COURSE FOR3060:	**MEASURING THE FOREST 3 (SURVEY APPLICATIONS)**
Level:	Advanced
Theme:	Technology and Applications
Prerequisite:	FOR2060 Measuring the Forest 2 (Sampling Techniques)
Description:	Students explain management applications of data collected from a forest survey, and examine the role of technology in current forest inventory practices.
Parameters:	Access to forest inventory technology and forest survey data available from government and industry organizations; e.g., Alberta Environmental Protection, Canadian Forestry Service, Canadian Centre for Remote Sensing. Access to forestry maps available from private vendors. Instructor knowledge of population sampling and survey design and/or relevant industry experience is an asset.

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
The student will: • explain the applications of forest survey data in resource management	*Assessment of student achievement should be based on:* • identifying and explaining applications of timber cruise data and nonfibre data in resource management. *Assessment Tool* *Knowledge/Application Assessment: Forest Survey Data, FOR3060–1* *Standard* *Respond to a standard of 3 on the rating scale* • demonstrating applications of a sample set of forest survey data by: – identifying bias, error and other limitations in the sample data – extrapolating the data to estimate forest populations – using the survey data to establish effective forest management practices – modifying the sample design to increase accuracy of the survey. *Assessment Tool* *Knowledge/Application Assessment: Forest Survey Data, FOR3060–1* *Standard* *Respond to a standard of 3 on the rating scale*	60

COURSE FOR3060: MEASURING THE FOREST 3 (SURVEY APPLICATIONS) (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
The student will:	*Assessment of student achievement should be based on:*	
• describe the role of technology in current forest inventory practices	• completing a research project on applications of technology in data collection, manipulation and/or storage. Research to address: – aerial photography – satellite imagery – computer-based mapping systems – applications of ground truthing in verifying data gathered through remote sensing. *Assessment Tool* *Research Process: Role of Technology in Forest Inventory, FOR3060–2* *Standard* *Complete all components of research to a standard of 3 on the rating scale* • given information regarding a current forest inventory research project (e.g., an Alberta Research Council project, an initiative of the Canadian Forestry Service), a presentation or report that summarizes: – the research problem/question – research design and expected results – accomplishments and challenges encountered to date – immediate and long-range implications of the research project. *Assessment Tool* *Presentations/Reports: Advanced Level, FORPRE–3* *Standard* *Complete the presentation or report to a standard of 3 on the rating scale*	30
• explain career opportunities relevant to forest measurement	• given current information on career opportunities in forest measurement (e.g., labourer, technician, professional worker), completing a research project on one or more related careers. *Assessment Tool* *Career Search: Advanced Level, FORCAR–3* *Standard* *Conduct research to a standard of 3 on the rating scale*	10

COURSE FOR3060: MEASURING THE FOREST 3 (SURVEY APPLICATIONS) (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
The student will: • demonstrate basic competencies.	*Assessment of student achievement should be based on:* • observations of individual effort and interpersonal interaction during the learning process. *Assessment Tools* *Basic Competencies Reference Guide and any assessment tools noted above*	Integrated throughout

Concept	Specific Outcomes	Notes
	The student should:	
Data Interpretation	• explain applications of timber cruise data in resource management; e.g.: – estimating total fibre volume – projecting future forest growth – planning harvest operations	Contact resource persons from: • Canadian Forestry Service (Natural Resources Canada) • Land and Forest Services (Alberta Environmental Protection). Perform mathematical calculations to determine timber volumes.
	• explain applications of nonfibre data in resource management; e.g.: – monitoring water and soil quality – determining potential for agriculture/ recreation – monitoring wildlife population densities and trends – planning conservation practices	Obtain sample data from local government/ industry. Use paper and pencil OR computer programs to interpret data.
	• interpret a set of sample forest survey data; e.g.: – consider bias, error and other limitations in the sample data – extrapolate the data to estimate forest populations – suggest applications of data in resource management – consider modification to sample design that may increase accuracy of the survey.	Supplementary sources of information on forest measurement include: • *Natural Resources Measurements* by Thomas Avery (McGraw Hill Book Co., 1975) • *Forest Mensuration* (3rd Edition) by Bertram Husch, Charles Miller and Thomas Beers (John Wiley and Sons Inc., 1982).

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Concept	Specific Outcomes	Notes
	The student should:	
Role of Technology	• describe applications of technology in gathering and storing data about the forest resource; e.g.: – aerial photography – satellite imagery – computer-based mapping systems	Acquaint students with current applications of technology through field studies. Contact the following agencies for information on current information-gathering technologies: • *Canadian Centre for Remote Sensing* (Ottawa, Ontario) • *RADARSAT International* (Richmond, BC).
	• explain the importance of ground truthing in verifying data gathered through remote sensing • predict forest inventory technologies and practices in the future	Research the future use of computers and recent developments in Geographic Information Systems (GIS).
	• outline the objectives of a current forest inventory research project; e.g.: – an initiative of the Canadian Forestry Service – an Alberta Research Council project.	Investigate potential applications of Global Positioning Systems (GPS).
Career Opportunities	• outline potential careers and the range of occupational opportunities in forest measurement • summarize and present the results of research on one or more career opportunities in forest measurement; e.g.: – nature of the work – number of workers/employment trends – entry requirements/competencies – education/training opportunities – opportunity for advancement.	Review National Occupational Profiles (NOC). Interview persons involved in conducting forest inventories. Provide opportunities for work experience and job shadowing.