

BIOL 366 – Plant Physiology

CRN: 20368

University of Victoria

Course Outline – Spring 2025

Lectures: Tuesday/Wednesday/Friday | 9:30AM – 10:20AM Pacific Time (PT) | CUN 146

Labs: Tuesday or Wednesday | 2:30PM – 5:20PM PT | CUN 136

We acknowledge and respect the Ləkʷəŋən (Songhees and Esquimalt) Peoples on whose territory the university stands, and the Ləkʷəŋən and W̱SÁNEĆ Peoples whose historical relationships with the land continue to this day.



Photo by [Ricardo Gomez Angel](#) on [Unsplash](#)

Table of Contents

A. Course Details	4
1. Contact Information & Instructors	4
<i>Lab Component:</i>	4
Senior Lab Instructor:	4
Scientific Technician:	4
Teaching Assistant:	4
<i>Lecture Component:</i>	4
Instructor Name	4
Instructor Contact Information	4
2. Pre-requisite	4
3. Course Philosophy	5
4. Course Intended Learning Outcomes	6
5. Student Hours	6
6. Required Course Material	6
Textbook	6
Lab Manual	6
Brightspace	6
7. Teaching Methods	6
8. Expected Time Commitment	7
9. Feedback	7
B. Methods of Student Evaluation	7
1. Lecture Component.....	7
2. Lab Component	8
UVic Grading Scale:	8
C. Important Dates in Spring 2025 Term	9
D. Tentative Class Schedule	10
E. Academic Policies & Regulations (Alphabetical)	14
Academic Calendar	14
Academic Integrity	14
Academic Concession Regulation & Guidelines.....	14
Centre for Accessible Learning.....	14
Emergency Information	14
Fair Dealings	14
Indigenous Academic & Community Engagement (IACE)	15

BIOL366 Course Outline – Spring 2025

Mental Health	15
Online Conduct.....	15
Sexualized Violence Prevention & Response	16
UVic LEARN (Learner Empowerment and Academic Resource Network)	16
University of Victoria Students' Society (UVSS).....	16

A. Course Details

1. Contact Information & Instructors

Lab Component:

Senior Lab Instructor: Lan Tran (lttran@uvic.ca)

Scientific Technician: Samantha Robbins (srobbins@uvic.ca)

Teaching Assistant: Bethany Robson (brobson@uvic.ca)

Lecture Component:

Instructor Name

Gerry Gourlay, LATHE, PhD (she/her)

I encourage you to please reach out and let me [know what name and pronouns you want to go by](#). I want to be respectful of what we all like to be called. For instance, my name is pronounced like “Jerry” (J-air-e) but is spelled with a “G”. It is not pronounced like Gary.

I may make mistakes in pronunciation or remembering preferred names, but I ask that you please gently remind me so that I can continue to learn and respect how we all want to be called. 😊

Instructor Contact Information

holmgera@uvic.ca (e-mail to schedule any individual meetings or for student hours)

I aim to reply to all e-mails Monday – Friday between 8AM and 6PM Pacific Time. If a message is urgent, please include “Urgent” in the subject line.

My role in this course is to support your learning and engaging with plants and key physiological measurements, considerations, & implications in the grander picture of plant biology. To accomplish this, I utilize two-way communication throughout the entire course meaning that I will communicate with you about upcoming deadlines, dates, changes, or any other relevant information for the course. In addition, I look forward to hearing from you about ways I can support you, assist you, or guide you throughout this course.

I am very much looking forward to exploring the world of plant physiology together!

2. Pre-requisite

Minimum third year standing. Completed BIOL225 (Principles of Cell Biology).

Completed or concurrently enrolled in *one* of the following: BIOC299 (Biochemistry for Non-Majors), BIOC300A (General Biochemistry I), or BIOC300B (General Biochemistry II).

3. Course Philosophy

During this course we will address how plants function. Topics include the capture of light energy for growth and metabolism, water relations, plant nutrition, transport processes, plant development and its control, phytohormones, and responses to environmental stimuli. You will appreciate that plants are very active and responsive to internal and external stimuli. Plant response to the environment will be explored on biochemical, physical, and molecular levels. The laboratory exercises reinforce these concepts and provide practical experience in plant physiology.

