UNIVERSITY OF THE FRASER VALLEY

ORIGINAL COURSE IMPLEMENTATION DATE: September 2005
REVISED COURSE IMPLEMENTATION DATE: September 2018
COURSE TO BE REVIEWED: (six years after UEC approval) March 2024
Course outline form version: 09/15/14

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: BIO 307	**Number of Credits:** 4 Course credit policy (105)
Course Full Title: Anatomy and Diversity of Plants **Course Short Title (if title exceeds 30 characters):** Anatomy & Diversity of Plants	
Faculty: Faculty of Science	**Department (or program if no department):** Biology

Calendar Description:

Focuses on the anatomy and life cycles of plants. Indigenous knowledge, evolutionary relationships, advances in forensics, and medicinal uses of plants will be explored. Laboratory exercises will focus on local flora.

Note: Field trips outside of class time may be required.

Prerequisites (or NONE):	BIO 210.
Corequisites (if applicable, or NONE):	
Pre/corequisites (if applicable, or NONE):	

Equivalent Courses (cannot be taken for additional credit)

Former course code/number:

Cross-listed with:

Equivalent course(s):

Note: Equivalent course(s) should be included in the calendar description by way of a note that students with credit for the equivalent course(s) cannot take this course for further credit.

Transfer Credit

Transfer credit already exists: ☐ Yes ☒ No

Transfer credit requested (OReg to submit to BCCAT):
☒ Yes ☐ No (if yes, fill in transfer credit form)

Resubmit revised outline for articulation: ☐ Yes ☒ No

To find out how this course transfers, see **bctransferguide.ca**.

Total Hours: 90

Typical structure of instructional hours:

Lecture hours	45
Seminars/tutorials/workshops	
Laboratory hours	45
Field experience hours	
Experiential (practicum, internship, etc.)	
Online learning activities	
Other contact hours:	
Total	**90**

Special Topics

Will the course be offered with different topics?
☐ Yes ☒ No

If yes, different lettered courses may be taken for credit:
☐ No ☐ Yes, repeat(s) ☐ Yes, no limit

Note: The specific topic will be recorded when offered.

Maximum enrolment (for information only): 24

Expected frequency of course offerings (every semester, annually, every other year, etc.): annually

Department / Program Head or Director: Allan Arndt	**Date approved:**	September 2017
Faculty Council approval	**Date approved:**	September 8, 2017
Campus-Wide Consultation (CWC)	**Date of posting:**	n/a
Dean/Associate VP: Lucy Lee	**Date approved:**	September 8, 2017
Undergraduate Education Committee (UEC) approval	**Date of meeting:**	March 23, 2018

Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Analyze phylogenetic traits of plants.
2. Interpret morphological and anatomical data using current digital qualitative and analytical methodologies.
3. Describe the morphological and anatomical advances in photosynthetic organisms.
4. Integrate a cultural and indigenous perspective on local flora.

Prior Learning Assessment and Recognition (PLAR)

☒ Yes ☐ No, PLAR cannot be awarded for this course because

Typical Instructional Methods (guest lecturers, presentations, online instruction, field trips, etc.; may vary at department's discretion)

The course will consist of a series of lectures, demonstrations, discussions, and audio-visual presentations which provides an overview of the major segments of the course. Students will have a chance for practical application of their skills in laboratory.

Grading system: Letter Grades: ☒ Credit/No Credit: ☐ Labs to be scheduled independent of lecture hours: Yes ☒ No ☐

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Text(s) and Resource Materials (if more space is required, download Supplemental Texts and Resource Materials form)

	Author (surname, initials)	Title (article, book, journal, etc.)	Current ed.	Publisher	Year
1.	Levetin/McMahon	Plants and Society	☒	McGraw-Hill	2015

Typical Evaluation Methods and Weighting

Final exam:	35%	Assignments:	%	Midterm exam:	20%	Practicum:	%
Laboratory Reports:	25%	Laboratory Exam:	10%	Histology Project:	10%	Total:	100%

Details (if necessary): Reports include discussions of indigenous knowledge.

Typical Course Content and Topics

Lecture topics:

Generalized plant structure
The plant cell, meristematic tissue
Primary meristems, primary plant body
Dermal and ground tissue systems
Vascular tissue system, tissue types, and function (water potential)
Leaf morphology and anatomy
Root morphology and anatomy
Primary growth stem anatomy
Vascular cambium and secondary growth
Plant anatomy and systematics
Early vascular plants, morphology, and reproduction
Whisk ferns, clubmosses, horsetails
Eusporangiate ferns
Leptosporangiate ferns
Cycads, ginkgo, gnetophytes morphology, and reproduction
Conifer morphology
Conifer reproduction
Flowering plants (dicots and monocots)
Floral morphology
Pollination biology
Fruits, types, and dispersal
Plant morphology and anatomy in forensic science
Edible plants and medicinal plants

Laboratory topics and experiments:

Lab #1 Basic plant anatomy and histology - staining and preparing slides
Lab #2 Tissue types - parenchyma, xylem, phloem, schlerenchyma
Lab #3 Tissue function - water potential of seeds, root and shoots
Lab #4 Stem, leaf and root anatomy
Lab #5 Reproductive structures
Lab #6 Psilophyta
Lab #7 Bryophyta
Lab #8 Pterophyta
Lab #9 Coniferaphyta
Lab #10 Anthophyta monocots
Lab #11 Dicots