



BIOL 210 / PLSC 221

INTRODUCTION TO NORTHERN BOTANY

In Fall 2017, BIOL 210 Introduction to Northern Botany is being offered at Yukon College concurrent with the University of Alberta's PLSC 221 Introduction to Plant Science. All students registered in BIOL 210 or PLSC 221 must adhere to requirements outlined in this course syllabus. University of Alberta students must also be aware of, and adhere to, the University's Code of Student Behaviour, referenced in the outline; Yukon College students must be aware of, and adhere to, Yukon College's Academic Regulations, also referenced in the outline.

INSTRUCTOR: KRYSTAL ISBISTER

OFFICE HOURS: By appointment

TELEPHONE/E-MAIL: (867)334-4890/ kisbister@yukoncollege.yk.ca

DAYS & TIMES: Lectures: Mondays & Wednesdays 1-2:30 pm, A2402

 Lab: Tuesdays 2:30-5:30 pm, Biology lab (A2805)

COURSE DESCRIPTION:

This course provides an introduction to plant biology, with an emphasis on the taxonomy of common Boreal and Arctic plant families found in the Yukon. Students will learn tools and techniques used for the identification of plants, including the use of plant keys. Students will become familiar with the anatomy and general biological functions of vascular plants. Lectures will also cover topics relevant to the evolution, systematics, ecology, biogeography, and human use of northern plant species. Hands-on lab activities will provide students with opportunities to dissect plant specimens and learn to recognize important family and species characteristics. Additional lab activities will focus on preparation and mounting of herbarium specimens and medicinal and food uses of wild plants.

STUDENT LEARNING OUTCOMES AND COMPETENCIES:

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

1. Understand the history of plant taxonomy and the structure of the scientific naming system for plants.
2. Identify anatomical structures in plants and their associated functions.
3. Use dichotomous keys to identify unknown plant species.
4. Rapidly identify the plant family of unknown specimens and identify several common

Yukon species by sight.

5. Describe human uses of northern plants for tools, food, or medicine.
6. Recognize typical Yukon plant communities and describe some key adaptations and factors shaping northern plant communities.

COURSE FORMAT (3-0-3):

The course will consist of weekly lectures (3 hours) and labs (3 hours). Lectures will introduce the central concepts and background for the study of vascular plant anatomy and systematics. Laboratory exercises will focus on plant identification with preserved and frozen plant specimens. The labs will allow students to develop expertise in the use of dichotomous keys, learn the diagnostic features of a range of plant families, and learn to recognize several common northern plant species by sight.

COURSE PREREQUISITES AND/OR CO-REQUISITES:

For students taking the course as BIOL 210: Introductory Biology (100 level) or permission of instructor.

For students taking the course as PLSC 221: Registration in Yukon College/University of Alberta BSc in Environmental and Conservation Sciences degree program, and U of A BIOL 108, YC BIOL 101/102, or an equivalent 100-level Introductory Biology course. U of A students are responsible for ensuring they have the necessary pre-requisites and co-requisites. Students may be dropped before or after the course drop date if pre-requisites and co-requisites are not met. If the instructor agrees to waive a pre-requisite or co-requisite, students must fill out a form in the office of Student Services and get a signature from the instructor

REQUIRED TEXTBOOKS/MATERIALS:

Stern's Introductory Plant Biology, by James E. Bidlack & Shelley H. Jansky. 2014 (13th ed.), McGraw-Hill. (This textbook will be used to provide background and supplementary reading.)

Flora of the Yukon Territory, by W. J. Cody. 1996 (1st ed.) or 2000 (2nd ed.), NRC Research Press. (This text will be used extensively during lab sections. There will be 1-2 lab copies available for general use.)

COURSE REQUIREMENTS/EVALUATION:

Specimen Preservation (5%)

Students are required to mount, identify and label five pressed plant specimens provided by the instructor or from a personal collection. The collection will then be deposited into the YG or YRC herbaria.

Written Assignment (15%)

Students are required to complete a short (5-7 pages of content) literature review on a northern botany topic from a list provided or students may choose their own topic with permission of the instructor.

