

# Professional Forestry Education in Canada

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Edward Wilson



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# Professional Forestry Education in Canada<sup>1</sup>

*Gaining a forestry qualification in Canada could be a life-changing experience that takes your career in an exciting new direction, reports **Edward Wilson***

In the current economic climate many people are considering novel ways to enhance their qualifications, enrich their life experience and demonstrate their resourcefulness. Taking the opportunity to study overseas is one way to stand out from the crowd and gain a fresh perspective on the world of forestry. However, where to go and which course to choose can be a conundrum.

The aim of this article is to review educational opportunities in Canada, home of not only a vast forestry sector but also some of the most exciting, academically-challenging and prestigious forestry schools. With a good number of graduates of Canadian forestry schools accredited as professional members of the Institute of Chartered Foresters (ICF), it is clearly possible to “go west” and then make a successful return to full-time practice in the UK. Here we review the major degree programmes, and highlight some of the distinctive features of a Canadian forestry education.

## Overview

A wide variety of forestry courses are offered at both the undergraduate and postgraduate levels. These are located at universities across Canada, some in large urban centres and others in smaller, more rural communities. The forestry schools at the University of Toronto (Toronto, ON), University of British Columbia (Vancouver, BC) and the University of Alberta (Edmonton, AB) form unitary faculties or departments within top tier international universities, and are located in major metropolitan regions. In contrast, the universities in Thunder Bay, ON (Lakehead University), Edmundston, NB (Université de Moncton) and Prince George, BC (University of Northern British Columbia) are situated in the heartlands of the forest products industry, and provide direct access to the forest for training and research purposes.

Others, such as l’Université Laval (Québec, PQ) and the University of New Brunswick (UNB, Fredericton, NB), are venerable institutions that trace their origins back to the 17<sup>th</sup> and 18<sup>th</sup> centuries (Figure 1). In the case of UNB, founded in 1785, only six universities in the UK (including Oxford, Cambridge and the four Ancient Universities of Scotland) can count themselves as being older – clearly debunking the myth that Canada has no history!

All of Canada’s professional forestry schools are research-led and offer superb field and lab facilities, and all have strong links to the forestry and conservation sectors. Many of Canada’s forestry professors are global leaders in their fields, and are well supported by both federal and provincial governments, and by the forestry sector. All faculties incorporate the latest teaching and technologies in forest management, conservation and biological sciences, but many are also recognised as centres of wood technology, chemistry, design and engineering.

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<sup>1</sup> An abridged version of this paper published in *Forestry and Timber News*, April 2013.

## Undergraduate Courses

Traditionally, few UK students have considered undergraduate education in Canada. However, with the increase in fees to £9,000/year for many English universities, the cost of education in Canada is starting to become more competitive. Several Canadian universities have begun to recruit in the UK, and are offering scholarships for those students presenting superior qualifications.

Degree courses in English-speaking Canada are organised in a similar way to those in the UK, although there is a strong influence from the United States. Most universities offer a 4-year bachelor programme, with the typical awards being the BSc, BScF or BSF degrees. Many courses are awarded with Honours, which usually involves completion of a research project, as is the norm in the UK. Courses typically start from a broad science foundation, and become increasingly focused towards the senior years. In general, management courses tend to be more industry-focused, while science courses often act as preparation for advanced research degrees.



Figure 1. The Faculty of Forestry and Environmental Management at UNB has been training professional foresters since 1908. It offers a wide range of courses in forestry, environmental management and conservation.

All universities offer a high degree of choice and the opportunity to specialise in different sub-fields, called “majors” or “minors” depending on module weightings. For example, at UBC there are major streams in forest science, forest operations and forest resources management. The BScF degree at UNB, dating from 1908, is now the longest-running forestry qualification in Canada. This can be pursued with a number of sub-specialisms, to give minors in computer applications, economics, business, wildlife, environmental studies, wood products or forest science.

Toronto has taken a different approach, and offers options to study forest conservation via either science-based (BSc) or humanities-based (BA) streams. However, these courses are run by the Faculty of Arts and Science, with support from the Faculty of Forestry, so there is not quite the same immersion in professional forestry as elsewhere.

Increasingly, forestry degrees blend elements of environmental science, making it possible to complete programmes in forestry with majors in wildlife management, outdoor recreation, forest conservation and ecology. This interdisciplinary approach is perhaps exemplified by the innovative natural resources management programme at UNBC, Canada's newest forestry school, and the new BSc Environment and Natural Resources programme at UNB.

