

**Faculty of Science Course Syllabus
Department of Biology/ Environmental Science**

**Economic Botany: Plants & Civilization (BIOL 3226/ENVS 3226)
Fall 2024**

Instructor: Rajesh Rajaselvam Email: Rajesh.Rajaselvam@Dal.Ca Office: LSC 7130
Office Hours: Tuesday/Thursday 15:30 – 17:00 hrs, Wednesdays by appointment only

Lectures: Monday & Wednesday 11:35 - 12:55 hrs (at LSC C 238)

Tutorials: Wednesday 17:35 - 18:55 hrs: 6 tutorials (at LSC C 238)

**Delivery of lectures & tutorials: In-person (It is essential that you attend both lectures and tutorials).*

Course Description

This course explains the importance of plants and their role in human biological and cultural development. It provides an opportunity for students to learn about the impact of plants on society, including their use as a major food source, in medicine, and in industrial and recreational contexts. Additionally, the course explores the role of plants in ecosystem conservation and sustainability. Students will engage in hands-on field activities and seminars to investigate the uses and interactions of plants.

Course Prerequisites

A grade of B- or higher in BIOL 1010.03 or (BIOL 1020.03 or BIOA 1002.03 or BIOL 1030.03) and BIOL 1011.03 or (BIOL 1021.03, BIOA 1003.03, or BIOL 1031.03); or SCIE 1505.18 or instructor's permission.

Course Textbook

Levetin, E. and McMahon, K. Plants & Society, 8th (2020) or 9th (2023) Edition. NY: McGraw-Hill.

Learning Objectives

- Evaluate the importance of plants and their different roles.
- Explain how humans use different plant parts.
- Understand plant life cycle.
- Explain the botanical aspects and origins of important food, medicinal, and economically important plants.
- Discuss Green Revolution.
- Describe mechanisms involved in the preparation of stimulating beverages.
- Know medicinal plants used in different cultural backgrounds and their economic importance.
- Understand food security and challenges.
- Know current research in plants related to economic botany.

- Identify different plants and analyze the plant structures with hands-on field and greenhouse activities.
- Demonstrate a deeper knowledge of chosen medicinal plants through formal group oral presentation and report writing.

Course Assessment

| Assignment, Exam, or Presentation | Marks % | Date |
|--|------------|-------------------------|
| Quiz 1 | 08 | Sep 25 |
| Mid-Term Exam | 24 | Oct 23 |
| Oral Presentation (group presentation) | 10 | Nov 18 & 20 |
| Quiz 2 | 08 | Dec 02 |
| Lab/Seminar Report Submission | 20 | Oct 09, Nov 06, 12 & 27 |
| Final Exam | 30 | Scheduled by Registrar |
| Total | 100 | |

Oral Presentation

Students are expected to do a twelve-minute power point presentation (Group) on their chosen Medicinal Plant.

| <i>*Evaluation rubric</i> | MARKS | | | | |
|--|-------|---|---|---|---|
| <i>Evaluate the presentation by checking the grade the student achieved in the following categories:</i> | | | | | |
| The presentation was well organized. | 5 | 4 | 3 | 2 | 1 |
| The chosen 'Medicinal Plant' was covered clearly and understandably. | 5 | 4 | 3 | 2 | 1 |
| The presentation was very well-timed. | 5 | 4 | 3 | 2 | 1 |
| Credible resources were incorporated and cited. | 5 | 4 | 3 | 2 | 1 |
| The student/group responded effectively to questions posed by the audience. | 5 | 4 | 3 | 2 | 1 |
| The main points were effectively summarized, and a take-home message was delivered at the end of the presentation. | 5 | 4 | 3 | 2 | 1 |
| Overall grade: Total (out of 30) is reduced to out of 10 | | | | | |

Grading Scale

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale

| | | | | |
|-------------|------------|------------|---|---------|
| A+ (90-100) | B+ (77-79) | C+ (65-69) | D | (50-54) |
| A (85-89) | B (73-76) | C (60-64) | F | (<50) |
| A- (80-84) | B- (70-72) | C- (55-59) | | |

Course Policies

General Policies:

Class participation is considered vital.

Tutorial/Seminar sessions are compulsory. Complete attendance at all lectures is highly recommended since it helps to improve your grade significantly. A three-week period is given for tutorial submission.

Meeting deadlines is mandatory. No late submission without a valid reason is accepted for marking.

Brightspace (course web tool) is used for regular updates and announcements. TAs are the first point of contact (unless for major issues). Copying the instructor on messages is highly recommended.