I am here to help you succeed and I encourage questions, reaching out to schedule one-on-one meetings (via Zoom, phone, or other platform) for additional support, or letting me know if something comes up. If you have feedback or additional suggestions around how the course is organized and facilitated, I welcome you to reach out to me via e-mail or to schedule a one-on-one meeting to have these discussions. Your insights are appreciated and important for the overall success of our course and our learning community.

There will be a Q&A discussion forum on Brightspace for course related questions. This is a great way to connect with your peers, and to help and learn from one another. I encourage you to ask questions and to help other students by answering questions, if appropriate. Invite others to form a study group or to share study strategies they may be using for the course. I may also post questions and answers to individual inquiries received during class or via e-mail, anonymized and with consent, if the question will be helpful to other students.

Take advantage of student hours to talk to me if you have problems that cannot be addressed using the above channels. I am here to help. To help manage workload, it is recommended to review your notes and study regularly in lieu of postponing studying until only before an exam.

Life can happen and it can happen to every one of us. If there is any situation arising that makes it difficult for you to be successful in this class, please come and talk to me. We can work together to find solutions! Should you need to miss a class for any reason or want to review materials, class materials will be available on Brightspace.

4. Course Intended Learning Outcomes

By the end of this course, you will:

- recognize key components of classical plant physiology (e.g., water transport and photosynthesis) in relation to plant success and function.
- identify plant molecular signaling cascades, including hormone functions, through the lens of plant development and in responses and reactions to their environment (e.g., plant (a)biotic stress responses).
- actively practice experimental procedures used for plant research to assess general plant physiology.
- accurately interpret scientific graphs and figures, both in scientific literature and generated by your own lab-based experiments.

5. Student Hours

By appointment and generally on Zoom or Microsoft Teams. Please send me an e-mail (holmgera@uvic.ca) to arrange a meeting.

6. Required Course Material

Textbook

Taiz et al., Plant Physiology and Development, 7th Edition (2022), Sinauer.

Recommended - older editions are also suitable

Lab Manual

Biology 366 Plant Physiology - Laboratory Manual 2025

Required - available from the UVic Bookstore

Brightspace

Recordings, lecture slides, and lab materials will be shared using Brightspace on the [BIOL 366 Brightspace site](#).

7. Teaching Methods

In general, I will utilize interactive tools throughout our classes ranging from short questions to pair work, to small group exercises. I have aligned the course schedule to match the labs as closely as possible but there may be changes throughout the term. You will be notified in-class and with Brightspace announcements for any changes to course material.

All lectures will be recorded using Echo360 and posted on Brightspace to support student learning. Students who have privacy concerns can contact me and will have the option to limit their personal information shared in the recording.

In addition to recordings, draft slides will be made available in advance of class to support notetaking. Final versions of slides will be posted after each respective class.

8. Expected Time Commitment

Three hours of lecture & three hours of lab most weeks. Outside of that, studying & reviewing notes may account for up to three additional hours per hour of class (e.g., nine additional study hours per week). Please note this is only an approximation and each student time commitment will vary.

9. Feedback

Throughout the semester, I will request anonymous student feedback twice (early in the semester and mid-way through) to inform how the course is currently running and to make any necessary changes to the overall course structure to better support student learning. I appreciate your feedback about the course as it helps not only my growth as an educator, but it also helps to shape our learning community and better support all students.

Towards the end of term, you will have the opportunity to complete a confidential course experience survey (SEL) regarding your learning experience. The survey provides feedback to me regarding the course and my teaching, as well as to help the department improve the overall program for students in the future. When it is time for you to complete the survey, you will receive an e-mail inviting you to do so. If you do not receive an e-mail invitation, you can go directly to your [SEL dashboard](#). You will need to use your UVic NetLink ID to access the survey, which can be done on your laptop, tablet, or mobile device. Time will be provided in class to fill out the SEL survey.

B. Methods of Student Evaluation

Three non-cumulative exams (based on lectures) – 20% each	60%
Lab Component (Required)	40%
Total	100%

Students must pass both the lecture & the lab by scoring and overall grade of at least 50% in each component.

1. Lecture Component

Exams will be based on lecture material, but readings from the text will help reinforce the concepts. Exams will be non-cumulative meaning they cover only the material since the previous exam. This is also true for the third exam, which will take place during final exam period, but will only address material since the second midterm. All exams will be administered on through Brightspace.