Poster Presentation (15%)

Students are required to design two posters on the human uses of two Yukon plants, based on out-of-class research. Posters will be orally described/presented to the class during the last lab.

Tests

Lab quizzes (15%): There will be two laboratory quizzes during the course that will test students in the identification of plant families, specimens and anatomical structures. Students will receive a mark of zero for a missed lab quiz, unless their absence was pre-arranged and approved by the instructor.

Mid-term (15%) and Final (35%) exams: These will cover topics introduced in lectures, readings and labs, including general features of plant families. Review questions will be distributed in the week prior to each exam. There will be a lecture and lab review session prior to the final exam.

Students taking the course as PLSC 221 must ensure that they are familiar with the University of Alberta's Academic Regulations governing missed and deferred final exams:

- a. A student who has missed a final exam because of incapacitating illness, severe domestic affliction or other compelling reason (including religious conviction) may apply for a deferred exam.
- b. To apply for a deferred exam, the student must complete a Faculty of ALES *Deferred Final Examination Request Form*, available for download from <http://www.ales.ualberta.ca/CurrentStudents/FormsPrograms.aspx>, as well as supporting documentation pertaining to the absence to their Faculty office. The request form and supporting documentation must be presented within two working days following the scheduled date of the exam missed, or as soon as the student is able, having regard to the circumstances underlying the absence.
 - i. Where the cause is incapacitating illness, the student must provide a University of Alberta *Medical Statement Form*, available for download from the Online Services section of www.registrarsoffice.ualberta.ca OR a *Statutory Declaration* form, available from a Commissioner of Oaths at the U of A Office of the Registrar.
 - ii. In other cases, including domestic affliction or religious conviction, adequate documentation must be provided to substantiate the reason for an absence. In the case of the death of a family member, the student should provide, if possible, a copy of the death certificate, or supplementary documentation such as an obituary or funeral program.
- c. A deferred exam will not be approved if a student
 - i. has not been in regular attendance where attendance and/or participation are required, and/or,
 - ii. excluding the final exam, has completed less than half of the assigned work.
- d. Students with two or more deferred exams outstanding from a previous term may be required to reduce the number of courses in which they are registered.
- e. The student must seek the approval of the dean or designate of the student's Faculty on the application for a deferred final exam. If approved, students should refer to [Academic Regulations Section 23.5.6](#) for details on writing deferred exams.
- f. In the case of an approved application for deferred final exam, the student's Faculty will

inform the Department responsible for the course of the approved deferred exam. The Department will then notify the instructor.

Evaluation

The course grade will be determined as follows:

Specimen Preservation 5%	<i>due Dec. 4</i>
Written Assignment 15%	<i>Outline due Oct. 11, final paper due Nov. 20</i>
Poster Presentation 15%	<i>due Dec. 7</i>
Lab quizzes (5%, 10%) 15%	<i>Q1: Oct. 24; Q2: Nov.28</i>
Mid-term exam 15%	<i>Oct. 18</i>
Final exam 35%	<i>TBD</i>

Assignment of grades

The total numerical score will be converted to a grade on Yukon College's letter grading system (for students enrolled in BIOL 210) or on the University of Alberta's letter grading system (for students enrolled in PLSC 221).

YUKON COLLEGE ACADEMIC STANDARDS AND REGULATIONS:

Yukon College students are expected to be familiar with academic standards and regulations as outlined in Yukon College's Academic Regulations, at http://www.yukoncollege.yk.ca/downloads/Academic_Regulations_2004.pdf.

Plagiarism

Plagiarism involves representing the words of someone else as your own, without citing the source from which the material is taken. If the words of others are directly quoted or paraphrased, they must be documented according to standard procedures. The resubmission of a paper for which you have previously received credit is considered a form of plagiarism. Plagiarism is academic dishonesty, a serious academic offence, and will result in you receiving a mark of zero (F) on the assignment or the course. In certain cases, it can also result in dismissal from the College. Do not underestimate the impact such a situation will have on your reputation.

