



COURSE OUTLINE: NRT123 - OUTDOOR NAVIGATION

Prepared: Lawrence Foster

Approved: Sherri Smith, Chair, Natural Environment, Business, Design and Culinary

Course Code: Title	NRT123: OUTDOOR NAVIGATION
Program Number: Name	5212: ADVENTURE RECREATION 5214: FISH/WILD CONSERVATN 5220: NAT ENVIRONMENT TN 5221: NAT ENVIRONMENT TY 5230: FORESTRY TECHNICIAN
Department:	NATURAL RESOURCES PRG
Academic Year:	2022-2023
Course Description:	Students will gain skills in orienteering and navigating in forested areas using a magnetic hand compass, topographic maps (OBM, NTS), OMNR standard aerial photographs and global positioning systems (GPS). Students will use a navigational protractor, metric scale and or Google Earth Pro in the planning and presentation of field exercises. Pacing and distance measurement devices (50 m rope, 30 m tape) will be used to measure distances in a team environment. Calculations of distance, area and pacing factors will be covered.
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.
Substitutes:	NRT125
Vocational Learning Outcomes (VLO's) addressed in this course:	<p>5212 - ADVENTURE RECREATION</p> <p>VLO 1 Demonstrate clear, concise and industry appropriate written, spoken and visual communication skills.</p> <p>VLO 9 Safely operate and maintain equipment used in Adventure Recreation and Park operations.</p> <p>VLO 10 Evaluate and apply current technologies and mathematical concepts used to collect, manage and analyze data.</p> <p>VLO 11 Analyze, evaluate and apply subjective and objective safety considerations for Adventure Recreation and Parks activities.</p> <p>5214 - FISH/WILD CONSERVATN</p> <p>VLO 1 Demonstrate clear, concise and industry appropriate written, spoken and visual communication skills</p> <p>VLO 9 Safely operate and maintain equipment used in Fish and Wildlife Conservation.</p> <p>VLO 10 Evaluate and apply current technologies and mathematical concepts used to collect, manage and analyze data.</p>
Please refer to program web page for a complete listing of program outcomes where applicable.	



VLO 11 Analyze, evaluate and apply subjective and objective safety considerations.

5220 - NAT ENVIRONMENT TN

VLO 2 Utilize natural resources equipment and technology to accurately identify ecosystem components for purposes of conserving and managing natural resources.

VLO 4 Conduct natural environment assessments according to standard field survey methods, including the use of appropriate equipment and materials.

VLO 7 Work safely in adherence to occupational health and safety standards.

VLO 11 Communicate technical information accurately and effectively in oral, written and visual forms.

VLO 12 Travel accurately in a timely manner in the outdoors using appropriate navigation aids and motorized transport equipment.

5221 - NAT ENVIRONMENT TY

VLO 2 Utilize natural resources information technology equipment to assemble, analyze and present identified ecosystem components for purposes of conserving and managing natural resources.

VLO 7 Ensure all work is safely completed in adherence to occupational health and safety standards.

VLO 8 Contribute to the development, implementation and maintenance of environmental management systems.

VLO 10 Communicate technical information accurately and effectively in oral, written, visual and electronic forms.

5230 - FORESTRY TECHNICIAN

VLO 1 Conduct forest inventory surveys and field measurements to determine forest resources and values in forests and woodlots.

VLO 4 Collect, analyze, interpret, and display spatial data using mapping technology and Geographical Information Systems (GIS) to contribute to forest resource management.

VLO 7 Select, operate, troubleshoot and maintain tools and equipment in a variety of environmental conditions and in accordance with safety and operating standards.

VLO 8 Work independently and in a collaborative environment while applying effective teamwork, leadership and interpersonal skills.

VLO 9 Communicate technical information to a variety of stakeholders 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 communication.

EES 3 Execute mathematical operations accurately.

EES 5 Use a variety of thinking skills to anticipate and solve problems.

EES 6 Locate, select, organize, and document information using appropriate technology