If you do not have a device to write the exams, please connect with me the beginning of the course to guide you to resources available on campus (e.g., the [‘Borrow a Laptop’](#) program from the library). Please arrange with the Centre for Accessible Learning ([CAL](#)) if you require any additional academic accommodations; it is important to abide to CAL’s policies and timelines.

If you are fit to write the exam but should not come to campus (e.g., to prevent the spread of communicable diseases), please contact me as early as possible to discuss options.

There will be no supplemental in-course exams. Please inform me as soon as possible (within one week) if you miss an exam due to unexpected and unavoidable circumstances, or conflicting responsibilities ([as detailed here](#)). In this case, the evaluation breakdown will be adjusted accordingly & the remaining two exams will each be worth 30% of your final grade. Exams that have been missed without excuse will be given a grade of zero marks.

Writing at least two lecture exams is a course requirement. Failure to do so will result in a grade of “N” regardless of the cumulative percentage on other elements of the course. Students that obtained a grade of “N” may submit a formal [Request for Academic Concession \(RAC\)](#) and a deferred exam addressing the missed lecture material will be organized if the RAC is approved.

Final Exam: The third exam will be taking place during the final exam period (between April 7 – 25). Because the final exam period ends for all faculties on Friday, April 25, the university’s last exam will be in the evening of that day. Your last exam might be on this date, or it might be earlier – you will know for sure only when the final exam schedule is drawn up and posted.

2. Lab Component

The laboratory is worth 40% of the final course grade. You must pass the lab to pass the course. The closed-book final lab exam is a course requirement and will be written in Cunningham 136 during your regular lab section during the week of March 17. **Please see the laboratory manual for full laboratory policies and details.**

UVic Grading Scale: All grades at UVic are submitted as percentiles, which is how it will appear on the academic transcript. Percentiles above 0.5% will be rounded up to the next integer for the final course grade.

Grade Conversion	A+: 90 – 100%	A: 85 – 89.5%	A-: 80 – 84.5%
	B+: 77 – 79.5%	B: 73 – 76.5%	B-: 70 – 72.5%
	C+: 65 – 69.5%	C: 60 – 64.5%	D: 50 – 59.5%
	F < 49.5%		

C. Important Dates in Spring 2025 Term

<u>Date (Day of Week)</u>	<u>Key information about important date</u>
January 6 (Monday)	First day of classes
January 19 (Sunday)	Last day for 100% reduction of fees for standard courses. 50% of tuition fees will be assessed for courses dropped after this date.
January 22 (Wednesday)	Last day for adding courses
January 31 (Friday)	Last day for paying fees without financial penalty.
February 9 (Sunday)	Last day for 50% reduction of tuition fees for standard courses. 100% of tuition fees will be assessed for this course dropped after this date.
February 17 (Monday)	Family Day Holiday (University closed)
February 17-21 (Monday – Friday)	Reading Break (no classes)
February 28 (Friday)	Last day for withdrawing from this course without penalty of failure.
April 4 (Friday)	Last day of classes
April 7 (Monday)	Exam period begins
April 25 (Friday)	Exam period ends

D. Tentative Class Schedule¹

Legend: T = Tuesday, W = Wednesday, F = Friday

Week Number	Class Number	Day & Date	Topic Exam	Plant Physiology (Chapter # or pgs.)	Lab Topics
1	1	T January 7, 2025	Introduction ☺	None	No Lab
	2	W January 8, 2025	Plant Cells	Chapter 1	
	3	F January 10, 2025	General Plant Anatomy	Chapter 1	
2	4	T January 14, 2025	Mineral Nutrition	Chapter 7	Lab 1: Introduction to Plant Morphology, Anatomy, & Physiology
	5	W January 15, 2025	Mineral Nutrition (cont'd.)	Chapter 7	
	6	F January 17, 2025	Assimilation of Mineral Nutrients	Chapter 8	
3	7	T January 21, 2025	Nutrient Uptake & Nutrient Stress	Chapter 15	Lab 2: Mineral Nutrition
	8	W January 22, 2025	Plant Growth Regulators	Chapter 4	
	9	F January 24, 2025	Hormones & Plant Development	Chapter 17	

¹ Please note that this schedule is tentative for topic structure. Any changes to the schedule will be communicated to all students in advance. We will also do a deep dive looking at the schedule on our first class.

