PLANTS AND HUMAN CULTURE Winter 2026
BIOL315
Credits: 3.0
Modality: In-person classes and discussions

COURSE DESCRIPTION

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 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 how integrated human lives are with plants. 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 will promote critical thinking about scientific endeavors and improve your comprehension and writing skills. To these ends the course uses a mixture of lectures, readings, class discussions, exams, and a creative group project.

STUDY HABITS FOR SUCCESS

As a smaller (max 70 students) upper-year course, we have the opportunity to cover a wide range of topics related to plant-human interactions. Being a Biology course we are focused on applying biological sciences to answer key research questions. But we also have an opportunity to bring social, political, and environmental issues into our discussions around the complexity of issues. Keys are success in this course include:

-Stay on top of weekly class material and use quizzes as an opportunity to 'check in' with your understanding.

-Come to a student help session to discuss any questions you may have

-Actively participate in class discussions (dedicated classes, and small 'breakout' discussions during lecture)

-Reflect on your own interests in preparation for the final group projects to maximize your engagement – this is an opportunity to be creative!

IMPORTANT UNIVERSITY DATES

Jan. 5	Classes start
Feb. 16	Deadline to drop courses
April 6	Classes end
April 9-23	Winter Term Final Assessment period

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EQUITY, DIVERSITY & INCLUSIVITY STATEMENT

Queen's University recognizes that the values of equity and diversity are vital to and in harmony with its educational mission and standards of excellence. It acknowledges that direct, indirect and systemic discrimination exists within our institutional structures, policies and practices and in our community. These take many forms and work to differentially advantage and disadvantage persons across social identities such as race, ethnicity, disability, gender identity, sexual orientation, faith and socioeconomic status, among other examples. We are committed to continual examination of our practices and ongoing change to improve equity, diversity and inclusion in our community.

LAND ACKNOWLEDGEMENT

Let us acknowledge that Queen's is situated on traditional Anishinaabe and Haudenosaunee territory. We are grateful to be able to be live, learn and play on these lands. (Four Directions Indigenous Student Centre, Queen's University)

EXPECTATIONS

For Instructors

As an instructor I am committed to:

Engagement with the course material – I enjoy finding ways to navigate the sometimes complex course material, and to share my passion for plant-human research and related topics!

The student learning experience – I aim to create a variety of opportunities for students' to interact with the course material.

The process of learning – mistakes and practice are an important part of learning

the material, and 'learning how to learn', more generally. I am here to help you navigate this experience as you enter the senior years of program.

Respectful communication – I look forward to communicating with you in person (in class) and in weekly student help sessions.

Differences in learning – I apply universal design to account for differences in learning where possible, and arrange additional accommodations in collaboration with the Queen's Exam Office and QSAS. I am always open to discussion and acknowledge that a complex set of factors affect your learning – I will work to support your education.

Challenges – Please discuss your challenges with me during class or student help sessions. You can always reach me at sarah.yakimowski@queensu.ca.

For Students

To achieve teaching and learning success, my expectation of students includes:

Preparation for classes and discussions as specified. Class material may include readings, videos or other materials that we will further interrogate in class and through class discussions with your peers.

Preparation of necessary technology for participation in final group project

Attendance and participation in class and discussions to the best of your ability

Respectful communication and interactions with all class members, teaching assistants and instructors – I acknowledge that group work often comes with challenges, but there is also a lot of opportunity to learn from one another and to share your strengths.

Academic integrity with respect to all course assignments and examinations

LEARNING OUTCOMES

After completing this course, students should have the knowledge and skills to do the following:

1. Appreciate the biological diversity of plants that have provided food, clothing, fuel, building materials, and inspiration to human cultures.

2. Integrate and apply fundamental concepts and knowledge in genetics, evolution, physiology ecology acquired over core biology courses to the major questions concerning how humans and plants have influenced each other's ecology and evolution.

3. Identify the similarities and differences in how plant biology, changing environments and human culture resulted in the domestication of different globally important food plants.

4. Explain how modern experimental and genomic techniques have been used to understand the key evolutionary changes in economically important plants spurred by human cultivation.

5. Express an informed opinion informed by science concerning current controversies surrounding our use and genetic modification of utilitarian plants.

6. Analyze how individual choices in the types of plant-based products individuals use scale up to global effects on human health and the environment.

7. Review and synthesize information from the primary scientific literature to effectively present an important issue in plant-human interactions in a way that the general public can readily understand.