Specific Policies:

The policies will only be implemented when a student's absence is due to physical or mental health conditions; involvement in an accident; immediate family illness, injury, or death; or other extenuating circumstances as described in Dalhousie University's Academic Calendar Regulation: Missed or Late Academic Requirements due to Student Absence (SDA)⁽¹⁾. The student must notify the instructor or teaching assistant *prior* to the academic requirement deadline and must submit a completed Student Declaration of Absence form⁽²⁾. No more than **two (2)** separate Student Declaration of Absence (SDA) forms may be used per course during a single term. SDA forms are valid **only** for tutorials, mandatory lectures/presentations & quizzes (not for submission deadlines).

Quizzes

- If quiz #1 is missed for a valid and credible reason, those marks will be re-distributed to quiz #2
- If quiz #2 is missed for a valid and credible reason, those marks will be re-distributed to the final exam
- If both quizzes are missed, only one will be re-distributed

Midterm Exam and Final Exam

- One makeup exam can be scheduled for any student, provided the original examination was missed for a valid and credible reason (documentation may be required). The instructor or teaching assistant must be notified prior to the examination start time.
- The makeup exam will be a different exam than the one given during the regularly scheduled examination time.
- If the missed exam is a final examination in the Fall term, the makeup exam will be scheduled for January of the following year.

Tutorials

- Missing a tutorial is only acceptable in those cases where the student has notified the teaching assistant prior to the start time of the tutorial with a valid and credible reason.

Altogether, **no more than three (3) evaluations** (tutorials, quizzes, and exams combined) may be missed, as there will not be enough material to adequately evaluate the student.

⁽¹⁾Academic Calendar Regulation: Missed or Late Academic Requirements due to Student Absence: <https://www.dal.ca/content/dam/www/about/leadership-and-governance/university-policies/student-absence-regulation.pdf>

⁽²⁾Student Declaration of Absence Form: <https://www.dal.ca/content/dam/www/about/mission-vision-and-values/edia/student-declaration-absence-form.pdf>

Course Content

Schedule (Tentative)

A. Lectures (Detailed lecture slides will be posted on Brightspace)

Week 1

Sep 04 - Introduction & Plants in our lives (Chap 01)

Week 2

Sep 09 - Diversity of plant life I (Chap 9)

Sep 11 - Diversity of plant life II & **Pre-tutorial 01** (Chap 9)

Week 3

Sep 16 - Human nutrition (Chap 10)

Sep 18 - Origin of agriculture I (Chap 11)

Week 4

Sep 23 - Grasses (Chap 12)

***Sep 25 - Quiz 1 ... 8 marks**

Week 5

Oct 02 - Starchy staples (Chap 14)

Week 6

Oct 07- Legumes I (Chap 13)

Oct 09 - Feeding a hungry world (Chap 15)

Week 7

Oct 16 - Genetically Modified (GM) Plants & Midterm Review

Week 8

Oct 21 - **Tutorial 03 Additional info & Greenhouse visit**

***Oct 23 - Midterm Exam (11:30 - 13:00 hrs)... 24 marks**

Week 9

Oct 28 - Medicinal Plants I & Guest Lecture (Chap 19)

Oct 30 - Medicinal Plants II (Chap 19/Recent Journal Articles)

Week 10

Nov 04 - Stimulating beverages I (Chap 16)

Nov 06 - Stimulating beverages II (Chap 16)

Week 11

Nov 11 - 15 - Fall Study Break

Week 12

Nov 18 & 20 – Students’ presentation...10 marks

Week 13

Nov 25 - Herbs and spices/ TA Discussion session (Chap 17)

Nov 27 - Psychoactive plants (Chap 20)/ **Discussion session**

Week 13

Dec 02 - Quiz 02...8 marks

Dec 04 - Final Revision

Final Exam (Scheduled by the registrar’s office) ...30 marks

B. Seminar/Tutorial sessions (Detailed tutorial/lab slides will be posted on Brightspace)

Attendance Mandatory, (4 x 5) = 20 marks

Sep 18: Tutorial 1: Field/Wild Plant identification (**Field report required: Lab 01/ Submission deadline: 09 Oct 2024**)

Oct 02: Tutorial 2: Importance of Plants/Plant cell & life cycles (Chap 2, 5 & 6 + Short video)

Oct 16: Tutorial 3: Economically important tropical plants: Greenhouse lab (**Report required: Lab 02/ Submission deadline: 06 Nov 2023**)

Oct 23: Tutorial 4: Genetically Modified plants (**Report required: Lab 03/ Submission deadline: 12 Nov 2023**)

Oct 30: Tutorial 5: Oral presentation introduction

Nov 06: Tutorial 5: Oral presentation introduction/preparation

Nov 27: Tutorial 6: Plants and the Environment (**Report required: Lab 04/ Submission: in class, at the end of the tutorial**)

Nov 18 & 20: Both lecture and tutorial sessions: Students’ oral presentations

** You are given three weeks to complete and submit the assignments/reports. Meeting the submission deadline is very important. Tutorials are subject to change due to administrative disruptions.*