BIOL366 Course Outline – Spring 2025

Week Number	Class Number	Day & Date	Topic Exam	Plant Physiology (Chapter # or pgs.)	Lab Topics
4	10	T January 28, 2025	Hormones: Auxin + Cytokinin	Chapter 17 (19?)	Lab 3: Plant Tissue Culture
	11	W January 29, 2025	Water Relations	Chapter 5	
	12	F January 31, 2025	Water Relations (cont'd.)	Chapter 6	
5	13	T February 4, 2025	Water Stress	Chapter 15	Lab 4: Water Conduction & Transpiration
	Exam	W February 5, 2025	Exam #1	None	
	14	F February 7, 2025	Photosynthesis	Chapter 9	
6	15	T February 11, 2025	Photosynthesis: Light & Dark Reactions	Chapter 10, 11	Lab 5: Measurement of Photosynthesis in C3 & C4 Plants
	16	W February 12, 2025	C3 / C4 / CAM Plants	Chapter 11	
	17	F February 14, 2025	Hormones & Vegetative Growth	Chapter 19	
7	February 17 – 21, 2025 Reading Break No classes ☺				

BIOL366 Course Outline – Spring 2025

Week Number	Class Number	Day & Date	Topic Exam	Plant Physiology (Chapter # or pgs.)	Lab Topics
8	18	T February 25, 2025	Hormones: Gibberellin & Ethylene	Chapter 17	Lab 6: Plant Growth Regulators & Pigment Extraction
	19	W February 26, 2025	Symbionts & Nutrient Uptake	Chapter 8	
	20	F February 28, 2025	Abiotic Stress – N Deficiency	Chapter 15	
9	21	T March 4, 2025	Nitrogen Fixation	Chapter 8	Lab 7: Nitrogen Fixation
	22	W March 5, 2025	Respiration	Chapter 12	
	23	F March 7, 2025	Respiration (cont'd.)	Chapter 12	
10	24	T March 11, 2025	Plant Responses to Light: Red, Blue, & UV	Chapter 16	Lab 8: Seed Germination & Respiration
	Exam	W March 12, 2025	Exam #2	None	
	25	F March 14, 2025	Transport & Storage of Carbohydrates	Chapter 13	
11	26	T March 18, 2025	Phloem Loading	Chapter 13	Lab Exam
	27	W March 19, 2025	Plant Signal Transduction	Chapter 4, 15	

BIOL366 Course Outline – Spring 2025

Week Number	Class Number	Day & Date	Topic Exam	Plant Physiology (Chapter # or pgs.)	Lab Topics
11	28	F March 21, 2025	Photoperiodism	Chapter 20	
12	29	T March 25, 2025	Photoperiodism & Flowering	Chapter 20	Student Oral Presentations
	30	W March 26, 2025	Abiotic Stress Physiology	Chapter 15	
	31	F March 28, 2025	Abiotic Stress Physiology (cont'd.)	Chapter 15	
13	32	T April 1, 2025	Biotic Stress Physiology	Chapter 24	No Lab
	33	W April 2, 2025	Biotic Stress Physiology (cont'd.)	Chapter 24	
	34	F April 4, 2025	Review	None	

E. Academic Policies & Regulations (Alphabetical)

Academic Calendar

You can review the [Undergraduate Academic Calendar](#) for any relevant policies and procedures.

Academic Integrity

Adhering to academic regulations set as set out by the University, including [standards of academic integrity](#), is an important part of being a university student and a professional. Violations of academic integrity (e.g., cheating and plagiarism) are considered serious and may result in significant penalties. You can [review the University's policy on academic integrity here](#). All quizzes must be completed individually and not with a friend, or classmate, or a group. Please do not share any information about the quizzes with others.

Academic Concession Regulation & Guidelines

Life happens, I get that. Please talk with me before we get to the point of needing an academic concession – I want to help you succeed. You can review [academic concessions & accommodations here](#) including a friendly [Frequently Asked Questions \(FAQ\)](#).

Centre for Accessible Learning

The [Centre for Accessible Learning \(CAL\)](#) works with faculty and students to promote educational accessibility for students with disabilities and chronic health conditions. CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations. Please release any accommodation letters **a minimum of seven days in advance of an assessment for accommodations to be applied** and to meet with me about specific concerns, if needed.