8. Anticipate how altered use of plants by humans will impact the sustainability of human civilization.

COURSE TOPICS AND SCHEDULE

Week / Lecture Topic	Class topics	Other materials	Assessments
Week 1 Week of Jan 5th	Course Introduction +		
	Rise of Agriculture Topics: The Agricultural (R)evolution Study of Agricultural Origins The Rise of Agriculture		
Week 2 Week of Jan 12th	Domestication		
	Retrospective Genetics Topics: -Domestication -QTL Mapping -Genomic Scans	Discussion #1 Materials posted	
Week 3 Week of Jan 19th	**Discussion #1: GMOs**		Discussion #1 Questions and Summary (submit end of class, or by 10am next day)
	Genetic modification Topics: -Genetic		Quiz#1 posted Friday 9am (24hr) – weeks 1, 2

	Modification by Selective Breeding -Genetic Modification with Foreign Genes -Gene Editing		
Week 4 Week of Jan 26th	Polyploidization and domestication Survey re: final group project		
	Topics: -Wheat and Bread -Wheat Domestication -Domestication of Other Cereals	Discussion #2 Materials Posted	
Week 5 Week of Feb 2	**Discussion #2: Diet and Climate Change** + Group work project proposal		Discussion #2 Questions and Summary (submit end of class, or by 10am next day)
	Domestication Cont'd Topics: -Rice -Maize -Fruits		Quiz#2 posted Friday 9am (24hr) – weeks 3, 4
Week 6 Week of Feb 9	Final Project Group Work		
Thurs Feb 12	Possible Guest lecture / discussion with 'Kitchen Table Seed House'	Discussion #3 Materials posted	Final Project Proposal Due Friday @ 5pm

	Domestication cont'd Topics: -Tomato Domestication -Tomato Genetic Modification -Brassicas		
Feb16-20 READING WEEK			
Week 7 Week of Feb 23	**Discussion #3 – Braiding Sweetgrass / 3 sisters (excerpt)**		Discussion #3 Questions and Summary (submit end of class, or by 10am next day)
	Topics: -Sweetness -Bitter history of sugar -Stimulation		Quiz#3 posted Friday 9am (24hr) – weeks 5, 6
Week 8 Week of March 2	**Midterm** (during scheduled Tues class time)		Midterm test in class + accommodations
	Seed Banks and Resurrection Biology	Discussion #4 Materials Posted	
Week 9 Week of March 9	**Discussion #4 – Organic methods and food production** ***review revised Final Project rubrics**		Discussion #4 Questions and Summary
	Psychoactive plants		Quiz#4 posted Friday 9am (24hr) – weeks 7, 8

Week 10 Week of March 16	Herbicide resistance evolution and integrated pest management		
	Topics: -African Bottle Gourd -Wood / Forests -Burning Wood -Tone woods	Discussion #5 Materials posted	Group Projects Due Friday @5pm
Week 11 Week of March 23	**Discussion #5 – Changing alcohol: health and culture**		Discussion #5 Questions and Summary
	Group Project Presentations		Quiz#5 posted Friday 9am (24hr) – weeks 9, 10
Week 12 Week of March 30	Group Project Presentations (Tues class)		
	Group Project Presentations (Thurs class)		

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COURSE MATERIALS

All course materials required for class and discussions will be available via OnQ.

SUGGESTED TIME COMMITMENT

Students can expect to spend approximately **8-9** hours a week in study/ preparation for class and group activity for this course.

- Class / discussion preparation: 3 hours
- Class / discussion: 3 hours
- Group work: 2-3 hours

WEIGHTING OF ASSESSMENTS

Online Quizzes	Every 2 weeks (x5)	2.6% each x5	13%
Class Discussion Written questions + summary	Every 2 weeks (x5)	3.4% each x5	17%
Final Group Project (30%)	Proposal		5%
	Project		20%
	Self/group assessments		5%
Midterm			15%
Final Exam	TBA		25%
			Total 100%

Location and Timing of Final Examinations

The exam period is listed in the key dates prior to the start of the academic year in the Faculty of Arts and Science Academic Calendar and on the Office of the University Registrar's webpage. A detailed exam schedule for the Fall Term is posted before the Thanksgiving holiday; for the Winter Term it is posted the Friday before Reading Week, and for the Summer Term the window of dates is noted on the Arts and Science Online syllabus prior to the start of the course. Students should delay finalizing any travel plans until after the examination schedule has been posted. Exams will not be moved or deferred to accommodate employment, travel / holiday plans or flight reservations.

