.50]**

This course provides the student with the basic design concepts and operational techniques of industrial and municipal water treatment systems. Several treatment processes for ground and surface supplies will be discussed including optimization and testing methodologies as well as the legal requirements of water taking in Ontario. Analytical calculations pertaining to water treatment will be examined. The participants in the course will be given the opportunity to write Provincial Certification Examination for the Water Operator-In-Training classification.

**Prerequisite(s):** DENM\*2200, DENM\*3100

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*3210 Sewage and Waste Water Treatment Fall Only (LEC: 2, LAB: 3) [0.50]**

This course covers the introductory concepts of sewage and some related industrial waste treatment. Topics covered encompass the various unit treatment mechanisms currently utilized such as the biological, chemical and physical processes, legislation, different plant configurations, solids handling and disposal, process optimization and applicable testing methodologies. Analytical calculations pertaining to sewage treatment will be examined. The participants in the course will be given the opportunity to write the Provincial Certification Examination for the Sewage Operator-In-Training classification.

**Prerequisite(s):** DENM\*2200, DENM\*3100

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*3220 Water Distribution and Wastewater Collection Winter Only (LEC: 3, LAB: 2) [0.50]**

This course provides the student with the basic design concepts and operational techniques of water distribution and wastewater collection systems. The student will receive instruction in system hydraulics, system response, operating limitations, system demands, operation and maintenance, water quality, and related system design factors.

**Prerequisite(s):** DENM\*3200 or DENM\*2200

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*3300 Business Practices and Compliance Fall Only (LEC: 4) [0.50]**

Students will be introduced to a basic understanding of entrepreneurship and business ethics. They will learn how a business is formed: legal structures, marketing, and finance. The student will become acquainted with business planning, budgets and financial planning, proposal writing and delivery. The student will study the advantages of professional designation and the rights and responsibilities that come with it.

Compliance will cover the topics of due diligence, environmental liability, the precautionary principle, environmental management systems and the roles and responsibilities of regulatory agencies.

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*3910 Special Study Project Fall and Winter (LEC: 3) [0.50]**

A self-directed student project focusing on a topic of academic and/or practical interest to the student. The student will identify and propose a detailed course outline to be reviewed and approved by the faculty supervisor prior to the commencement of the project. The project could include a research assignment, a literature review, a hands-on assignment with specific learning objectives and milestones for achieving these objectives.

**Prerequisite(s):** 5.00 credits

**Restriction(s):** DAGR\*3900, DHRT\*3910, Registration in the Environmental Management Diploma Program and written permission of the faculty supervisor.

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*4050 Environmental Project Winter Only (LEC: 3, LAB: 2) [0.50]**

This course is designed to give the student an opportunity to thoroughly review the environmental systems of an industry, municipality, agribusiness and/or agricultural enterprise. The student will complete an Environmental Management System using Gap analysis and create environmental policies and action plans.

**Prerequisite(s):** Minimum of 8.00 credits

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*4070 Waste and Water Operation Techniques Winter Only (LEC: 1, LAB: 4) [0.50]**

This course is designed for students who are interested in pursuing a career as a water and/or wastewater treatment plant operator. Students will carry out the kinds of maintenance and repairs that are typically encountered by plant operators. These will include blueprint reading, basic electrical systems and safety, documentation and record keeping, pumps for water systems, wastewater pumps, metering pumps and chemical feed systems, lift stations, distribution and collection system maintenance and repair. Principles of safety will be stressed throughout the course.

**Prerequisite(s):** DENM\*3200 or DENM\*3210

**Restriction(s):** Registration in the Environmental Management Diploma Program

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*4080 Entry-Level Drinking Water Operations Winter Only (LEC: 2, LAB: 2) [0.50]**

Drinking water regulations and the roles and responsibilities of operators of drinking water facilities will be explored from a public health perspective. Sources of water as well as chemical, physical and microbial contaminants in water and water quality characteristics will be discussed. Sampling, analysis, disinfection and risk-management procedures will be covered. The course will provide a solid foundation of knowledge and understanding for water operators, and allow them to write the Ministry of the Environment and Climate Change (MOECC) "Entry-Level Drinking Water Operators" exam.

**Prerequisite(s):** DENM\*3200

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*4100 Land Use Planning Winter Only (LEC: 3, LAB: 2) [0.50]**

Students will become familiar with land use planning legislation and controls used in Ontario and across Canada. They will begin with the study of settlement theory and how land development effects the natural environment. The various legislative tools used to measure and control the development of land and how to understand the public's role in the process. The students will also be introduced to the higher levels of land use planning including the provincial and federal environmental assessment processes.

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*4120 Advanced GIS Winter Only (LEC: 1, LAB: 4) [0.50]**

This course will allow students to expand their knowledge of the functionality of ArcGIS software as it pertains to their particular field of interest, whether it be environmental conservation, agriculture or municipal facilities management. Students will explore advanced data analysis functionality of ArcToolbox, including address geocoding, data conversion, map projections, etc. and work with the ArcGIS ModelBuilder for diagramming solutions to spatial analysis problems. In addition, students will be able to explore ArcGIS extensions such as Spatial Analyst and Tracking Analyst as they analyse field data that they will collect for their final project using a variety of data collection techniques, including GPS and digital aerial photographs.

**Prerequisite(s):** DENM\*3120

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*4210 Nutrient Management Winter Only (LEC: 3, LAB: 2) [0.50]**

This course will examine the best management practices associated with nutrient management on farms. Emphasis will be placed on the components and development of a nutrient management plan and the safe utilization of manures and bio-solids in agricultural production systems.

**Prerequisite(s):** Minimum of 8.0 credits

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*4250 Solid Waste Management Winter Only (LEC: 3, LAB: 2) [0.50]**

This course is designed to give the student an understanding of the field of solid waste management from a technical and regulatory perspective. Current and emerging Federal and Provincial statutes, regulations and policies dealing with the management of solid wastes will be explored. Topics include organic waste management and composting, recycling and waste minimization programs and strategies, hazardous waste control and management, environmental audits and industrial ecology.

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus

**DENM\*4400 Environmental Industry Placement Winter Only (LEC: 1) [0.00]**

This four-week mandatory, post-semester training and evaluation period will offer the students the opportunity to gain practical experience in off-campus work placements typical of those available to them upon graduation. Students are required to perform many of the duties that are commonly performed by graduates and are assessed by industry representatives as well as the course instructor. Reports of their experiences will be required to be submitted to the course instructor at the conclusion of their experience. A passing grade is required to complete the diploma. Students choosing to do their work placement in the water or wastewater treatment field must have successfully completed OIT certification in order to participate in the externship.

**Prerequisite(s):** 9.00 credits

**Restriction(s):** Registration in the Environmental Management Diploma Program.

**Department(s):** Ridgetown Academic

**Location(s):** Ridgetown Campus