COURSE OUTLINE: NRT223 - RESOURCE SAMPLING

Prepared: School of Natural Environment
Approved: Bob Chapman - Dean

Course Code: Title	NRT223: RESOURCE SAMPLING
Program Number: Name	5214: FISH/WILD CONSERVATN
Department:	NATURAL RESOURCES PRG
Academic Year:	2025-2026
Course Description:	This course is designed to provide students with an understanding of the fundamental principles of sampling and survey design and applied knowledge of elementary statistics. The research process will be reinforced as students demonstrate proficiency in the collection, management, analysis, and interpretation of field data and communication of results.
Total Credits:	3
Hours/Week:	3
Total Hours:	42
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**5214 - FISH/WILD CONSERVATN** VLO 1 Demonstrate clear, concise and industry appropriate written, spoken and visual communication skills VLO 2 Identify, discuss, organize and assess common flora and fauna species found throughout Ontario, including biological characteristics VLO 3 Demonstrate the ability to follow standardized protocols to collect field data on fish and wildlife populations in a variety of weather and site conditions. VLO 5 Start and manage their careers in the Fish and Wildlife Conservation field. VLO 7 Recognize the contributions and applications of various science disciplines in the understanding of natural environments. VLO 9 Safely operate and maintain equipment used in Fish and Wildlife Conservation. VLO 10 Evaluate and apply current technologies and mathematical concepts used to collect, manage and analyze data. VLO 11 Analyze, evaluate and apply subjective and objective safety considerations.
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 communication. EES 3 Execute mathematical operations accurately. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems.

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	EES 6 Locate, select, organize, and document information using appropriate technology and information systems.
	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.
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:	Academic success is directly linked to attendance. Missing more than 1/3 of the course hours in a semester shall result in a F Grade for this Course Absences during field labs, tests, quizzes, and other assessments will not be excused without documented personal or health reasons. Late assignments will only be accepted within 24 hours past the due date and will be penalized 20% except under extenuating circumstances with appropriate documentation. Changes to the Course Evaluation scheme may be considered during the semester if approved by the majority of the class (majority = approval by 75% of students present at time of vote). The instructor cannot guarantee responses to questions in the 24-hour period prior to assignment deadlines and tests via phone message or email.

Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
1. Describe the major components of an experimental (survey) design and demonstrate knowledge of the basic principles of sampling.	1.1 Demonstrate an understanding of the research process. 1.2 Demonstrate knowledge of sampling design options (how sampling units are placed within a population), advantages and disadvantages of each, and understand the importance of representative sampling. 1.3 Understand and discuss factors that influence sampling unit size, shape, arrangement and number (sample size) for a given scenario.
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Demonstrate knowledge of elementary statistics and associated terminology.	2.1 Differentiate between descriptive statistics and inferential statistics. 2.2 Understand how descriptive statistics can be used to explore field data: measures of central tendency (mean, median, mode), measures of spread (range, standard deviation), skewness, tables and graphs (e.g., frequencies or percentages), associations between two or more variables (scatterplots and correlation for quantitative variables). 2.3 Understand concepts underlying inferential statistics: normal distribution, confidence intervals, simple linear regression.
Course Outcome 3	**Learning Objectives for Course Outcome 3**
3. Analyze and interpret	3.1 Demonstrate proficiency in basic navigation skills (e.g.

	data accurately collected in the field (e.g., wildlife habitat features) and applicable data sets provided.	GPS, compassing, pacing, chaining, navigating to and from locations). 3.2 Demonstrate ability to conduct field surveys by applying standard protocols and techniques and keeping neat, accurate and complete field notes and tally sheets. 3.3 Demonstrate ability to perform basic statistical analyses of field data.
	Course Outcome 4	**Learning Objectives for Course Outcome 4**
	4. Conduct an analysis of the scientific literature on techniques used for sampling habitat for given wildlife species (mammal, birds, or herpetofauna).	4.1 Demonstrate proficiency in developing a clear, organized key word list, accessing a scientific literature database, reviewing abstracts for relevance, and gleaning appropriate information. 4.2 Summarize findings in tabular or graphical form.

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Assignments	63%
Quizzes and Tests	37%

Date: August 20, 2025

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