Wherever you choose to study, great emphasis is placed on generic graduate skills, and most programmes are accredited with provincial professional forestry associations and the Canadian Institute of Forestry. All schools have a strong community spirit and balanced social life.

The vast majority of undergraduate forestry students are able to find vocational work experience during the summer months. Because of the long winters in Canada, it is an established tradition for employers to hire students for work such as tree planting, surveying, mapping and in junior supervisory roles. Others enjoy work as forest rangers or research assistants. Many undergraduate courses are closely linked to the forestry sector and offer co-op (sandwich year) options for interested students.

Summer work and co-op placements in forestry are usually well-paid, compared to other student jobs. They offer valuable experience, a way of seeing the country and usually subsidise the costs of study. However, it is important to ascertain employment regulations, as Canada has strict laws to protect the rights of its citizens and landed immigrants.

### **Postgraduate Courses**

Most students from the UK tend to go to Canada for postgraduate studies. At this level, forestry courses are divided into professional degrees and research degrees.

Professional Masters courses generally last 12-18 months. These are course-based and capped by a 3-4 month research project or case study. For many years, the Master of Forestry (MF) or Master of Forest Engineering (MFE) degrees were the main professional degrees, and were closely linked to roles in the forest sector. Since 1996 a Master of Forest Conservation (MFC) degree has been offered at Toronto (Figure 2). More recently, other degrees have come on stream, such as the Master of Sustainable Forest Management (MSFM) and the Master of International Forestry (MIF) at UBC, and the Master of Environmental Management (MEM) at UNB. All these courses have a record of success in terms of graduate employment. The Toronto MFC, in particular, has led many graduates forward to a diverse range of careers in forestry, conservation, environmental advocacy and international development.

Research Masters (MSc or MScF) degrees are usually a minimum of 24 months and PhD courses are normally 4 years duration. The general pattern is to complete a MSc or MScF degree before embarking on the doctoral degree. However, increasingly there is a trend to fast-track Masters students who perform well in the early stages of their programme, so that they can complete their PhD in 4-5 years. A prominent feature of research degrees in Canada is a significant course load, which gives a solid grounding in research methods, statistics, bioethics and advanced specialist topics. This is similar to postgraduate courses in the United States.

Another distinctive feature of Canadian doctoral degrees is the requirement for a "Comprehensive", where candidates have to present themselves approximately half-way through their studies for a rigorous oral examination in front of a panel of professors. This encourages both a breadth and depth of knowledge in the forest sciences. Once over this hurdle, candidates are able to focus on their

research project and preparation of their thesis. While the whole process might appear daunting, it is very common for Canadian postgraduate students to complete their studies with a solid list of research papers already published or in press. Undeniably, this gives them a significant advantage in the international job market!



Figure 2. Future forestry leaders – Toronto MFC students during their annual Fall Field Camp at Haliburton Forest, Ontario. Research and field-work are key elements of all graduate programmes in Canada. (Photo credit: Canadian Institute of Forestry)

### **Postgraduate Funding**

Checking the details of funding packages and application deadlines will be priorities for anyone planning to study in Canada. It is also important to make early contact with a prospective supervisor.

Postgraduate studies in Canada are typically longer than in the UK. However, the majority of students are supported by scholarships, graduate fellowships or employed by their supervisor as research assistants. Another potential source of funds is a Teaching Assistantship (TA). This role is designed to support a professor in undergraduate teaching, lab demonstrating and marking papers; all invaluable experience for anyone considering an academic career.

Admission to forestry courses at the graduate level usually goes hand-in-hand with a minimum package of guaranteed funding. In recent years, a number of very prestigious awards have been made available, with the most generous scholarship being the Future Forests Fellowship at UBC, valued at \$60,000 CAD per year for a four year programme of study. Of course, the majority of scholarships are not so well-resourced, but will at least cover fees and cost of living. With a TA position and additional support from your supervisor, most postgraduates enjoy a reasonable standard of living and have enough money for an annual visit home!

The best known funding source from the UK is the Commonwealth Scholarship Programme; these are highly competitive and open to candidates across all fields of study.

