

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

**Economic Botany: Plants & Civilization (BIOL 3226/ENVS 3226)  
Fall 2023**

**Instructor:** Rajesh Rajaselvam      Email: [Rajesh.Rajaselvam@Dal.Ca](mailto:Rajesh.Rajaselvam@Dal.Ca)      Office: LSC 7130  
Office Hours: Tuesday/Wednesday 14:30 – 16:00 hrs, Thursdays by appointment only

**Lectures:** Monday & Wednesday 10:05 - 11:25 hrs (at LSC Chem 223)

**Tutorials:** Thursday 13:05 - 14:25 hrs: 6 tutorials (at LSC C 206)

*\*Delivery of lectures & tutorials: In-person (it is very important that you attend lectures & tutorials).*

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### **Course Description**

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

### **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, 8<sup>th</sup> (2020) or 9<sup>th</sup> (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 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 27
Mid-Term Exam	24	Oct 25
Oral Presentation (group presentation)	10	Nov 20, 22 & 23
Quiz 2	08	Dec 04
Lab/Seminar Report Submission	20	Oct 12, Nov 02, 14 & 30
Final Exam	30	Scheduled by Registrar
<b>Total</b>	<b>100</b>	

### 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 in a clear and understandable fashion.	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
Main points were effectively summarized and a take-home message 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 of all lectures is highly recommended since it helps to improve your grade significantly. 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)<sup>(1)</sup>. 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<sup>(2)</sup>. 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(s) provided the examination was missed for a valid and credible reason (document/s may be required), the instructor or teaching assistant was 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)** tutorials, quizzes, and exams may be missed as there will not be enough material to adequately evaluate the student on.

<sup>(1)</sup>Academic Calendar Regulation: Missed or Late Academic Requirements due to Student Absence:

[https://cdn.dal.ca/content/dam/dalhousie/pdf/dept/university\\_secretariat/policy-repository/Student%20Absence%20Regulation%20\(May%202018\)%20\(3\).pdf](https://cdn.dal.ca/content/dam/dalhousie/pdf/dept/university_secretariat/policy-repository/Student%20Absence%20Regulation%20(May%202018)%20(3).pdf)

<sup>(2)</sup>Student Declaration of Absence Form:

<https://cdn.dal.ca/content/dam/dalhousie/pdf/campuslife/Health%20and%20wellness/FINAL%20Student%20Declaration%20of%20Absence%20Form.pdf>

## **Course Content**

### Schedule (Tentative)

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

##### Week 1

Sep 06 - Introduction & Plants in our lives (Chap 01)

##### Week 2

Sep 11 - Diversity of plant life I (Chap 9)

Sep 13 - Diversity of plant life II & **Pre-tutorial 01** (Chap 9)

##### Week 3

Sep 18 - Human nutrition (Chap 10)

Sep 20 - Origin of agriculture I (Chap 11)

##### Week 4

Sep 25 - Grasses (Chap 12)

**\*Sep 27 - Quiz 1 ... 8 marks**

##### Week 5

Oct 04 - Starchy staples (Chap 14)

##### Week 6

Oct 11- Legumes I (Chap 13)

##### Week 7

Oct 16 - Legumes II (Chap 13)

Oct 18 - Feeding a hungry world & Midterm Review (Chap 15)

##### Week 8

Oct 23 - Genetically Modified (GM) plants & **Pre-tutorial 04**

**\*Oct 25 - Midterm Exam (11:35 - 12:55 hrs)... 24 marks**

##### Week 9

Oct 30 - Medicinal Plants I (Chap 19)

Nov 01 - Medicinal Plants II (Chap 19/Recent Journal Articles)

##### Week 10

Nov 06 - Stimulating beverages I (Chap 16)

Nov 08 - Stimulating beverages II (Chap 16)

Week 11

Nov 13 - 17 - Fall Study Break

Week 12

**Nov 20 & 22 – Students’ presentation...10 marks**

Week 13

Nov 27 - Herbs and spices/ TA Discussion session (Chap 17)

Nov 29 - Psychoactive plants (Chap 20)/ **Discussion session**

Week 13

**Dec 04 - Quiz 02...8 marks**

**Dec 06 - 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 21:** Tutorial 1: Field/Wild Plant identification (**Field report required: Lab 01/ Submission deadline: 12 Oct 2023**)

**Sep 28:** Tutorial 2: Importance of Plants/Plant cell & life cycles (Chap 2, 5 & 6 + Short video)

**Oct 19:** Tutorial 3: Economically important tropical plants: Greenhouse lab (**Report required: Lab 02/ Submission deadline: 02 Nov 2023**)

**Oct 26:** Tutorial 4: Genetically Modified plants (**Report required: Lab 03/ Submission deadline: 14 Nov 2023**)

**Nov 02:** Tutorial 5: Oral presentation introduction

**Nov 09:** Tutorial 5: Oral presentation introduction/preparation

**Nov 30:** Tutorial 6: Plants and the Environment (**Report required: Lab 04/ Submission: in class, at the end of the tutorial**)

**Nov 20, 22 & 23:** Students’ oral presentations

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

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### **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](mailto:elders@dal.ca). Additional information regarding the Indigenous Student Centre can be found at: [https://www.dal.ca/campus\\_life/communities/indigenous.html](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](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](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](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](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](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](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](https://www.dal.ca/campus_life/communities/indigenous.html)

**Black Students Advising Centre:** [https://www.dal.ca/campus\\_life/communities/black-student-advising.html](https://www.dal.ca/campus_life/communities/black-student-advising.html)

**International Centre:** [https://www.dal.ca/campus\\_life/international-centre/current-students.html](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](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](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](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](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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