

**DEPARTMENT OF RENEWABLE RESOURCES**  
**UNIVERSITY OF ALBERTA**  
**Renewable Resources**

**RenR 120 – Introduction to Plant Identification**

**Fall 2016 Syllabus**

**Instructor**

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Office Hours: <b>by appointment (please e-mail me)</b>

**Lectures**      T R 09:30 – 10:50, 2-43 CAB

**Laboratories      Location**

M	1400 - 1750	GSB 769
T	1400 - 1750	GSB 769
W	1400 - 1750	GSB 769
R	1400 - 1750	GSB 769
F	1400 - 1750	GSB 769

TA	Phone number	Office	E-mail
Fran Leishman (Lab coordinator)	(780) 492 6827	4-29 ESB	fran.leishman@ualberta.ca
Jaqueline Dennett (Monday)		705 GSB	dennett@ualberta.ca
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Shauna Stack (Wednesday)		4-52 ESB	sstack@ualberta.ca
Morgane Merlin (Thursday)		4-29 ESB	morgane@ualberta.ca
TBD (Thursday)			
Laureen Echiverri (Friday)		2-21 HEB	echiverr@ualberta.ca
Trevor De Zeeuw (Friday)		4-52 ESB	dezeeuw@ualberta.ca

**Required Texts**

1. \*\*Harris, J.G., and Woolf Harris, M. 2001. Plant identification terminology. Spring Lake Publishing, Spring Lake, UT. 206 p.  
**\*\*Please bring Harris and Harris to lectures, as we will be using this book during lecture time**

2. Moss, E.H., and Packer, J.G. 1983. Flora of Alberta. University of Toronto Press, Toronto. 687 p.

**Recommended Text**

3. Johnson, D., Kershaw, L., MacKinnon, A., and Pojar, A. 1995. Plants of the Western Forest: Alberta, Saskatchewan & Manitoba Boreal and Aspen Parkland. Lone Pine Publishing. 392 p.

**Other Useful Resources and References**

1. Royer, F. and Dickinson R. 2007. Plants of Alberta. Lone Pine Publishing, Edmonton. 527p
2. Kershaw, L., MacKinnon A, and Pojar J. 1998. Plants of the Rocky Mountains. Lone Pine Publishing, Edmonton.
3. Wilkinson, K. 1990. Trees and shrubs of Alberta. Lone Pine Publishing, Edmonton. 191 p.

4. Wilkinson, K. 1999. Wildflowers of Alberta. University of Alberta Press/ Lone Pine Publishing, Edmonton. 364p
5. Walters D.R., Keikl D.J, and Murell Z.E. 2006 (5<sup>th</sup> Edition) Vascular Plant Taxonomy Kendall Hunt Pub. Co. 544p.
6. Braun, E. L. 1964. Deciduous forests of eastern North America. Hafner Publ. Col, New York.
7. Barnes, B. v., D.R. Zak, S.R. Denton, and S.H. Spurr. 1998. Forest Ecology, 4<sup>th</sup> Edition. John Wiley & Sons
8. Fowells, W. A. 1965. Silvics of forest trees of the United States.
9. Harlow, W. M. 1959. Fruit key and twig key to trees and shrubs. General Publishing, Don Mills.
10. Hardin, J. Leopold, D, and White, Fred. 2001. Harlow and Harrar's Textbook of dendrology. 9<sup>th</sup> Edition. McGraw-Hill, Toronto
11. Kimmins, J. P. 2003. Forest ecology (3<sup>rd</sup> edition). Benjamin Cummings, Toronto.
12. Legasy, K., S. LaBelle-Beadman, and Chambers B. 1995. Forest plants of northeastern Ontario. Lone Pine, Edmonton.
13. MacKinnon, A., J. Pojar, and Coupe R. 1992. Plants of northern British Columbia. Lone Pine, Edmonton.
14. Parish, R., R. Coupe, and Lloyd D. 1996. Plants of southern interior British Columbia. Lone Pine, Edmonton.
15. Pojar, J., and MacKinnon A. 1994. Plants of coastal British Columbia. Lone Pine, Edmonton.
16. Rowe, J.S. 1972. Forest regions of Canada. Canadian Forestry Service, Ottawa.
17. Soper, J. H., and Heimburger ML. 1982. Shrubs of Ontario. Royal Ontario Museum, Toronto.
18. Spurr, S. H., and Barnes BV. 1980. Forest ecology. John Wiley & Sons, Toronto.
19. Vitt, DH., JE. Marsh and Bovey RB. 1988. Mosses, lichens & ferns of northwest North America. Lone Pine, Edmonton.

