
BIOL 315

Plants for People

Fall Term 2015-16

CALENDAR DESCRIPTION

General groups of plants used for food, fibre, shelter and pleasure. The plant parts that are used and the conversion of these to consumer products will be surveyed.

PREREQUISITES: Level 3 or above in Biology, which includes BIOL 102/3.0, BIOL 103/3.0, BIOL 201/3, BIOL 205/3, BIOL 206/3.

SCHEDULE

Lectures: Mondays 9:30am, Wednesday 8:30am & Thursdays 10:30 in Stirling Auditorium

Instructor	Dr. Chris Eckert
Instructor Contact	(613) 533 6158 or via Moodle forum
Office Hours	TBA or by appointment (phone)
TAs:	TBA
TA Office Hours	None

Learning Objectives

Plants are the foundation of life on Earth. Humans, in particular have evolved in very close association with flowering plants. They have altered our genetic and cultural evolution and we have altered theirs. This course explores and intimate and dynamic relations between plants and humans. In addition to discussing the biology and evolution of many of our most valuable economic plants, and delving into the science of plant culture, domestication and genetic manipulation, we consider how plants have altered the economy, politics and sociology of human cultures. We will also explore a variety of current and controversial issues involving our use of plants. Students in this course will come away with a clearer understanding of why plants are incredibly cool, why they do things that are beneficial to us, and the ecological and social impacts of how we use them. As a student in Biology 315 you will use agricultural and culturally significant plants as a vehicle for advanced training in fundamental Mendelian genetics, quantitative genetics, genomics, biotechnology, ecology, evolution and quantitative skills. As overarching goals, we hope to promote critical thinking about scientific endeavours and improve your comprehension and writing skills. To these ends the course uses a mixture of lectures, readings, class discussions, written and illustrated projects and exams. By the end of this course, you should have:

- A broad perspective on plant-human coevolution.
- Specific knowledge of the plant species that have shaped human.
- A clear understanding of evolutionary principles that can be applied broadly to agriculture, resource management and biotechnology.
- An appreciation for how quantitative genetic and genomic analyses can be applied to understand plant evolution and crop plant development.
- An informed opinion about the most controversial issues surrounding the evolution and development of utilitarian plants.

- Improved research, writing and scientific illustration skills.
- A better understanding of the current and potential role of plants in your personal life, which may be manifested as a strong desire to bake bread, brew beer and/or start a garden.

Learning Hours

<i>Teaching method</i>		<i>Average hours per week</i>	<i>Number of weeks</i>	<i>Total hours</i>
In-class hours	Lecture	3	12	36
	Seminar			
	Laboratory			
	Tutorial			
	Practicum			
	Group learning			
	Individual instruction			
Other	Online activity	3	12	36
	Off-campus activity			
	Private study	4	12	48
Total hours on task				120

Course Outline: Main Topics

- What plants do for humans
- Ecological and evolutionary origins of agriculture
- Plant domestication & breeding
- Darwinian agriculture
- Evolution & dominance of cereals
- Wheatbelly & other fad diets
- Evolutionary diversity in rice
- Many facets of maize
- Genetically modified organisms & the controversy surrounding them
- Other key crops (legumes, leaf crops, tomatoes & other fruits)
- The enigma & many uses of the African bottle gourd
- The Mighty Brassicaceae
- Sugar and its not so sweet history & legacy
- Inebriants & stimulants
- Wood & its many cultural impacts

Textbooks/Readings

There is no textbook for the course. Assigned and recommended readings vary from year to year and are available via Moodle.

Grading Scheme

Component	Weight	Dates
"Plants in My Life" assignment	5%	Thurs 1 Oct 2015
Online quizzes (5)	10%	Throughout the course at regular intervals
Online poster	20% Group poster 5% Contribution to group poster 5% Grading 5 other posters	Mon 9 Nov 2015 Thurs 19 Nov 2015 Thurs 19 Nov 2015
Midterm exam	20%	Thurs 22 Oct 2015 (in lecture)
Participation in lecture	5%	Recorded every lecture
Final exam	30%	TBA (during final exam period in Dec 2015)

Late Policy

Online quizzes must be completed by the due date posted on Moodle. Group posters will be submitted by the due date posted on Moodle, with late submissions losing 10% per 24 hours (or part of) that they are overdue.

Grading Method

Exams, online quizzes, the "plants in my life" assignment, and group project contribution, peer grading and class participation will be graded using numerical percentage marks. The poster assignment will receive letter grades, which for purposes of calculating your course average will be translated into numerical equivalents using the Faculty of Arts and Science Letter Grade Input Scheme. For letter grades, the following scale will be used for purposes of calculating your course average:

Arts & Science Letter Grade Input Scheme

Assignment mark	Numerical value for calculation of final mark
A+	93
A	87
A-	82
B+	78
B	75
B-	72
C+	68
C	65
C-	62
D+	58
D	55
D-	52
F48 (F+)	48
F24 (F)	24
F0 (0)	0

Your course average will then be converted to a final letter grade according to Queen's Official Grade Conversion Scale:

Queen's Official Grade Conversion Scale

Grade	Numerical Course Average (Range)
A+	90-100
A	85-89
A-	80-84
B+	77-79
B	73-76
B-	70-72
C+	67-69
C	63-66
C-	60-62
D+	57-59
D	53-56
D-	50-52
F	49 and below

Academic Integrity and Queen's Code of Conduct

Students are responsible for familiarizing themselves with the regulations concerning academic integrity and for ensuring that their assignments and conduct conform to the principles of academic integrity. Information is available in the Arts and Science Calendar (see Academic Regulation 1 - <http://www.queensu.ca/artsci/academic-calendars/regulations/academic-regulations>, on the Arts and Science website (see <http://www.queensu.ca/artsci/academics/undergraduate/academic-integrity>), and at Biology's website (<http://www.queensu.ca/biology/undergrad/integrity.html>) and from the instructor of this course.

Departures from academic integrity include plagiarism, use of unauthorized materials, facilitation, forgery and falsification, and are antithetical to the development of an academic community at Queen's. Given the seriousness of these matters, actions which contravene the regulations on academic integrity carry sanctions that can range from a warning or the loss of grades on an assignment to the failure of a course to a requirement to withdraw from the university.

Accommodation Policy, Exam Conflicts, and Other Conflicts

Students who feel they need accommodations for disabilities or extenuating circumstances, or have a conflict between exams or other commitments should consult the Biology Department's website for details about how to proceed (<http://www.queensu.ca/biology/undergrad/integrity.html>). In general, the earlier a course coordinator is apprised of an extenuating circumstance, the more likely an accommodation can be made. Students are encouraged to be proactive in anticipating difficulties, when it is possible to do so.

Students may apply to write a make-up or deferred exam if they have an exam conflict as defined in the Academic Regulations of the Faculty (See Arts and Science Calendar Regulation 8 - <http://www.queensu.ca/artsci/academic-calendars/regulations/academic-regulations>). In this case, the student should report to the Exams Office first to verify that there is a genuine exam conflict. Biology professors will not consider your situation to be a conflict unless it meets the criteria set out by the Faculty of Arts and Sciences. Students may request a make-up or deferred exam if they have an exam conflict with

off-campus travel associated with a field course (e.g BIOL-307/3.0 or 407/3.0) that is held during the fall or winter terms.

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Accommodation of Disabilities

Queen's University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability and think you may need accommodations, you are strongly encouraged to contact the Disability Services Office (DSO) and register as early as possible. For more information, including important deadlines, please visit the DSO website at: <http://www.queensu.ca/hcds/ds/>