ASSESSMENTS AND ACTIVITIES DESCRIPTION

Online Quizzes

Online quizzes (every 2 weeks) are designed as a check-in for your comprehension of course material. The quizzes start at a fixed time (see Timeline for dates and times) and are done online. The quizzes are designed to take 20-30 minutes to complete but everyone can take up to 90 minutes to complete the quiz. It is the responsibility of the student to ensure that they are using a reliable computer and internet connection, and are working in a physical space that is amenable for the quiz.

Class Discussions: Submitted questions and Discussion Summary

There are 5 in-class group discussions in the course. Material (primarily readings, occasionally videos) will be provided the week prior to the discussion. The reading material will introduce a variety of complex plant-human interaction topics. Students will prepare 3 questions to motivate group discussion before

coming to class. Discussion questions will be submitted for evaluation via OnQ. During the class discussion, students are invited to have an open, wide-ranging, and respectful discussion as a group of peers. The final 20-30 minutes of class will be devoted to quiet focused-writing time during which students will write a 2-3 paragraph summary of the group's discussion. Summaries are submitted via OnQ at the end of class.

Midterm

A term test will cover material for the first half of the course (weeks 1-6). The test will consist of short and longer answer questions (ranging from 2 to 6 marks per question). The term test will focus on material from the in-class lectures and associated materials. The term test is designed to be written in ~60 minutes and all students have 90 minutes to write the exam. A single-size page (8.5 x 11") of notes is allowed.

Final Exam

The Final Exam is three hours in length and includes short and longer answer questions based on the material from the entire term including all class material. Material associated with class discussions and the final group project will not be examined directly (ie: will not ask specific details), but you may be asked to refer to this material to answer more general long-answer questions. A single-size page (8.5 x 11") of notes is allowed.

Final Group Project

Students will have the opportunity to fill out a survey on their personal topics of interest, and any preferences for mode of communication (e.g. a written project, a visual project, a multi-media project etc.). Once groups are formed each will write a short project proposal and receive feedback. Groups will then proceed to prepare their final project. All projects will be 'presented' in-class during the final 2 weeks of class. These projects are an opportunity for

students to lean into their strengths, and explore plant-human topics of interest.

Exam Dates

The specific dates for each exam will be announced later in the term by the Registrar's office. Once the exam schedule has been finalized the exam date will be posted on your SOLUS account.

Please note that the Senate Policy on Academic Consideration for Students in Extenuating Circumstances is applicable during the final examination period. In the Faculty of Arts and Science, students who are too ill to write the examination or are experiencing extenuating circumstances are being directed to the Academic Consideration Request Portal (ACRP) to submit a request for consideration.

Assessment Accommodations

Queen's University supports Universal Instructional Design to create more accessible learning environments. In addition to incorporating a variety of delivery methods and learning materials, this course has several academic accommodations built directly into the assessments. For most students, the assessment design incorporates extra time on assignments/tests and computer-assisted examinations.

If you have a formal academic accommodation that goes beyond the accommodations described below, please see the course homepage and click the blue "Submit QSAS Accommodation Letter or STAA Form" button. You may read more about our approach to academic accommodations and considerations in the relevant sections of the course syllabus (see Policies below).

I will gladly work with you to ensure that any accommodations required beyond the universal design are implemented.

Deferred Final Exam - Students receiving permission to write a deferred final exam will be expected to write their exam during the Faculty of Arts and Science deferred exam period with exact time, date, and location TBA. Requests for individualized deferred exam dates will not be accommodated. The deferred exam is considered an official exam to which all the exam regulations apply.

LATE POLICY

For deadlines associated with the class discussion summaries and components of the final project the late penalty is 10% per day and this is first applied 30 mins after a deadline.

GRADING

All components of this course will receive numerical percentage marks. The final grade you receive for the course will be derived by converting your numerical course average to a 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

COURSE FEEDBACK

At various points during the course, students may be asked to take part in a variety of feedback activities (such as questionnaires and exit tickets). This feedback enables the team to make any adjustments necessary to improve the learning environment. All surveys are anonymous, and directly related to activities, assessments, and other course material.

N/ETIQUETTE

In any course you often communicate with your peers and teaching team

through electronic communication. You are expected to use the utmost respect in your dealings with your colleagues or when participating in activities, discussions and online communication.

Here is a list of n/etiquette guidelines. Please read them carefully and use them to guide your communication in this course and beyond.

1. Make a personal commitment to learn about, understand, and support your peers.
2. Give others the benefit of the doubt.
3. Ensure your writing is respectful and inclusive.
4. Recognize and value the experiences, abilities, and knowledge that each person brings.
5. Recognize and value the diversity of learning and communication styles.
6. Carefully re-read your writing before posting or sending to others.
7. It is okay to disagree with ideas, but personal attacks will not be tolerated.