Emergency Information

You can find and access [useful resources for emergency information](#) on and around the University campus.

Fair Dealings

All course materials (including but not limited to lecture slides, recordings, exam questions, and in-class activities) are made pursuant to the [Fair Dealing Guidelines](#) of the University, library database licenses, and other university licenses and policies. These materials are made available by your instructor for educational purposes and for the exclusive use of students registered in our class. The material is protected under copyright law, even if not marked with a ©. Any further use or distribution of materials to others requires the written permission of the instructor, except under fair dealing or another exception in the Copyright Act. Sharing course content (such as including but not limited to lecture slides, recordings, exam questions, and in-class activities) through note-sharing sites or other means violates UVic's policy on academic integrity. Violations may result in

disciplinary action under the [Resolution of Non-Academic Misconduct Allegations policy \(AC1300\)](#).

Indigenous Academic & Community Engagement (IACE)

Indigenous UVic students have [access to many sources of support on campus](#) including a centrally located First Peoples House. Before, during and after your time at UVic, you are encouraged to explore programs and services available to you, such as [Indigenous counselling services](#) and the [Elders in Residence](#), as well as non-academic programs that may be of interest to you.

[Elders' Voices](#) - The Office of Indigenous Academic and Community Engagement (IACE) has the privilege of assembling a group of Elders from local communities to guide students and other university community members in Indigenous ways of knowing and being.

Mental Health

The semester can be stressful and I encourage you to take care of yourself throughout the term as best you can. There are many supports out there to assist you. Engaging in self-care and maintaining a healthy lifestyle this term can help you achieve your goals and cope with stress. All of us benefit from support during times of struggle. You are not alone. The source of symptoms might be related to your course work; if so, please speak with me.

However, problems with other parts of your life can also contribute to stress and the UVic [Student Wellness Centre](#) provides cost-free and confidential mental health services to help you manage personal challenges that impact your emotional or academic well-being. Student Wellness also provides a full-service primary health clinic for students and coordinates healthy student and campus initiatives. They offer free professional, confidential, inclusive support to currently registered UVic students.

In addition to providing both face to face and online mental health resources through the Student Wellness Centre, a 24/7 phone & online student mental health resource and support program ([Support Connect](#)) is available for all UVic students & their dependents, no matter where you are located, at any time.

Online Conduct

The University of Victoria is committed to promoting critical academic discourse while providing a respectful and supportive learning environment. All members of the university community have the right to this experience and the responsibility to help create such an environment. The University will not tolerate racism, sexualized violence, or any form of discrimination, bullying or harassment.

Please be advised that, by logging into UVic's learning systems or interacting with online resources, and course-related communication platforms, you are engaging in a university activity.

All interactions within this environment are subject to the university expectations and policies. Any concerns about student conduct may be reviewed and responded to in accordance with the appropriate university policy. To report concerns about online student conduct: onlineconduct@uvic.ca.

Sexualized Violence Prevention & Response

UVic takes sexualized violence seriously. We encourage students to learn more about how the university defines sexualized violence and its overall approach. If you or someone you know has been impacted by sexualized violence and needs information, advice, and/or support please [contact the sexualized violence resource office in Equity and Human Rights \(EQHR\)](#). If you want to take part in the important prevention work taking place on campus, you can also contact the sexualized violence resource office in EQHR, Sedgewick C119, Phone: 250.721.8021, e-mail: svpcoordinator@uvic.ca.

UVic LEARN (Learner Empowerment and Academic Resource Network)

[UVic LEARN](#) is UVic's student portal with a full range of student and academic support services including:

- [Centre for Academic Communication](#) (CAC)
- [Library](#)
- [Computer Help Desk](#)

UVic LEARN also provides extensive information and student support for [online learning technologies](#).

University of Victoria Students' Society (UVSS)

The UVSS is a social justice based non-profit run by students for students and is entirely separate from UVic. As an undergrad student, you are already a member! The UVSS works on issues affecting students such as affordability, public transit, sexualized violence, sustainability, student employment, and much more. The UVSS funds clubs and course unions and have several advocacy groups. The UVSS also has a Food Bank and Free Store, a Peer Support Centre, and run your health and dental plan. The UVSS is here to support you, so please reach out and [visit their website](#)!