PLSC 221 / BIOL 210

Introduction to Plant Science / Introduction to Northern Botany

In Fall 2020, BIOL210 *Introduction to Northern Botany*, is being offered at Yukon University concurrent with the University of Alberta's PLSC 221, *Introduction to Plant Science*, as part of the Northern Environmental and Conservation Sciences, B.Sc. Program. 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 University students must be aware of, and adhere to, Yukon University's Academic Regulations, also referenced in the outline.

INSTRUCTOR: Krystal Isbister

Sessional Instructor, School of Science

OFFICE HOURS: During lab time (after activities complete) or by appointment

OFFICE LOCATION: YukonU Research Centre Lab

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

FAX: n/a

CLASS DAYS & TIMES: Lectures: Online, asynchronous
Labs: Wednesday 1:00 pm – 3:55 pm*
*will be recorded; attendance is recommended but optional

CLASS LOCATION: Lectures: Available in Moodle
Labs: Outside and Online (Zoom)

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 this course students will be able to do the following:

- Understand the history of plant taxonomy and the structure of the scientific naming system for plants.
- Identify anatomical structures in plants and their associated functions.
- Use dichotomous keys to identify unknown plant species.
- Rapidly identify the plant family of unknown specimens and identify several common Yukon species by sight.
- Describe human uses of northern plants for tools, food, or medicine.
- 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 pre-recorded lectures (3 hours) and outdoors/online 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 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 University/University of Alberta B.Sc. 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:

Required:
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

Plant Identification Terminology - An Illustrated Glossary, by James G. Harris and Melinda Woolf Harris. 1994 (1st ed.) or 2001 (2nd ed.). Springer Lake Publishing

A 10-30x hand lens or other magnification device for viewing small features on plant specimens is required. In Whitehorse, hand lenses are available at Integraphics. I'm particularly fond of this handheld magnifier that has both a light and measurements: Donegan V980-10 Flashlight Magnifier (on Amazon). There are many options out there that will work and students may choose what suits their needs best.

Recommended:
Various field guides – whatever you usually have with you in the field. Mac's Fireweed caries several and Wellread Books often has treasures, especially because many good guides are out of print!

If you have particular interest in the plant biology portion of the course and would like supplementary reading, we follow this textbook; all the information required for the exam will be discussed in class.
Stern's Introductory Plant Biology, by James E. Bidlack & Shelley H. Jansky. 2014 (13th ed.), McGraw-Hill.

COURSE WEBSITE

All class materials will be available on the BIOL 210/PLSC 221 class site on YukonU's Moodle system https://moodle.yukonu.ca/login/index.php. This includes course announcements, lectures, assignments, lab recordings, lab quizzes and the mid-term exam. Students must ensure they have a valid YukonU student computing account. Information on setting up is available at: https://www.yukonu.ca/student-life/technical-resources.

YUKON UNIVERSITY ACADEMIC STANDARDS AND REGULATIONS

Information on academic standing and student rights and responsibilities can be found in the current Academic Regulations that are posted on the Student Services/ Admissions & Registration web page.

Plagiarism

Plagiarism is a serious academic offence. Plagiarism occurs when a student submits work for credit that includes the words, ideas, or data of others, without citing the source from which the material is taken. Plagiarism can be the deliberate use of a whole piece of work, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material according to an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Students may use sources which are public domain or licensed under Creative Commons; however, academic documentation standards must still be followed. Except with explicit permission of the instructor, resubmitting work which has previously received credit is also considered plagiarism. Students who plagiarize material for assignments will receive a mark of zero (F) on the assignment and may fail the course. Plagiarism may also result in dismissal from a program of study or the University.

UNIVERSITY OF ALBERTA ACADEMIC INTEGRITY AND CODE OF STUDENT BEHAVIOUR

Academic Integrity

The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (online at www.governance.ualberta.ca) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

Code of Student Behaviour

All students at the University of Alberta are subject to the Code of Student Behaviour, as outlined at: http://www.governance.ualberta.ca/en/CodesofConductandResidenceCommunityStandards/CodeofStudentBehaviour.aspx Please familiarize yourself with it and ensure that you do not participate in any inappropriate behavior as defined by the Code. Key components of the code include the following statements.

30.3.2(1) 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.

30.3.2(2) c. No Student shall represent another's substantial editorial or compositional assistance on an assignment as the Student's own work.

PROFESSIONALISM AND CLASSROOM RULES OF ENGAGEMENT

Students are encouraged to connect with each other in a safe manner to discuss course material. Questions for the instructor are encouraged – either on the Moodle site or via email (kisbister@yukonu.ca). Student comments and feedback on course material and delivery are welcome provided they are expressed in a courteous and respectful manner.

COURSE REQUIREMENTS/EVALUATION:

Attendance and Participation

Students are expected to go through the lecture(s) and readings each week, reflect on the material and complete the weekly assignment. Labs will be recorded live and all students are welcome to attend via Zoom, but attendance is not required provided students go through the recording afterwards.

Assignments

Weekly Assignments (20%):

There will be an assignment each week to synthesize or expand on the course material and post onto the Moodle site. The format is very open; students are encouraged to use their creativity and unique skills. For example, a synthesis of the material could be a quiz, an animation of a key concept or creation of a kid's activity. Students are expected to comment on other students' contributions posted in Moodle. All material produced during

these assignments will be considered course material and may appear on exams.

Ethnobotany Assignment (15%):

Students are required to complete a short (2-5 pages of content) paper based on out-of-class research on human uses of a northern plant. The use of multiple sources of evidence – local, traditional and scientific – is encouraged. In addition, students are required to design a scientific poster OR other type of visual representation based on his/her/their paper. Visual presentations will be orally described/informally presented during the last lab.