University Policies and Statements

This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate

Recognition of Mi’kmaq Territory

Dalhousie University would like to acknowledge that the University is on Traditional Mi’kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit or e-mail the Indigenous Student Centre at 1321 Edward St or elders@dal.ca. Additional information regarding the Indigenous Student Centre can be found at: https://www.dal.ca/campus_life/communities/indigenous.html

Internationalization

At Dalhousie, ‘thinking and acting globally’ enhances the quality and impact of education, supporting learning that is “interdisciplinary, cross-cultural, global in reach, and orientated toward solving problems

that extend across national borders.” Additional internationalization information can be found at:
<https://www.dal.ca/about-dal/internationalization.html>

Academic Integrity

At Dalhousie University, we are guided in all our work by the values of academic integrity: honesty, trust, fairness, responsibility, and respect. As a student, you are required to demonstrate these values in all the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity. Additional academic integrity information can be found at: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Student Accessibility Centre is Dalhousie's centre of expertise for matters related to student accessibility and accommodation. If there are aspects of the design, instruction, and/or experiences within this course (online or in-person) that result in barriers to your inclusion, please contact the Student Accessibility Centre (https://www.dal.ca/campus_life/academic-support/accessibility.html) for all courses offered by Dalhousie with the exception of Truro. For courses offered by the Faculty of Agriculture, please contact the Student Success Centre in Truro (<https://www.dal.ca/about-dal/agricultural-campus/student-success-centre.html>)

Conduct in the Classroom – Culture of Respect

Substantial and constructive dialogue on challenging issues is an important part of academic inquiry and exchange. It requires willingness to listen and tolerance of opposing points of view. Consideration of individual differences and alternative viewpoints is required of all class members, towards each other, towards instructors, and towards guest speakers. While expressions of differing perspectives are welcome and encouraged, the words and language used should remain within acceptable bounds of civility and respect.

Diversity and Inclusion – Culture of Respect

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness (Strategic Priority 5.2). Additional diversity and inclusion information can be found at:
<http://www.dal.ca/cultureofrespect.html>

Student Code of Conduct

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner - perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution. The full Code of Student Conduct can be

found at: https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

Fair Dealing Policy

The Dalhousie University Fair Dealing Policy provides guidance for the limited use of copyright protected material without the risk of infringement and without having to seek the permission of copyright owners. It is intended to provide a balance between the rights of creators and the rights of users at Dalhousie.

Additional information regarding the Fair Dealing Policy can be found at:

https://www.dal.ca/dept/university_secretariat/policies/academic/fair-dealing-policy-.html

Originality Checking Software

The course instructor may use Dalhousie's approved originality checking software and Google to check the originality of any work submitted for credit, in accordance with the Student Submission of Assignments and Use of Originality Checking Software Policy. Students are free, without penalty of grade, to choose an alternative method of attesting to the authenticity of their work and must inform the instructor no later than the last day to add/drop classes of their intent to choose an alternate method. Additional information regarding Originality Checking Software can be found at:

https://www.dal.ca/dept/university_secretariat/policies/academic/student-submission-of-assignments-and-use-of-originality-checking-software-policy-.html

Student Use of Course Materials

Course materials are designed for use as part of this course at Dalhousie University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as books, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law. Copying this course material for distribution (e.g. uploading to a commercial third-party website) may lead to a violation of Copyright law.

Student Resources and Support

Advising

General Advising https://www.dal.ca/campus_life/academic-support/advising.html

Science Program Advisors: <https://www.dal.ca/faculty/science/current-students/undergrad-students/degree-planning.html>

Indigenous Student Centre: https://www.dal.ca/campus_life/communities/indigenous.html

Black Students Advising Centre: https://www.dal.ca/campus_life/communities/black-student-advising.html

International Centre: https://www.dal.ca/campus_life/international-centre/current-students.html

Academic supports

Library: <https://libraries.dal.ca/>

Writing Centre: https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html

Studying for Success: https://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html

Copyright Office: <https://libraries.dal.ca/services/copyright-office.html>

Fair Dealing Guidelines <https://libraries.dal.ca/services/copyright-office/fair-dealing.html>

Other supports and services

Student Health & Wellness Centre: https://www.dal.ca/campus_life/health-and-wellness.html

Student Advocacy: <https://dsu.ca/dsas>

Ombudsperson: https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html

Safety

Biosafety: <https://www.dal.ca/dept/safety/programs-services/biosafety.html>

Chemical Safety: <https://www.dal.ca/dept/safety/programs-services/chemical-safety.html>

Radiation Safety: <https://www.dal.ca/dept/safety/programs-services/radiation-safety.html>

Scent-Free Program: <https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html>

Dalhousie COVID-19 information and updates: <https://www.dal.ca/covid-19-information-and-updates.html>

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