COURSE OUTLINE: NET250 - GENERAL ENTOMOLOGY

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Course Code: Title	NET250: GENERAL ENTOMOLOGY
Program Number: Name	5220: NAT ENVIRONMENT TN 5221: NAT ENVIRONMENT TY
Department:	NATURAL RESOURCES PRG
Semesters/Terms:	22W
Course Description:	This course provides the student with an introduction to the biology and ecology of aquatic and terrestrial insects and related invertebrates. Emphasis is placed on the development of identification skills in the laboratory.
Total Credits:	3
Hours/Week:	3
Total Hours:	45
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
Substitutes:	NRT207, NRT243
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**5220 - NAT ENVIRONMENT TN** VLO 1 Collect data from representative biological and environmental samples using routine test procedures. VLO 3 Apply the basic concepts of science to natural resource conservation and management. VLO 8 Complete all work in compliance with applicable municipal, provincial and federal standards and guidelines. **5221 - NAT ENVIRONMENT TY** VLO 1 Collect, analyze, interpret and report on data from representative biological and environmental samples. VLO 3 Apply the basic concepts of science to natural resource conservation and management. VLO 7 Ensure all work is safely completed in adherence to occupational health and safety standards. VLO 10 Communicate technical information accurately and effectively in oral, written, visual and electronic forms.
Essential Employability Skills (EES) addressed in this course:	EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience. EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective

In response to public health requirements pertaining to the COVID19 pandemic, course delivery and assessment traditionally delivered in-class, may occur remotely either in whole or in part in the 2021-2022 academic year.

	communication. EES 7 Analyze, evaluate, and apply relevant information from a variety of sources. EES 8 Show respect for the diverse opinions, values, belief systems, and contributions of others. EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals. EES 10 Manage the use of time and other resources to complete projects. EES 11 Take responsibility for ones own actions, decisions, and consequences.
General Education Themes:	Science and Technology
Course Evaluation:	Passing Grade: 50%, D A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Other Course Evaluation & Assessment Requirements:	Note 1: Academic success is directly linked to attendance. Missing more than 1/3 of the course hours in a semester shall result in an `F` grade for the course. Note 2: It is impossible to do this course without the required textbook. If you do not have the required text by the third week of the course you will not be allowed to continue in the course.
Books and Required Resources:	An Introduction to the Study of Insects by Borror, D.J., C.A. Triplehorn and N.F. Johnson. Publisher: Brooks Cole Edition: 7 ISBN: 9780357671276

Course Outcomes and Learning Objectives:

Course Outcome 1	**Learning Objectives for Course Outcome 1**
Collect, preserve, process, and present insect specimens from both terrestrial and aquatic environments in accordance with scientific standards.	1.1 Demonstrate knowledge of various tools and methods of collecting insect specimens including nets, traps and baits. 1.2 Understand how to appropriately display and preserve adult insects and record collection information. 1.3 Understand how to collect and preserve immature insects and appropriately record collection information.
Course Outcome 2	**Learning Objectives for Course Outcome 2**
Identify selected Orders and Families of adult and immature insects using taxonomic keys and microscopic technique.	2.1 Demonstrate use of taxonomic keys. 2.2 Demonstrate use of the binocular microscope. 2.3 Sort selected specimens (Hymenoptera, Lepidoptera, Coleoptera, Hemiptera, Diptera) into appropriate taxonomic groupings. 2.4 Recognize select insects used as indicators of environmental quality.
Course Outcome 3	**Learning Objectives for Course Outcome 3**
Describe the biology and ecology of insects.	3.1 Identify and describe the function of external structures of insects. 3.2 Describe the significant anatomical features which distinguish insects from other arthropods. 3.3 Describe the significant anatomical features which distinguish insect Orders.

		3.4 Distinguish between various types of insect metamorphosis. 3.5 Demonstrate correct use of entomological terminology presented in the course. 3.6 For selected species, research and describe their life cycle and optimal habitat requirements. 3.7 Describe positive contributions that insects make to the health and sustainability of natural environments. 3.8 Prepare properly labelled scientific drawings from microscopic examinations of specimens.
	Course Outcome 4	**Learning Objectives for Course Outcome 4**
	Describe procedures used in the monitoring and control of pest species.	4.1 Describe the objectives of environmental monitoring in general. 4.2 Describe monitoring procedures for select insect species.

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Assignments	70%
Tests	30%

Date: September 3, 2021

Addendum: Please refer to the course outline addendum on the Learning Management System for further information.