### Some Internet Resources

1. <http://www.cnr.vt.edu/DENDRO/DENDROLOGY/main.htm>
2. [http://www.srs.fs.usda.gov/pubs/gtr/gtr\\_srs062/](http://www.srs.fs.usda.gov/pubs/gtr/gtr_srs062/) (publication on non-native/invasive species)
3. [http://na.fs.fed.us/spfo/pubs/silvics\\_manual/table\\_of\\_contents.htm](http://na.fs.fed.us/spfo/pubs/silvics_manual/table_of_contents.htm)
4. E-Flora BC (<http://www.eflora.bc.ca>)
5. [http://www.edmonton.ca/bylaws\\_licences/Weed\\_Identification\\_Book.pdf](http://www.edmonton.ca/bylaws_licences/Weed_Identification_Book.pdf) (Noxious weeds of Alberta)
6. <https://gobotany.newenglandwild.org/>
7. <http://www.botany.hawaii.edu/faculty/carr/pfamilies.htm>
8. <http://bioimages.vanderbilt.edu/>
9. Some basic plant identification applications available on Google Play or the Apple store include: *Plantifer*, *Virginia Tech Tree ID*, and *Garden Answers Plant Identifier*

### Course Description

An introduction to the biology, the basic terminology, and the taxonomy of major plant families will be presented in the lecture periods. The identification of plant families, the use of keys, and the recognition of trees, shrubs and herbaceous indicator plants are taught and practiced in the laboratory period. Excursions to the field will take place during some laboratory sessions; however most labs will be held indoors.

A shortened version of the lecture notes (module) will be made available on the eClass site before being presented in lecture. Remember, the power point notes used in the lectures are used as a guide to teaching and learning and do not constitute all the information that a student will be expected to learn, **nor** are they a substitute for attending the lecture.

### Objectives

1. To develop skills in the identification and field recognition of trees, shrubs and other forest indicator species using dichotomous identification keys, learning the technical terminology and recognizing such characteristics as overall physiognomy or form, flowers, leaf shape and arrangements, twig, bud and bark characteristics, branching habit, and fruit types.
2. To become familiar with the basic biology of trees, shrubs, and a selection of non-woody plants. General areas discussed will be morphology of vegetative and reproductive parts, fruit types, ecology, indicator species, systematics and taxonomy, winter condition, and a series of lectures on the important native and introduced trees and shrubs of the various forest regions of Canada.
3. To become familiar with some of the basic silvical and ecological characteristics of the most important trees and shrubs of North America (focused on Canada) and to learn about the major forest regions and the species assemblages within North America with a focus on Canada.

### Specific Objectives:

- a. Students should be able to identify and name each plant covered in laboratory, either by flower, fruit, cone, leaf, twig, bark, habit, or any combination of these or other characteristics.
- b. Students should know and be able to list characteristics useful in distinguishing major plant families and genera.
- c. Students should know the scientific and common names of each plant studied in laboratory. Students should be familiar with the basic ecology and range of each species covered in the lab and lecture through the reading materials provided in the required text books.

## Laboratory Sessions

**When a Laboratory section is full (max 22 students) there will be NO SWITCHING of lab sections by a student, unless another person is found who is willing to swap and TAs have been notified one week prior.**

Seven lab quizzes (45% of the final grade) will be used to evaluate student learning during the lab sections; each lab quiz will be separated into two sections which will be administered at the beginning and at the end of select lab sections. Part 1 (24%) of the lab quiz will focus on details about identification and ecology of plants studied during previous lectures and laboratory sessions, while Part 2 (21%) will be keying exercises to identify plant specimens. The quizzes **will be cumulative**. Each student will be expected to identify fresh or preserved specimens, or use picture plates to describe key characteristics of particular species and contrast species, genera or families. Students may also be asked to indicate geographic distributions and habitat requirements of targeted species. Students will also be expected to describe the biology and taxonomy of major plant families learned during lecture and lab sessions.

The worst lab quiz and keying exercise (**combined ONLY from a single day**) will be dropped and does not count towards your final mark. There will be no make-up quizzes or make-up keying exercises; any quiz/exercise missed (for any reason – excused or not) must count towards the dropped. **There will be absolutely no exceptions to this quiz/exercise procedure.**

Each student will be required to make a collection of 30 plants for this course as well as write a short paper about the silvics of an assigned tree or shrub. Details and requirements will be outlined in the laboratories. The plant collection will be worth 15% of the final grade, while the paper will be worth 10% the final grade.

