BIOL 210 / PLSC 221

INTRODUCTION TO NORTHERN BOTANY

In Fall 2019, 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

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DAYS & TIMES: Lectures: Tuesdays & Thursdays 10:30-11:55 am, A2603

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

RECOMMENDED 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 optional 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.)

Various field guides – whatever you would usually have with you in the field

Illustrated glossary – I really like this one, but there are many options
https://books.google.ca/books/about/Plant_Identification_Terminology.html?id=WedlQgAACAAJ&redir_esc=y

COURSE REQUIREMENTS/EVALUATION:

Plant Family Presentation (5%)

Students are required to select and research one plant family, summarizing the defining characteristics for field identification and common genera found in Yukon. Findings will be presented in a 3-5 minute oral presentation during Tuesday's lecture.

Specimen Preservation Assignment (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.

Ethnobotany Written Assignment (10%)

Students are required to complete a short (1-2 pages of content) literature review based on out-of-class research on human uses of a northern plant.

Ethnobotany Poster (10%)

Students are required to design a poster based on his/her written assignment. Posters will be orally described/informally presented at a poster session during the last lab.

Tests

Lab quizzes (10%): There will be one out-of-class assignment and four 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.

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.

Mid-term (15%) and Final (30%) exams: These will cover topics introduced in lectures and readings. Students will not be expected to identify specimens in the written exams; general knowledge of plant family characteristics and plant communities will be covered. 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:

Plant family presentation 5%	*Oct. 8-Nov. 12*
Specimen preservation assignment 5%	*Oct. 29 @ 5:30 pm*
Ethnobotany written assignment 10%	*Nov. 18*
Ethnobotany poster 10%	*Dec. 3 @ 2:30 pm*
Lab quizzes 5 x 2%	*Sept. 23, Oct. 8, Oct. 22, Nov. 5, Nov. 19*
Lab exam (in class) 15%	*Nov. 26*
Mid-term exam 15%	*Oct. 17*
Final exam 30%	*Dec. 12 @ 1 pm*

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 5	Introduction to botany; plant nomenclature; plants + society	No Lab
Sept 10,12	Basic plant anatomy and morphology	Field trip behind the college – intro to botanical terminology
Sept 17, 19	Plant anatomy/morphology; alternation of generations; non-vascular plants	Botany Bingo – Self-Directed Lab, no class [marked as **Quiz 1**]
Sept 24, 26	Ferns & fern allies; Intro to dichotomous keys; Gymnosperms **Select Plant Family by Sept. 26**	Intro to microscopes; Seedless vascular plants: Lycopodiaceae, Selaginellaceae, Equisetaceae, Ferns
Oct. 1, 3	Gymnosperms; Anatomy of Wood	Yukon Trees (+ some shrubs) - Pinaceae, Cupressaceae, Salicaceae, Betulaceae
Oct 8, 10	**Select species for ethnobotany assignment by Oct 10** Angiosperms	**[Quiz 2]** 6 Common Families: Apiaceae, Brassicaceae, Fabaceae, Liliaceae, Asteraceae, Rosaceae
Oct 15, 17	Pollination and seed biology **Midterm Oct. 17**	Forest Understory Lab: Ericaceae, Orobanchaceae/Scrophulariaceae
Oct 22, 24	History of plant classification/taxonomy; Classification of angiosperms	**[Quiz 3]** Northern Grasslands Lab: Poaceae, Caryophyllaceae, Plantaginaceae
Oct 29, 31	Classification of plant communities; ecological landscape classification	Subalpine Communities Lab: Polygonaceae, Onagraceae, Ranunculaceae **Specimen Preservation due at 5:30**
Nov 5, 7	Plant adaptations to extreme environments.	**[Quiz 4]** Alpine Tundra Lab: Papaveraceae, Saxifragaceae, Primulaceae
Nov 12	Yukon biogeography	Riparian and Wetland Areas Lab: Cyperaceae, Juncaceae, Orchidaceae
Nov 19, 21	**Ethnobotany Paper due Nov. 18** Yukon biodiversity	**[Quiz 5]** Review of plant families
Nov 26, 28	Yukon plant ecology; climate change	**In Class Lab Exam**
Dec 3, 5	Northern ecological restoration Review	**Ethnobotany Poster due at 2:30 pm** Human uses of northern plants: poster session
Final Exam – December 12 @1-4 pm in Room A2603		