UNIVERSITY OF ALBERTA ACADEMIC INTEGRITY AND CODE OF STUDENT BEHAVIOUR:

Plagiarism and Cheating

The University of Alberta is committed to the highest standards of academic integrity and honesty. Students must be familiar with standards regarding academic honesty and uphold policies of the University. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students at the University of Alberta are subject to the Code of Student Behaviour, as outlined in the 2013/2014 University Calendar. Students should familiarize themselves with the current version of the code and ensure they do not participate in any inappropriate behaviour as defined by it. Key components of the code specific to this course include the following statements:

- Plagiarism: no student shall submit the words, ideas, images or data of another person as the student's own in any academic writing, essay, thesis, project, assignment, presentation or poster in a course or program of study.
- Cheating: no student shall represent another's substantial editorial or compositional assistance on an assignment as the student's own work.

The most recent version of the Code of Student Behaviour can be found on line on the University of Alberta web site.

Students should speak with the course instructor about any questions or concerns about the code. Students should be particularly aware of the code as it pertains to internet and library research, use of previous class notes, reclamation plans of former students and interviews or discussions with others.

STUDENTS WITH DISABILITIES OR CHRONIC CONDITIONS:

Reasonable accommodations are available for students with a documented disability or chronic condition. It is the student's responsibility to seek these accommodations. If a student has a disability or chronic condition and may need accommodation to fully participate in this class, he/she should contact the Learning Assistance Centre (LAC) at (867) 668-8785 or lassist@yukoncollege.yk.ca.

EQUIVALENCY/TRANSFERABILITY:

BIOL 210 transfers as:

UBC Biol 2nd yr. (3)

SFU Bisc 2xx (3) & Bisc 337 (0)

UVIC Biol 2xx (1.5)

UAF Biol F2NLX (3) Elective (with lab). Natural Sciences core substitute Equates to Biol 367.

UR Equates to Biol 367

UAS Biol S2 Elec. (3)

For current information on course transferability see <http://www.bctransferguide.ca>

TENTATIVE SCHEDULE:

Dates	Lecture Topics	Tuesday Lab Topic
Sept 6	Introduction to the Plant kingdom, plant nomenclature	
Sept 11,13	Basic plant anatomy and terminology	Field trip behind the college
Sept 18, 20	TBD	TBD
Sept 25, 27	Ferns & fern allies: anatomy & life cycles; Intro to dichotomous keys	Intro to microscopes; Woody plants & wood anatomy. Gymnosperms: Pinaceae, Cupressaceae
Oct. 2, 4	Gymnosperm anatomy & life cycles; wood; Angiosperm anatomy & life cycles	Wood part 2- Angiosperms: Salicaceae, Betulaceae, other woody plants
Oct 11	Written assignment outline due Angiosperm anatomy & life cycles (continued)	7 Common Families: Lamiaceae, Apiaceae, Brassicaceae, Fabaceae, Liliaceae, Rosaceae, Asteraceae
Oct 16, 18	Introduction to monocots Midterm Oct. 18	Forest Understory Lab: Ericaceae, Ranunculaceae, Orobanchaceae
Oct 23, 25	Pollination and seed biology	[Quiz] Northern Grasslands Lab: Poaceae, Caryophyllaceae, Plantaginaceae
Oct 30, Nov 1	History of plant classification/taxonomy	Subalpine Communities Lab: Polygonaceae, Onagraceae, Lycopodiaceae
Nov. 6, 8	Classification of plant communities and their role in ecological landscape classification	Alpine Tundra Lab: Ferns, Papaveraceae, Saxifragaceae, Primulaceae
Nov 15	Plant adaptations to extreme environments.	Riparian, Marsh and Wetland Areas Lab: Horsetails, Cyperaceae, Juncaceae, Orchidaceae
Nov 20, 22	Written Assignment Due Nov. 20 Yukon biogeography and biodiversity	Review of plant families
Nov 27, 29	Yukon plant ecology; climate change	[Quiz] Rare plants and invasive species
Dec 4, 6, 7	Specimen Preservation Due Dec. 4 Boreal disturbance dynamics and ecological restoration in Yukon Review	Poster due Traditional and medicinal uses of northern plants: poster session and botanical potluck
Final Exam - TBD		