## Grading

### Lab Assignments

Six out of seven quizzes** (total)	24%
Six out of seven keying exercises** (total)	21%
Plant collection	15%
Paper (silvics of a tree or shrub)	10%
Homework assignment	5%
<b>Lab Total</b>	<b>75%</b>

**\*\* The dropped quiz and keying exercise have to be on the same day**

**Final lab exam** **25%**

## DEADLINES and Important DUE DATES

### Lab Assignments

Homework assignment	<b>Week of September 19<sup>th</sup> in lab</b>
Paper (silvics of a tree or shrub)	<b>Week of October 17<sup>th</sup> in lab</b>
Plant collection	<b>Week of Nov 14<sup>th</sup> in lab</b>

### Final exam

Final lab exam (will be scheduled during laboratory and lecture sessions- 1.5 hrs) **Week of December 5<sup>th</sup>**

**Please note:** The Instructors can neither give permission to a student to miss the final exam nor grant a request for a deferred final exam. Students are encouraged to check exam schedules prior to making travel or event plans. The decision to grant a deferred final exam can only be granted by their own Faculty (e.g. ALES students go to 231 GSB to obtain an exam deferral, Science students go to 1-001 CCIS). Acceptable reasons for an

excused absence may include illness or bereavement, and unacceptable reasons include weddings, travel arrangements or being on vacation. The University policy on deferred exams can be found in Section 23.3.2 of the University Calendar. It includes specific instructions on how to obtain a deferral.

## Plagiarism and Cheating

All students at the University of Alberta are subject to the Code of Student Behaviour, as outlined in the 2016/17 Calendar. Please familiarize yourself with it and ensure that you do not participate in any inappropriate behaviour as defined by the Code. The Code of Student Behaviour is also accessible through:

<http://www.governance.ualberta.ca/CodesofConductandResidenceCommunityStandards/CodeofStudentBehaviour.aspx>

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) a** No Student shall in the course of an examination or other similar activity, obtain or attempt to obtain information from another Student or other unauthorized source, give or attempt to give information to another Student, or use, attempt to use or possess for the purposes of use any unauthorized material.

**30.3.2(2) b** No Student shall represent or attempt to represent themselves as another nor shall a Student attempt to have themselves represented by another in the taking of an examination, preparation of a paper or other similar activity. See also misrepresentation in 30.3.6 (4).

**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.

**Speak with the instructor or TAs if you have questions or concerns about the code, particularly as it pertains to assignments, internet and library research, use of previous class notes and interviews or discussions with others.**

## Professionalism and Classroom Rules of Engagement

Meeting deadlines is an important part of becoming a professional. If you miss the final exam or the deadlines for submissions of assignments, you will be given a mark of 0% unless you can provide a valid medical reason (if possible accompanied by a medical note). In the absence of a medical note, or where the absence is due to a reason other than illness, please provide other documentation or obtain either a Statutory Declaration or a Faculty Form to outline the reasons for the absence. In order to pass this course you will have to have a **minimum** of 60% of the total marks.

No electronic devices, including calculators, are permitted for any exercises. This means you cannot use your own computer, electronic organizer or cell phone. No pictures, audio or video recordings may be taken during lab or lecture presentation without the knowledge and written consent of the instructor. If required, lab quizzes will be done on university computers. The lab quizzes can potentially be open-book, however, that will be announced prior to the exam, **but note** electronic notes are not allowed – for open book lab quizzes you may only bring approved textbooks, paper notes, or keys. **This class has NO group assignments. Individual papers are to be an individual effort.** No trading of word processing files, images or graphs and no copying of **ANY** parts of assignments is permitted. The submission of words, ideas, images or data of another person or group as their own will be considered **plagiarism** (see also above). The TA's are instructed to report any evidence or incidences of plagiarism or cheating in this course.

