

GRANDE PRAIRIE REGIONAL COLLEGE

OCT 13 1998

DEPARTMENT OF SCIENCE AND TECHNOLOGY

Bachelor of Applied Forest Resource Management

SILVICULTURE II: FO3050

Transfer status: Under discussion

Pre-requisite: Silviculture I (FO3130)

Calendar Description:

Readings, discussions and exercises on current topics in silviculture. Possible topics include intensive management, forest microsites, forest competition, plantation forestry, mixed-wood management, tree improvement, stand density management, exotic species.

Instructor: Albert Sproule
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Lectures:	Monday, Wednesday and Friday	9.00 - 9.50	B207
Lab:	Wednesdays	15.00 - 17.50	Field - then B207

Course Description:

Advanced silviculture takes some of the basic silvicultural techniques that we studied in 2nd year and studies them to a greater depth. We will study silviculture from the perspectives of:

- world-wide advances in some areas, e.g.:
 - mycorrhizae and their possible role as an aid to reforestation.
- the application of techniques used elsewhere, but relatively new to Alberta, e.g.:
 - the implementation of the 'free-to-grow' concept.
 - genetic improvement
 - stand density management.
 - partial-cut harvest systems
 - use of exotic species
 - drainage
- the development of techniques specific to the Alberta/western Canada situation, e.g.:
 - site preparation in the boreal forest
 - mixed-wood (aspen/spruce) management.

Four over-riding themes of the course will be:

- (a) the most effective areas on which to concentrate our 'silvicultural efforts'
- (b) enhanced (intensive) forest management
- (c) the 'benefit/cost' aspect of silviculture strategies
- (d) the need to monitor our silvicultural efforts, not only in terms of tree growth rates but also the effects in areas such as wood quality, pest population dynamic's, effects on site quality.
- (e) the need to keep nature's methods in mind

Recommended Textbook

Smith, D.M., Larson, B.C., Kelty, M.J. and P.M.S. Ashton. (1997). The Practice of Silviculture - Applied Forest Ecology. John Wiley & Sons, Inc. Toronto. 537 pp.

Textbooks Available in the Library

Compendium of Canadian Forestry Statistics. (1996). Canadian Council of Forest Ministers.

Field Guide to Ecosites of Alberta. (Series of four publications).

Forest Site Interpretation and Silvicultural Guideline for Alberta. (1996). Alberta Environmental Protection.

Matthews, J.D. (1989). Silvicultural Systems. Oxford University Press, Oxford. 284 pp.

Lavender, D. (1994). Regenerating British Columbia's Forests. UBC Press, Vancouver. 372 pp.

Scientific Journals and Periodicals Available in the Library

Canadian Journal of Forest Research

Forestry Chronicle

Northern Journal of Applied Forestry

Silviculture

Website

www.canadian-forests.com

www.fs.fed.us

EXAMINATIONS AND MARK ALLOCATION

Mid-term examination	30%
Lab XI	10%
Lab XII	5%
End-of-term lab report	15%
Final examination	40%

LECTURE SCHEDULE

Overview of the course	1 lecture
Review of final exam from FO5130	1 lecture
Philosophy of silvicultural advances <ul style="list-style-type: none">- where to concentrate our efforts<ul style="list-style-type: none">- biological vs economic concerns- keeping nature in mind- forestry as an investment	2 lectures
The nursery operation <ul style="list-style-type: none">- current nursery strategy and practice- the 'designed' seedling	2 lectures
Outplanting <ul style="list-style-type: none">- the narrow 'nursery-to-site' window- methods of site preparation- stock type, microsite, planting quality- the role of mycorrhizae- survival surveys and early tending- the free-to-grow concept	4 lectures
Stand density management <ul style="list-style-type: none">- what is stand density management?- history in Europe, then to North America- applicability in Western Canada- pros and cons- stand density management and the AAC!	10 lectures
Mixedwood management <ul style="list-style-type: none">- history- present-day context- difficulties: biological, economic and political- possible future directions	6 lectures
Aspen management <ul style="list-style-type: none">- is it really necessary?- results of recent research- possible future directions	4 lectures
Genetic tree improvement programs <ul style="list-style-type: none">- basics of forest genetics- mechanics of a tree-improvement program- use of genetically-improved stock in operational forestry- the silvicultural component of a tree-improvement program- future directions in tree-improvement programs	6 lectures
The role of exotic species	1 lecture
Site improvement techniques <ul style="list-style-type: none">- drainage- fertilization	2 lectures

LAB SCHEDULE

Lab I	Seedling production: Visit to a nursery or a talk from a guest speaker
Lab II	Field lab; Pre-harvest assessment I Collection of site information
Lab III	Field lab; Pre-harvest assessment II Silviculture prescription
Lab IV	Field lab; Site prep and importance of microsite
Lab V	Field lab; Regeneration surveys The 'free-to-grow' concept
Lab VI	Field lab; Stand tending Stand tending as part of stand density management
Lab VII	Field lab; Mixedwood management
Lab VIII	Field lab; Genetic improvement programs visit to progeny test site visit to Huallen Seed Orchard
Lab IX	Field lab; Aspen management Visit to Saskatoon Island Provincial Park
Lab X	Indoor lab; Genetic improvement programs Slide presentation by John Edwards (Weyerhaeuser, Grande Prairie, Ltd)
Lab XI	Indoor lab; Communications skills; Preparation of proposals Written presentation of information Report writing
Lab XII	Indoor lab; Communications skills (continued); Verbal presentation
Lab XIII	Field lab; Winter site prep (if available)
Lab XIV	Student preparation of final lab report covering the terms activities.

Note: During field labs students are expected to observe the particular forestry operation and also to understand the biological principles underlying the particular methodology. It is essential to keep good, up-to-date, notes of all field labs.

Note: Depending on the availability of particular field operations, field trips may be re-sequenced, or different trips may be combined into one full-day lab.