

## **NRMT 2050/BIOL 2051—Flowering Plant Taxonomy**

### **COURSE OUTLINE WINTER 2018 (ON DESIRE2LEARN)**

**Lectures:** Dr. Ashley Thomson, BB1017JA, athomson@lakeheadu.ca, 343-8442

**Laboratories:** Keri Pidgen, BB 1011F, kpidgen@lakeheadu.ca, 343-8519

**Lecture schedule:** Mon. & Wed., 12:30 – 1:30 pm, BB 1061

**Laboratory schedule:** W1 - Tuesdays from 8:30 – 11:30 am, BB 1061

W2 – Wednesdays from 8:30 – 11:30 am, BB 1061

#### **INTRODUCTION**

This course introduces students to the evolutionary relationships among the flowering plants and the processes that gave rise to their existing taxonomic hierarchy. The systematic identification of Ontario's major flowering plant families is learned in labs. The methods, rules and history of flowering plant taxonomy are presented in lectures. An individual herbarium project is also completed.

#### **LEARNING OUTCOMES**

By the end of the course, you should be able to:

- Understand the basic principles of plant systematics and describe the various forms of taxonomic evidence used to classify flowering plants
- Explain how historical vicariance, changes in reproductive biology, ecology, and chromosome number have contributed to the diversification of flowering plants
- Use taxonomic methodology to identify and describe native flowering plants of Ontario and adjacent regions
- Apply systematic methods to reconstruct the phylogeny of various flowering plant groups using morphological and molecular data
- Assess the relative strengths and weaknesses of various systems of flowering plant classification and the extent to which they reflect ancestral relationships

COURSE REQUIREMENTS	DUE DATE	MARK
Midterm exam	February 28th	20%
Phylogenetics project	March 14th	10%
Herbarium project	March 28th	20%
Lab practical	Week 12	20%
Final exam	TBA	30%
TOTAL MARKS		100%

**WITHDRAWAL DEADLINE:** Friday March 9, 2018.

**MID-TERM EXAM:** A mid-term exam will be held on Monday, February 28<sup>th</sup>. All material covered in the course to this date will be considered when setting the exam.

**REQUIRED TEXTS:**

Gleason, H.A. and A. Cronquist. 1991. Manual of Vascular Plants of Northeastern United States and Adjacent Canada. Second Edition. The New York Botanical Garden, Bronx, NY. 910 pp.

Judd, W.S., C.S. Campbell, E.A. Kellogg, P.F. Stevens, and M.J. Donohue. 2016. Plant Systematics: A Phylogenetic Approach. Sinauer Associates, Sunderland, MA. 677 pp.

**COURSE POLICIES**

**Attendance:** Attendance at all laboratory periods is mandatory. Students who cannot attend class for legitimate reasons (i.e. illness) are asked to contact the course instructor before the class to find out what material will be missed.

**Assignments and Exams:** Completion of the herbarium and phylogenetics projects, midterm and final exams, and lab practical exams is mandatory to pass the course. Otherwise, an incomplete mark will be assigned.

**Late assignments:** All assignments in the course must be handed in by 11:59 pm on the assigned due date. Late assignments will be accepted up to 24 hours past the due date at a penalty of 30%. Assignments that are more than one day late will not be accepted.

**Inclusivity:** It is my goal to create an inclusive environment where all students in the course can learn comfortably. Please let me know if you require any special accommodations due to learning or physical disabilities, or for any other reason.

**Academic dishonesty:** Plagiarism of any form will not be tolerated and plagiarism detection software will be used to screen suspected cases. First infractions will result in a mark of zero for the affected assignment and any subsequent infractions will be reported to the Natural Resources Management Dean's office for disciplinary procedures. If you have any questions about what constitutes plagiarism, please refer to the Lakehead University Code of Student Behaviour and Disciplinary Procedures found on the Lakehead University website (<https://www.lakeheadu.ca/faculty-and-staff/policies/student-related/code-of-student-behaviour-and-disciplinary-procedures>) or come and speak with me during office hours.

**Lecture Schedule (subject to change):**

<b>Week</b>	<b>Date</b>	<b>Topic</b>
1	08-Jan	Introduction, course syllabus
	10-Jan	Fundamentals of systematics
2	15-Jan	Angiosperm morphology I
	17-Jan	Angiosperm morphology II
3	22-Jan	History of angiosperm classification
	24-Jan	Modern angiosperm classification
4	29-Jan	Superrosids and Fabids
	31-Jan	Phylogenetic methods I
5	05-Feb	Malvids
	07-Feb	Phylogenetic methods II
6	12-Feb	Superasterids and Asterids
	14-Feb	Botanical nomenclature
7	19-Feb	<b>Study break - No classes</b>
	21-Feb	<b>Study break - No classes</b>
8	26-Feb	Lamids
	28-Feb	<b>Midterm</b>
9	05-Mar	Campanulids
	07-Mar	Plant description and cataloguing
10	12-Mar	Monocots
	14-Mar	Chemical diversity
11	19-Mar	Reproductive biology
	21-Mar	Chromosomal variation
12	26-Mar	Isolating mechanisms II
	28-Mar	Hybridization and introgression
13	02-Apr	<b>Easter Monday - University Closed</b>
	04-Apr	Biogeography
14	09-Apr	Adaptive radiation

**Laboratory Schedule (subject to change):**

<b>Week</b>	<b>Topic</b>
1	Vegetative morphology
2	Flowers, fruits, inflorescences
3	Basal angiosperms, Basal eudicots
4	Rosids I: Superrosids and Fabids
5	Rosids II: Malvids
6	Asterids I: Superasterids and Asterids
7	<b>Study break - No classes</b>
8	Asterids II: Lamiids
9	Asterids III: Campanulids
10	Monocots I
11	Monocots II: Commelinid clade
12	Lab practical