



Arbutus Grove Nursery



University
of Victoria



CENTRE for
FOREST BIOLOGY

Arbutus Grove Nursery and the Centre for Forest Biology offer a Combined Work Experience and Undergraduate Research Project

Arbutus Grove Nursery offers a summer student position that entails a diverse range of seedling growing technician duties (see below for details). The summer work will include setting up an undergraduate research project aimed to better understand the effect of nursery practises on fall root growth physiology of conifer seedlings. This research project will lead to a supervised research project course at UVic, such as an Honours Project (BIOL 499A/B) or a Directed Studies in Forest Biology (BIOL490J). The research project at UVic will be co-supervised by Drs. Jürgen Ehling and Barbara Hawkins.

Forest Seedling Growing Technician

(May to Aug. 2023, 40 hours per week, \$20,99 per hour)

Role Summary: This summer student position at Arbutus Grove Nursery (AGN) is a hands-on role in our production nursery producing tree seedlings for reforestation. Reporting to the AGN Growing Team and Crop Manager, you will primarily perform the role of an entry level Growing Technician where you gain an understanding of the seedling growing and production process. Approximately 10% of your time will be involved in a seedling research project to be continued as a Directed Study or Honours project in the fall. This position is also suitable for a UVic Co-op placement.

Duties and Responsibilities: The Growing Technician role varies throughout the year and may include:

- Assist in carrying out the nursery irrigation and fertigation plan
 - Monitor crop water requirements through block weights, EC/pH monitoring, etc.
 - Set the irrigation via the Argus computer system, conduct sprinkler checks pre-irrigation
- Monitor crop environmental conditions
 - Via Argus computer system and physical checks
- Carry out data and sample collection
 - Measure and assess seedlings, and collect foliar and water samples
- Integrated Pest Management (IPM) program
 - Monitor, document and report insect and disease issues and assist in IPM implementation

- Monitor and carry out specific procedures of a seedling research project
- Assist in various work projects such as cuttings, thinning and weeding as required

Key Learning Objectives:

- Learn basic seedling growth and physiology, and seedling production systems
- Recommend irrigation needs and carry out irrigation/fertigation via the Argus computer system
- Become competent in collecting, updating, and storing crop data and analyzing for trends
- Become familiar with potential insects and diseases and how to monitor
- Develop strong teamwork and communication skills

Requirements:

- No experience required, but willingness to learn and take training as required
- Current enrollment in undergraduate biology/forest biology program, entering 4th year in the fall preferred
- Team player and good communicator
- Experience with Microsoft Office Products (Word, Excel, Access)
- Be available for work 7:30 am - 4:00pm Mon-Fri and every 4th weekend, early May to late August, in North Saanich (close to the airport)

Undergraduate Research Project

(Starting in Sep. 2024, for credit towards BIOL490J or BIOL499A/B)

Project Summary:

Root Growth of Fall Plant Forest Seedlings in Relation to Growth Hardening Regimes

With the experience of more severe droughts, foresters are looking for alternative dates to plant tree seedlings. Fall planting on the B.C. coast has been ongoing for decades, but the relationship between fall root growth and previous nursery culture has not been studied in any detail. Seedling root growth of fall planted coastal Douglas-fir has been observed to decrease as the fall progresses, even if seedlings are grown under favourable conditions. As rapid root egress tying the seedling into the surrounding soil is considered vital for successful establishment, planting seedlings with maximum root growth potential should be the aim of any reforestation program.

To investigate the relationship between root growth and the seedling hardening regime, coastal Douglas-fir seedlings grown under various regimes over the summer (manipulating daylength, water availability, and / or nutrient regimes) will be grown in a growth chamber under favourable conditions beginning starting in September. Seedlings will be assessed for root potential and plant physiological parameters such as frost hardiness and dormancy. Besides regular course requirements, there is the opportunity for the student to be a co-author on a manuscript targeted to a journal such as *Tree Planter's Notes* or the *UVic Arbutus Review*.

Key Learning Outcomes: At the end of the course, you will have learned to:

- Plan and complete independent academic research
- Perform literature reviews and generate an annotated bibliography
- Become more proficient in report / thesis writing
- Present progress updates in regular meetings
- Work supervised, but independently in an academic research setting

- Work towards publishing research results

Requirements:

- Must be enrolled in a Biology BSc program at the University of Victoria; partaking in the Concentration for Forest Biology is an asset but not required.
- Must meet the requirements of and enroll in either BIOL 490J (Directed Studies in Forest Biology) in the fall 2024 or in BIOL499A/B (Honours Thesis I and II) in fall/spring 2024/25.

More information

- We accept applications until the end of February 2024 or until the position is filled.
- For information on the summer position at Arbutus Grove Nursery contact Steven Kiiskila at skiiskila@arbutusgrove.com
- Wage for the growing technician position is \$20.99 – 40 hours per week.
- For information on the Directed Studies or Honours Program research component, contact Jürgen Ehltting je@uvic.ca or Barbara Hawkins at bhawkins@uvic.ca, respectively.
- Student are encouraged to apply for undergraduate research experience awards such as the JCURA award.