Exams

Lab quizzes (10%):

There will be one out-of-class assignment and four online 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.

Lab final exam (15%):

This exam will cover botanical terminology, use of dichotomous keys, plant morphology and identification of plant specimens to family or species. The exam will be held in the Biology Lab (A2805) on Wednesday, November 25th between 1-4 pm.

Mid-term (15%) *and Final* (25%) *exams*:

These will cover topics introduced in lectures, readings, weekly assignments and some lab material. Students will not be expected to identify specimens in the written exams; general knowledge of plant family characteristics, botanical terminology and plant communities will be covered. The mid-term will be online and open book. There will be a lecture and lab review session prior to the final exams.

Missed Exam Policy

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.

Due Dates and Late Assignments

Assignments are due at 11:55 pm on the due date unless otherwise specified. Late assignments will be penalized 5% for every 24 hours (or part thereof) that it is late (e.g. an assignment received 4.5 days late would be docked 25%). Assignments are expected to be submitted electronically on Moodle unless otherwise specified. Assignments are considered handed in when uploaded to Moodle or when physically received by the instructor (if applicable). Late assignments cannot be submitted after marked assignments are returned to other students.

Requests for extensions must be made prior to the deadline and will be evaluated on a case-by-case basis. Accommodations will be made for deadline/exam conflicts with other

courses if the instructor is given at least 10 day's notice of the conflict.

Evaluation

The course grade will be determined as follows for both BIOL 210 and PLSC 221 students:

	Percent
Weekly Assignments (10 x 2%)	20%
Ethnobotany Assignment	15%
Lab Quizzes (5 x 2%)	10%
Lab Exam Nov. 25th @1-4pm, A2805	15%
Mid-Term Exam Oct. 14th @2pm, online	15%
Final Exam: Dec. 10th@9am, location TBD	25%
Total	100%

Assignment of grades

The total numerical score will be converted to a grade on Yukon University's letter grading system.

Grade	Grade Point Value	% Equivalent
A+	4.0	95-100
A	4.0	86-94
A-	3.7	80-85
B+	3.5	75-79
B	3.0	70-74
B-	2.7	65-69
C+	2.5	62-64
C	2.0	58-61
C-	1.7	55-57
D	1.0	50-54
F	0.0	Under 50%

ELECTRONIC DEVICES:

- No electronic devices, including calculators, permitted during in-person exams
- Electronic devices are permitted during online exams as these are open book

RECORDING OF LECTURES, LABS, ETC.:

Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the content author(s).

Please note that labs will be recorded using web conferencing software, and links to recordings will be posted on the class website.

YUKON FIRST NATIONS CORE COMPETENCY

Yukon University recognizes that a greater understanding and awareness of Yukon First Nations history, culture and journey towards self-determination will help to build positive relationships among all Yukon citizens. As a result, to graduate from ANY Yukon University program, you will be required to achieve core competency in knowledge of Yukon First Nations. For details, please see www.yukonu.ca/yfnccr.

ACADEMIC ACCOMMODATION

Reasonable accommodations are available for students requiring an academic accommodation to fully participate in this class. These accommodations are available for students with a documented disability, chronic condition or any other grounds specified in section 8.0 of the Yukon University Academic Regulations (available on the Yukon University website). It is the student's responsibility to seek these accommodations. If a student requires an academic accommodation, they should contact the Learning Assistance Centre (LAC): lac@yukonu.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	Wednesday Lab Topic
Sept 1-3	Introduction to botany; plant nomenclature and the history of plant taxonomy	Intro to botanical terminology Greenbelt near Ayamdigut Campus
Sept 8-10	Basic plant anatomy and morphology;	Yukon Trees (+shrubs) - Pinaceae, Cupressaceae, Salicaceae, Betulaceae Greenbelt near Ayamdigut Campus
Sept 15-17	Non-vascular plants; seedless vascular plants	Botany Bingo – Self-Directed Lab, no class [marked as **Quiz 1**]
Sept 22-24	Intro to dichotomous keys; Gymnosperms	**[Quiz 2]** Seedless vascular plants: Lycopodiaceae, Selaginellaceae, Equisetaceae, Ferns
Sept 29- Oct 1	Angiosperms	6 Common Families: Apiaceae, Brassicaceae, Fabaceae, Liliaceae, Asteraceae, Rosaceae
Oct 6-8	Angiosperms; Pollination and seed biology	**[Quiz 3]** Forest Understory Lab: Ericaceae, Scrophulariaceae, Gentianaceae
Oct 13-15	Plant ecology; Classification of plant communities	**Midterm October 14th @2pm, online**
Oct 20-22	Ecological landscape classification; Yukon biogeography	Subalpine and Alpine Tundra Lab: Rancunculaceae, Saxifragaceae, Polygonaceae
Oct 27-29	Plant adaptations to extreme environments	**[Quiz 4]** Northern Grasslands Lab: Poaceae, Caryophyllaceae, Polemoniaceae
Nov 3-5	Climate Change and Northern Plant Communities	Riparian and Wetland Areas Lab: Cyperaceae, Juncaceae, Orchidaceae
Nov 10-12	Yukon biodiversity: species at risk and invasive species	No Lab
Nov 17-19	Plant Families Review; Guest speaker TBD **Ethnobotany Assignment Due Nov 22**	**[Quiz 5]** Review of plant families
Nov 24-26	Northern ecological restoration	**In Class Lab Exam – Room A2805 (Biology Lab)**
Dec 1-3	Northern agriculture Review	Northern Plant Presentations – location TBD
Final Exam – December 10th @9:00 am – 12:00 pm (Room TBD)		