## Tentative Lecture Schedule

Date	Topic
Sept 1	Introduction to woody plants and dendrology; syllabus and course requirements; how to succeed in the labs; trips; grading
Sept 6	General plant morphology and terminology
Sept 8	General plant reproductive structures and terminology
Sept 13	Fruits, fruit types, inflorescence types
Sept 15	Pollination and dispersal
Sept 20	Introduction to plant evolution and taxonomy
Sept 22	Gymnosperms – overview of families and genera
Sept 27	Gymnosperms – overview of families and genera
Sept 29	Lichens, Mosses, Lycopodiaceae, Polypodiaceae, and Equisetaceae
Oct 4	Angiosperm classification, the Cronquist system and overview of vegetative and reproductive morphological characteristics of the Liliopsida (Monocotyledons) and Magnoliopsida (Dicotyledons)
Oct 6	Angiosperm classification, the Cronquist system and overview of vegetative and reproductive morphological characteristics of the Liliopsida (Monocotyledons) and Magnoliopsida (Dicotyledons)
Oct 11	Tree species and forests of North America Vegetation of North America – Introduction, History and Climate (Part 1)
Oct 13	Tree species and forests of North America Vegetation of North America – Introduction, History and Climate (Part 2)
Oct 18	Commelinidae (Juncaceae, Cyperaceae, Poaceae, Typhaceae)
Oct 20	Liliidae (Liliaceae, Iridaceae, Orchidaceae)
Oct 25	Magnoliidae (Magnoliaceae, Ranunculaceae, Fumariaceae, Nymphaeaceae)
Oct 27	Hamamelididae (Ulmaceae, Fagaceae, Betulaceae, Urticaceae)
Nov 1	Caryophyllidae (Santalaceae, Chenopodiaceae, Caryophyllaceae, Cactaceae, Polygonaceae)
Nov 3	Rosidae (Saxifragaceae, Rosaceae, Fabaceae, Aceraceae, Geraniaceae, Umbelliferae (Apiaceae)) (Part 1)
Nov 8	<b>NO LECTURE</b>
Nov 10	<b>NO LECTURE</b>
Nov 15	Rosidae (Saxifragaceae, Rosaceae, Fabaceae, Aceraceae, Geraniaceae, Umbelliferae (Apiaceae)) (Part 2)
Nov 17	Dilleniidae (Tiliaceae, Violaceae, Salicaceae, Cruciferae (Brassicaceae), Ericaceae)
Nov 22	Asteridae (Labiatae (Lamiaceae), Scrophulariaceae; Boraginaceae, Caprifoliaceae, Asteraceae) (Part 1)
Nov 24	Asteridae (Labiatae (Lamiaceae), Scrophulariaceae; Caprifoliaceae, Boraginaceae, Asteraceae) (Part 2)
Nov 29	Asteridae (Labiatae (Lamiaceae), Scrophulariaceae; Caprifoliaceae, Boraginaceae, Asteraceae) (Part 3)
Dec 1	TBD
Dec 6	<b>Final lab exam for Friday's lab section during Dec 6 lecture (Monday, Tuesday Wednesday and Thursday's final will be during their respective lab periods that week)</b>

## Tentative Lab Schedule

Date	Lab	Topic
Sept 01-02		<b>NO LABS. First week of classes.</b>
Sept 05-09		<b>NO LABS- Labour Day</b>
Sept 12-16	1	Lab requirements, procedures, terminology, and characteristics of the major plant and plant-like groups. Pick a plant for the paper and 1 <sup>st</sup> homework assignment distributed. Practice keying
Sept 19-23	2	Field trip- campus deciduous angiosperms: Salicaceae, Betulaceae, Ulmaceae, Fagaceae, Tiliaceae, Aceraceae (Sapindaceae), and Oleaceae. Practice keying <b>1<sup>st</sup> homework assignment due</b>
Sept 26-30	3	Field trip- campus gymnosperms: Cupressaceae, Pinaceae, Taxaceae, and Gingkoaceae. Practice keying
Oct 03-Oct 07	4	1 <sup>st</sup> quiz Lichens, Mosses, Lycopodiaceae, Polypodiaceae, and Equisetaceae. 1 <sup>st</sup> keying exercise
Oct 10-14		<b>NO LABS- Thanksgiving</b>
Oct 17-21	5	2 <sup>nd</sup> quiz Gramineae (Poaceae), Cyperaceae, Juncaeeae, and Typhaceae. 2 <sup>nd</sup> keying exercise <b>Papers due</b>
Oct 24-28	6	3 <sup>rd</sup> quiz Liliaceae, Orchidaceae, Ranunculaceae, and Fumariaceae (Papaveraceae). 3 <sup>rd</sup> keying exercise
Oct 31-Nov 04	7	4 <sup>th</sup> quiz Santalaceae, Urticaceae, Rosaceae, Leguminosae (Fabaceae), Elaeagnaceae, and Umbelliferae (Apiaceae) 4 <sup>th</sup> keying exercise
Nov 07-11		<b>NO LABS- Remembrance Day/ Reading week</b>
Nov 14-18	8	5 <sup>th</sup> quiz Cruciferae (Brassicaceae), Saxifragaceae, Grossulariaceae, Onagraceae, Cornaceae, Pyrolaceae, Empetraceae, Ericaceae, Menyanthaceae, and Violaceae. 5 <sup>th</sup> keying exercise <b>Plant collections due</b>
Nov 21-25	9	6 <sup>th</sup> quiz Araliaceae, Boraginaceae, Labiatae (Lamiaceae), Scrophulariaceae, and Rubiaceae. 6 <sup>th</sup> keying exercise
Nov 28-Dec 02	10	7 <sup>th</sup> quiz Caprifoliaceae and Compositae (Asteraceae). 7 <sup>th</sup> keying exercise
Dec 05-08		<b>FINAL LAB EXAM</b>