	and information systems.																		
	EES 7 Analyze, evaluate, and apply relevant information from a variety of sources.																		
	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:	<p>Passing Grade: 50%, D</p> <p>A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.</p>																		
Other Course Evaluation & Assessment Requirements:	Academic success is directly linked to attendance. Missing more that 1/3 of the course hours in a semester shall result in an 'F' Grade for the course.																		
Books and Required Resources:	<p>NTS 1:50 000 Topographic Map Sheets #41 K/9</p> <p>Outdoor Navigation Course Manual Publisher: Sault College</p>																		
Course Outcomes and Learning Objectives:	<table border="1"> <thead> <tr> <th>Course Outcome 1</th> <th>Learning Objectives for Course Outcome 1</th> </tr> </thead> <tbody> <tr> <td>Be able to use a magnetic hand compass and navigate to a destination.</td> <td> 1.1 Determine true and magnetic azimuths and convert from one to the other. 1.2 Understand and set magnetic declination on a compass. </td> </tr> <tr> <th>Course Outcome 2</th> <th>Learning Objectives for Course Outcome 2</th> </tr> <tr> <td>Be able to determine distances by pacing and measuring distances using a 30 m or 50 m tape.</td> <td> 2.1 Determine pacing factor and be able to pace distances in summer and winter. 2.2 Be able to maintain and properly store equipment. </td> </tr> <tr> <th>Course Outcome 3</th> <th>Learning Objectives for Course Outcome 3</th> </tr> <tr> <td>Be able to use OMNR aerial photographs, OBM and NTS maps in order to travel from one location to another using a magnetic hand compass.</td> <td> 3.1 Understand scales of photographs and maps. 3.2 Identify major features on aerial photographs and cover type changes. 3.3 Be able to measure distances and directions on aerial photographs and maps. 3.4 Be able to calculate directions on a map and aerial photograph using a navigational protractor. </td> </tr> <tr> <th>Course Outcome 4</th> <th>Learning Objectives for Course Outcome 4</th> </tr> <tr> <td>Be able to use and understand the principles of Global Positioning Systems (GPS).</td> <td> 4.1 Understand the accuracy of GPS receivers (GPS). 4.2 Be able to mark (enter) a field position in the GPS while in the field. 4.3 Be able to enter a field position using map co-ordinates. 4.4 Be able to navigate to way points entered into the GPS using a compass and the GPS. 4.5 Be able to record positions from the GPS onto a map. </td> </tr> <tr> <th>Course Outcome 5</th> <th>Learning Objectives for Course Outcome 5</th> </tr> </tbody> </table>	Course Outcome 1	Learning Objectives for Course Outcome 1	Be able to use a magnetic hand compass and navigate to a destination.	1.1 Determine true and magnetic azimuths and convert from one to the other. 1.2 Understand and set magnetic declination on a compass.	Course Outcome 2	Learning Objectives for Course Outcome 2	Be able to determine distances by pacing and measuring distances using a 30 m or 50 m tape.	2.1 Determine pacing factor and be able to pace distances in summer and winter. 2.2 Be able to maintain and properly store equipment.	Course Outcome 3	Learning Objectives for Course Outcome 3	Be able to use OMNR aerial photographs, OBM and NTS maps in order to travel from one location to another using a magnetic hand compass.	3.1 Understand scales of photographs and maps. 3.2 Identify major features on aerial photographs and cover type changes. 3.3 Be able to measure distances and directions on aerial photographs and maps. 3.4 Be able to calculate directions on a map and aerial photograph using a navigational protractor.	Course Outcome 4	Learning Objectives for Course Outcome 4	Be able to use and understand the principles of Global Positioning Systems (GPS).	4.1 Understand the accuracy of GPS receivers (GPS). 4.2 Be able to mark (enter) a field position in the GPS while in the field. 4.3 Be able to enter a field position using map co-ordinates. 4.4 Be able to navigate to way points entered into the GPS using a compass and the GPS. 4.5 Be able to record positions from the GPS onto a map.	Course Outcome 5	Learning Objectives for Course Outcome 5
Course Outcome 1	Learning Objectives for Course Outcome 1																		
Be able to use a magnetic hand compass and navigate to a destination.	1.1 Determine true and magnetic azimuths and convert from one to the other. 1.2 Understand and set magnetic declination on a compass.																		
Course Outcome 2	Learning Objectives for Course Outcome 2																		
Be able to determine distances by pacing and measuring distances using a 30 m or 50 m tape.	2.1 Determine pacing factor and be able to pace distances in summer and winter. 2.2 Be able to maintain and properly store equipment.																		
Course Outcome 3	Learning Objectives for Course Outcome 3																		
Be able to use OMNR aerial photographs, OBM and NTS maps in order to travel from one location to another using a magnetic hand compass.	3.1 Understand scales of photographs and maps. 3.2 Identify major features on aerial photographs and cover type changes. 3.3 Be able to measure distances and directions on aerial photographs and maps. 3.4 Be able to calculate directions on a map and aerial photograph using a navigational protractor.																		
Course Outcome 4	Learning Objectives for Course Outcome 4																		
Be able to use and understand the principles of Global Positioning Systems (GPS).	4.1 Understand the accuracy of GPS receivers (GPS). 4.2 Be able to mark (enter) a field position in the GPS while in the field. 4.3 Be able to enter a field position using map co-ordinates. 4.4 Be able to navigate to way points entered into the GPS using a compass and the GPS. 4.5 Be able to record positions from the GPS onto a map.																		
Course Outcome 5	Learning Objectives for Course Outcome 5																		

	Be able to determine areas using maps and mapping software.	5.1 Be able to measure areas using a compass and the line transect method. 5.2 Be able to measure area using computer software.
	Course Outcome 6	Learning Objectives for Course Outcome 6
	Use and interpret topographic maps (OBM, NTS). This includes being able to accurately reference any point using latitude/longitude as well as UTM co-ordinates.	6.1 Recognize the different ways of expressing scale. 6.2 Identify all lines, numbers and symbols on maps. 6.3 Recognize the divisions used on a map to measure long/lats and UTM co-ordinates. 6.4 Draw topographic profiles, create digital topographic profiles and calculate gradients. 6.5 Be able to read contour lines and determine elevations and major topographic features.
	Course Outcome 7	Learning Objectives for Course Outcome 7
	Use basic equipment including the metric scale, distance measurement devices, and navigational protractor.	7.1 Use the metric scale for distance measurements on a variety of maps with various scales. 7.2 Measure directions and apply magnetic declination on maps using a navigational protractor. 7.3 Properly use a distance measurement device.
Evaluation Process and Grading System:	Evaluation Type	Evaluation Weight
	Assignments	40%
	Quizzes	10%
	Tests	50%
Date:	June 30, 2022	
Addendum:	Please refer to the course outline addendum on the Learning Management System for further information.	