

Master of Forest Conservation

Graduates of the Master of Forest Conservation will have a working knowledge of:

1. Foundational Studies

- Scientific principles,
- Concepts of biology, chemistry, and mathematics,
- Social structures and processes,
- Economic structures and processes,
- Institutions, and values of importance to society in Canada

2. Communications, Critical Reasoning, and Leadership

- Proper concepts and terminologies,
- Clear and persuasive arguments,
- Effective listening and reading comprehension skills,
- Cultural and social sensitivity,
- Formal written report(s),
- Formal presentation(s) (oral and visual media),
- Other forms of communication (including social media, etc.),
- Relevant background information and documents,
- Logical arguments and development of rationales,
- Appropriate supporting documentation,
- Role of external expertise,
- Professional judgement,
- Processes to balance objectives,
- Leadership styles and their application,
- Effective team participation and leadership,
- Approaches to collaborative decision making,
- Conflict resolution skills

3. Professionalism and Ethics

- Structure and functions of regulated professions in Canada,
- Relations among professions,
- Criteria for entry into a profession, and quality assurance standards,
- Roles of codes of conducts/ethics and standards of practice,
- Complaints and discipline processes,
- Scope of practice,
- Standards of practice,
- Codes of conduct/ethics,
- Service to the public, profession, employer and resources,
- Professional practice documentation,
- Conflict of interest,
- Commitment to maintain competency,
- Personal professional competence and role of outside expertise,
- Health and safety considerations

4. Trees and Stands

- Tree and other plant identification (regional context), including keys
- Plant anatomy, morphology and physiology
- Tree genetics, silvics and life cycle
- Plant and tree autecology
- Plant and tree synecology
- Attributes- size, form, age, leaf area index, health, quality, etc.
- Factors affecting tree attributes
- Tree values (wildlife habitat, shade, wood fibre, air quality, etc.)
- Stand origin and structure (species composition, size distribution, age and spatial arrangements)
- Forest soil properties and influences on stand origin and development
- Stand values (wildlife habitat, wood fibre, water management, recreation, etc.)
- Stand dynamics
- Biotic and abiotic agents, including climate, affecting stand dynamics
- Silviculture and silvicultural prescriptions

5. Forested Landscapes

- Concepts and principles of landscape-level ecology
- Forest ecosystem components and connectivity
- Concepts and measures of diversity, including spatial and temporal diversity
- Forest ecosystem function and dynamics (e.g. carbon capture and storage, forest hydrology, forest nutrient cycling, fish and wildlife)
- Principles of forest ecosystem classification systems
- Forest soil classification
- Forest climatology
- Biotic and abiotic disturbance factors (insects, disease, fire, meteorological effects, human interventions, etc.) and their affects on forest ecosystem function
- Invasive species
- Climate change
- Ecosystem resilience
- Protection and mitigation activities

6. Information Acquisition and Analysis

- Orienteering (compass, maps and Global Positioning System (GPS)
- Field measurement tools and procedures
- Remote sensing tools and procedures
- Geographic Information Systems (GIS)
- Principles of basic statistics
- Sampling design and methods and their suitability for use
- Sampling precision, bias and effectiveness
- Databases, spreadsheets, and graphic presentations
- Geographic Information Systems (GIS)
- Forest resource inventory
- Statistical packages

7. Planning and Administration

- Financial and economic analysis
- Socio-economic and market forces
- Forest products and ecological services valuation
- End use and value-added
- Role of government forest policies (at varied levels: municipal, provincial, federal)
- Legal and policy framework
- Forest values (ecological, social, and economic)
- Indigenous Peoples' Treaty and other rights, claims, traditions and interests
- Public and stakeholder concerns and interests
- Human resources
- Principles of project planning and implementation
- Criteria indicators and measures
- Principles of adaptive management
- Forest certification schemes

8. Forest Management

- Components of the forest management process
- Purpose of forest management planning
- Domestic and global trends
- Concepts and applications of sustainability
- Strategic, tactical and operational planning levels
- Legal and policy requirements
- Stakeholder consultation
- Forest values (ecological, social, and economic)
- Current stand- and forest-level conditions
- Management objectives and constraints
- Stand-level actions (silviculture) and forest-level scenarios to attain different management objectives
- Stand-level projection models
- Landscape/forest-level projection models
- Performance measurement criteria and methodologies
- Business and operational objectives and constraints
- Resources required
- Basic operational planning including forest access, silviculture, protection, harvesting, monitoring, etc.

Draft learning outcomes from the Canadian Forestry Accreditation Board.