QUEEN'S EMAIL

The University communicates with students via Queen's email. Please check your email regularly to ensure you do not miss important information related to your course.

COURSE ANNOUNCEMENTS

Throughout the course, I will routinely post course news in the Announcements section of the course homepage. I encourage you to actively check the course onQ main page for course announcements throughout the semester for

reminders and additional course information or learning opportunities.

COPYRIGHT

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POLICIES

Class Attendance

Your presence and participation in class contributes to the knowledge and skills that you will develop throughout this course. I expect that you attend class regularly, participate in class conversations and learning activities. These types of activities provide active engagement, promote a deeper understanding of the course content, and contribute to your success in this course.

Academic Support

All undergraduate students face new learning and writing challenges as they progress through university: essays and reports become more complex; effectively incorporating research into writing becomes more important; the types of assignments become more diverse; managing your time and developing the skills you need to read and think critically gets more challenging. I encourage students to contact Student Academic Success Services (SASS). SASS offers many different ways to receive support:

- Free online or in-person appointments to get personalized support on writing and academic skills from expert staff and trained peers.
- Workshops and drop-in programs. SASS' Events Calendar lists events coming soon.
- Online resources that provide strategies for academic skills and writing development at university.

- If English is not your first language, SASS has specific resources for English as Additional Language students, including weekly programs and EAL academic skills appointments. You can meet on an ongoing basis with an EAL consultant to work on your academic writing, speaking, listening, and reading skills.

Accommodations for Disabilities

Queen's University is committed to working with students with disabilities to remove barriers to their academic goals. Queen's Student Accessibility Services (QSAS), students with disabilities, instructors, and faculty staff work together to provide and implement academic accommodations designed to allow students with disabilities equitable access to all course material (including in-class as well as exams). If you are a student currently experiencing barriers to your academics due to disability related reasons, and you would like to understand whether academic accommodations could support the removal of those barriers, please visit the QSAS website to learn more about academic accommodations or start the registration process with QSAS by clicking ***Access Ventus*** button at **Ventus | Accessibility Services | Queen's (queensu.ca)**

VENTUS is an online portal that connects students, instructors, Queen's Student Accessibility Services, the Exam's Office and other support services in the process to request, assess, and implement academic accommodations.

To learn more go to: https://www.queensu.ca/ventus-support/students/visual-guide-ventus-students

Academic Consideration for Students in Extenuating Circumstances

Academic Consideration is a process for the University community to provide a compassionate response to assist students experiencing unforeseen, short-term extenuating circumstances that may impact or impede a student's ability to complete their academics. This may include but is not limited to any extenuating circumstance (illness, bereavement, traumatic event, injury, family emergency, etc.) which is short-lived, begins within the term, and will not last longer than 12 weeks - see Academic Consideration webpage for details (https://www.queensu.ca/artsci/undergraduate/student-services/academic-consideration)

Each Faculty has developed a protocol to provide a consistent and equitable approach in dealing with requests for academic consideration for students facing extenuating circumstances. For more information, undergraduate students in the Faculty of Arts and Sciences should consult the Faculty's webpage on Academic Consideration in Extenuating Circumstances and submit a request via the Academic Consideration Request Portal. Students in other Faculties and Schools who are enrolled in this course should refer to the protocol for their home Faculty.

Students are encouraged to submit requests as soon as the need becomes apparent and to contact their instructor and/or course coordinator as soon as possible once academic consideration has been granted. Any delay in contact may limit the options available for academic consideration. While we encourage instructors to accommodate, each instructor has discretion in deciding whether or how to apply the Academic Consideration. For more information on the Academic Consideration process, what is and is not an extenuating circumstance, and to submit an Academic Consideration request, please see the Faculty of Arts and Science's Academic Consideration website. ASO courses include links to information on **Academic Consideration** on your **Course Homepage** in onQ.

Please see the Teaching Team page for contact information for your instructor and TA(s), where relevant.

For more information, please see the Senate Policy on Academic Consideration for Students in Extenuating Circumstances.

Queen's Policy Statement on Academic Integrity

Queen's University is dedicated to creating a scholarly community free to explore a range of ideas, to build and advance knowledge and to share the ideas and knowledge that emerge from a range of intellectual pursuits. Each core value of academic integrity, as defined in the Senate Academic Integrity Policy, gives rise to and supports the next.

