

Course outline

Plant Taxonomy BIOL 367

Course Number: BIOL 367

Course Title: Plant Taxonomy

Term/Year: Winter 2022

Times and Locations: Lectures: Tuesday and Thursday, 8:30 to 9:45, online via Zoom.

Labs (lectures): Tuesday 2:30 pm to 4:30 pm, online via Zoom

Instructor Name and Title: Dr. Daniel Gagnon, Professor of Biology. **Office Location:** LB 243

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Teaching Assistant: Dana Green (dana.green.eco@gmail.com)

Course Description:

This course is an introduction to the theory, methods and practice of the taxonomy and classification of flowering plants, focusing on the plants found in Saskatchewan and Canada. Following the introduction to plant vegetative and floral structures, 20+ families well represented in Saskatchewan will be studied in detail. Classification, evolutionary history, botanical nomenclature, collecting and preserving plants, and traditional uses of plants by Indigenous peoples are discussed. This year (2022), because of no access to the herbarium plant specimens and our frozen specimens, we will be expand the class to include plants of the northern hemisphere (including Eastern and Western Canada, the US, Europe and China). We will also survey important tropical plant families and some of their typical species.

Learning Objectives and/or Outcomes:

- Students will have extensive knowledge of the morphology (vegetative structures and floral structures) of flowering plants found in Saskatchewan
- Students will be able to immediately recognize the most common flowering plant families found in Saskatchewan, the northern hemisphere and the tropics
- Students will understand plant names and acquire a good overview of flowering plant evolutionary history
- Students will be familiar with plants of the Northern Hemisphere
- Students will be introduced to some important tropical plant families

Required Texts and class material:

- Note: You will be loaned a copy of *Lilies, Irises & Orchids of Saskatchewan* for use during the semester.
- Class materials (powerpoints, etc.) are posted on UR Courses.

Course Evaluation:

Evaluation Component	Grade %	Date
5 Tests (11 % each): answer all questions (45 min. during class; from 9:00 to 9:45)	55 %	See class schedule
7 Assignments (5 % each): hand in before noon next day	35 %	See class schedule
1 Research paper on a tree genus (10 %)	10 %	Due April 15/2022
Total	100%	

Class lecture schedule:

Week:	Tuesday 8:30-9:45	Tuesday 2:30-4:30	Thursday 8:30-9:45
1. 11 & 13 January	Class 1: Course introduction; Vegetative morphology	Class 2: Vegetative morphology	Class 3: Floral morphology
2. 18 & 20 January	Class 4: Floral morphology ASSIG 1: Veg & Floral morphol.	Class 5: Ranunculaceae	Class 6: Fabaceae (1)
3. 25 & 27 January	Class 7: Fabaceae (2) TEST 1	Class 8: Ericaceae, Pyrolaceae, Monotropaceae	Class 9: Scrophulariaceae, Lamiaceae (1)
4. 1 & 3 February	Class 10: Scroph., Lamiaceae (2) ASSIG 2: Ericaceae	Class 11: Caryophyllaceae, Plantaginaceae	Class 12: Boraginaceae
5. 8 & 10 February	Class 13: Caprifoliaceae, Elaeagnaceae TEST 2	Class 14: (1) Botanical nomenclature, synonymy, collecting plants, herbaria	Class 15: (2) Botanical nomenclature, synonymy, collecting plants, herbaria
6. 15 & 17 February	Class 16: Tropical plant fam. (1) ASSIG 3: Synonymy & herbaria	Class 17: Tropical plant families (2)	Class 18: Tropical plant families (3)
Winter break	21 to 25 February		
7. 1 & 3 March	Class 19: Trop. plant fam. (4) ASSIG 4: Tropical plants	Class 20: Salicaceae, Brassicaceae	Class 21: Betulaceae
8. 8 & 10 March	Class 22: Asteraceae (1) TEST 3	Class 23: Asteraceae (2)	Class 24: Apiaceae
9. 15 & 17 March	Class 25: Poaceae (1) ASSIG 5: Asteraceae	Class 26: Poaceae (2)	Class 27: Juncaceae, Cyperaceae (1)
10. 22 & 24 March	Class 28: Juncaceae, Cyperaceae (2) TEST 4	Class 29: Orchidaceae (1)	Class 30: Orchidaceae, (2)
11. 29 & 31 March	Class 31: Liliaceae, Iridaceae (1) ASSIG 6: Orchidaceae (book)	Class 32: Liliaceae, Iridaceae (2)	Class 33: Other plants of Saskatchewan (1)
12. 5 & 7 April	Class 34: Other SK plants (2) ASSIG 7: Liliaceae (book)	Class 35: Other plants of SK and Canada, USA & Europe	Class 36: Other SK plants, Can, USA & Europe TEST 5

Study of a tree genus (research paper): brief description of the genus, plant family, world distribution of the genus, number of species (list a few most important ones, and where they occur). Are there any North American species in this genus? What are its fruit, nuts, seeds? Are there uses for its wood or sap? Does it have diseases or insects attacking it? This research paper should not exceed 6 written pages (**not included** in pages are title page, figures or tables, list of references). More details in class.

I ask everyone in the class to choose 4 tree genera among the list below, and rank them in order of preference (most favorite 1st). If you reply fast, you have a good chance of getting your 1st choice or your 2nd choice.

1. *Abies* (true fir) NA (NA = occurs in North America)
2. *Acer* (maple) NA
3. *Aesculus* (buckeye) NA
4. *Alnus* (alder) NA
5. *Arbutus* (madrono) NA
6. *Betula* (birch) NA
7. *Carpinus* (hornbeam) NA
8. *Carya* (hickory) NA
9. *Castanea* (chestnut) NA
10. *Celtis* (hackberry) NA
11. *Corylus* (hazel) NA
12. *Fagus* (beech) NA
13. *Fraxinus* (ash) NA
14. *Juglans* (walnut) NA
15. *Juniperus* (juniper) NA
16. *Larix* (larch) NA
17. *Liriodendron* (tulip tree) NA
18. *Malus* (apple) NA
19. *Olea* (olive) none in N America
20. *Picea* (spruce) NA
21. *Pinus* (pine) NA
22. *Platanus* (plane tree) NA
23. *Populus* (poplar) NA
24. *Prunus* (cherry) NA
25. *Quercus* (oak) NA
26. *Taxus* (yew) NA
27. *Thuja* (cedar) NA
28. *Tilia* (basswood, linden) NA
29. *Tsuga* (hemlock) NA
30. *Ulmus* (elm) NA