## **Final Thoughts**

Regardless of the school, applications for study can be competitive and require evidence of a commitment to excellence. This should not be a deterrent to the dedicated and enthusiastic student. Study at a Canadian forestry school includes not only a rich academic experience, but all the excitement of meeting new people and living in a new culture. Depending on the region you choose, you will have plenty of opportunity to develop your spirit of adventure, and hone skills in mountaineering, sailing or canoeing. You will have the chance to experience a full range of winter sports, especially skiing, skating, curling and “hockey”. Wherever you go, you will never be far from Canada’s truly awesome lakes, woods and trees.

## **Useful Website**

- Canadian Institute of Forestry – [www.cif-ifc.org](http://www.cif-ifc.org)
- Canadian Forests – [www.canadian-forests.com](http://www.canadian-forests.com)
- Association of University Forestry Schools of Canada (AUFSC) – [www.aefuc-aufsc.ca](http://www.aefuc-aufsc.ca)

Appendix: Forestry Schools and Academic Programmes in Canada<sup>2</sup>

School	Founded	Degrees offered	Website
<b>English Language Programmes</b>			
Faculty of Forestry, University of Toronto, Toronto, Ontario	1907	BSc Forest Conservation Sciences <sup>3</sup> BA Forest Conservation Arts <sup>3</sup> BSc Forest Biomaterials Science <sup>3</sup> MFC – Master of Forest Conservation MScF, PhD	<a href="http://www.forestry.utoronto.ca">www.forestry.utoronto.ca</a>
Faculty of Forestry and Environmental Management, University of New Brunswick (UNB), Fredericton, NB	1908	BScF – Forest Ecosystem Management BScENR – Environment and Natural Resources MF – Master of Forestry MFE – Master of Forest Engineering MEM – Master of Environmental Management MScF, MScFE, PhD	<a href="http://www.unb.ca/fredericton/forestry">www.unb.ca/fredericton/forestry</a>
Alberta School of Forest Science and Management, University of Alberta, Edmonton, Alberta	1915	BSc Forestry BSc Forest Business Management BSc Environmental and Conservation Sciences BSc Environmental and Conservation Sciences/BA Native Studies MSc, PhD	<a href="http://www.forestry.ualberta.ca">www.forestry.ualberta.ca</a>
Faculty of Forestry, University of British Columbia (UBC), Vancouver, BC	1918	BSc (Natural Resources Conservation) BSc (Forest Sciences) BSc (Wood Products Processing) BSF (Forest Resources Management) BSF (Forest Operations) MSFM – Master of Sustainable Forest Management MIF – Master of International Forestry MASc - Master of Applied Science MF, MSc, PhD	<a href="http://www.forestry.ubc.ca">www.forestry.ubc.ca</a>
Faculty of Natural Resources Management, Lakehead University, Thunder Bay, Ontario	1965	HBScF (Honours BSc Forestry) HBEM (Honours Bachelor of Environmental Management) MScF PhD (Forest Sciences)	<a href="http://nrm.lakeheadu.ca">http://nrm.lakeheadu.ca</a>



## Appendix: Forestry Schools and Academic Programmes in Canada (continued)

School	Founded	Degrees offered	Website
Ecosystem Science and Management Program, University of Northern British Columbia (UNBC), Prince George, BC	1994	BSc Natural Resources Management (Major in Forest Ecology and Management) BSc (Hons) Forest Ecology and Management MSc, PhD	<a href="http://www.unbc.ca/forestry">www.unbc.ca/forestry</a>
<b>French Language Programmes</b>			
Faculté de Foresterie, de Géographie et de Géomatique, l'Université Laval, Québec, PQ	1910	Baccalauréat (BAC) Forest Environment and Management Baccalauréat (BAC) Forest Operations (Co-op) Baccalauréat (BAC) Timber Engineering (Co-op) Baccalauréat (BAC) Natural Resources and Management MSc Forest Science <sup>4</sup> MSc Wood Science <sup>4</sup> MSc Agroforestry <sup>4</sup> PhD in Forest Science PhD in Wood Science	<a href="http://www.ffgg.ulaval.ca">www.ffgg.ulaval.ca</a>
Faculté de Foresterie, l'Université de Moncton, Edmundston, NB	1985	BScF – Forest Science BScF – Forest Science (Co-op) MScF – Forest Science	<a href="http://www.umoncton.ca/umce-foresterie/">www.umoncton.ca/umce-foresterie/</a>

**Notes:**<sup>2</sup> Information collated October 2012.<sup>3</sup> University of Toronto degrees offered by the Faculty of Arts and Science, supported by the Faculty of Forestry.<sup>4</sup> l'Université Laval degrees with technical report or thesis options.

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