Honesty appears in presenting one's own academic work, whether in the context of an examination, written assignment, laboratory or seminar presentation. It is in researching one's own work for course assignments, acknowledging dependence on the ideas or words of another and in distinguishing one's own ideas and thoughts from other sources. It is also present in faithfully reporting laboratory results even when they do not conform to an original hypothesis. Further, honesty is present in truthfully communicating in written and/or oral exchanges with instructors, peers and other

individuals (e.g. teaching assistants, proctors, university staff and/or university administrators).

Trust exists in an environment in which one's own ideas can be expressed without fear of ridicule or fear that someone else will take credit for them.

Fairness appears in the proper and full acknowledgement of the contributions of collaborators in group projects and in the full participation of partners in collaborative projects.

Respect, in a general sense, is part of an intellectual community that recognizes the participatory nature of the learning process and honours and respects a wide range of opinions and ideas. However, "respect" appears in a very particular sense when students attend class, pay attention, contribute to discussion and submit papers on time; instructors "show respect by taking students' ideas seriously, by recognizing them as individuals, helping them develop their ideas, providing full and honest feedback on their work, and valuing their perspectives and their goals" ("The Fundamental Values of Academic Integrity", 3rd Edition, p. 8).

Ultimately, responsibility is both personal and collective and engages students, administrators, faculty and staff in creating and maintaining a learning environment supported by and supporting academic integrity.

Courage differs from the preceding values by being more a quality or capacity of character – "the capacity to act in accordance with one's values despite fear" ("The Fundamental Values of Academic Integrity", 3rd edition, p. 10). Courage is displayed by students who make choices and integrous decisions that are followed by action, even in the face of peer pressure to cheat, copy another's material, provide their own work to others to facilitate cheating, or otherwise represent themselves dishonestly. Students also display courage by acknowledging prior wrongdoing and taking proactive measures to rectify any associated negative impact.

All of these values are not merely abstract but are expressed in and reinforced by the University's policies and practices.

Generative Artificial Intelligence (AI) Tools Statement

In this course you are learning the basics of descriptive and inferential statistics. We encourage you to focus on understanding the fundamental concepts and achieving proficiency in the basics of R code generation.

Unless otherwise stated, in class, tutorials and assessments (i.e. weekly quizzes), the use of Generative AI is not permitted in "Introduction to Statistics". Because this is an introductory course we are focused on the pedagogy of establishing and growing your fundamental skills and understanding of data management and statistics. We understand that the use of Generative AI may well be part of your study-strategy, and you are welcome to explore this during your personal study time. Keep in mind that although Generative AI tools can be useful for understanding the material and generating relevant content, you will be required to generate answers and responses to statistical and R-based questions in written exams without access to these tools. As such, we strongly encourage you to focus your efforts on understanding course content.

The writing of text responses that is done for some assignments, such as tutorials, is minimal but if you use Generative AI to refine this writing, it must be cited in your report. Any other use of Generative AI (e.g. response generation) in this course constitutes a departure from academic integrity. Please review the current academic integrity policies (updated Sept 2025).
https://www.queensu.ca/secretariat/policies/senate/academic-integrity-procedures-requirements-faculties-schools

Queen's Student Academic Success Services (SASS) offers a self-directed, online

academic integrity module which we encourage all students to take which will help with:

- Understanding the nature of the academic integrity departure
- Understanding the expectations of and role of sources in scholarly writing
- Integrating sources into your writing (paraphrasing, quoting, summarizing)
- Understanding when and how to cite your sources
- Managing your time effectively to avoid the need for shortcuts
- Taking effective notes to ensure accuracy of source material and correct attribution

Turnitin Statement

This course makes use of Turnitin, a third-party application that helps maintain standards of excellence in academic integrity. Normally, students will be required to submit their course assignments through onQ to Turnitin. In doing so, students' work will be included as source documents in the Turnitin reference database, where they will be used solely for the purpose of detecting plagiarized text in this course. Data from submissions is also collected and analyzed by Turnitin for detecting Artificial Intelligence

(AI)-generated text. These results are not reported to your instructor at this time but could be in the future.
Turnitin is a suite of tools that provide instructors with information about the authenticity of submitted work and facilitates the process of grading. The similarity report generated after an assignment file is submitted produces a similarity score for each assignment. A similarity score is the percentage of writing that is similar to content found on the internet or the Turnitin extensive database of content. Turnitin does not determine if an instance of plagiarism has occurred. Instead, it gives instructors the information they need to determine the authenticity of work as a part of a larger process.

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