

**The University of Manitoba**  
**Faculty of Agricultural and Food Sciences**

**Course Title:** Plant Science Thesis

**Department:** Plant Science

**Academic Session:** Fall 2022

**Course Number:** PLNT 4380

**Credit Hours:** 6

**Instructor Information**

**Instructor:** Dr. Belay Ayele

**Office Location:** Room 111 Agriculture Building

**Research Lab Location:** Room 112, Crop Technology Center, 194 Dafoe Road

**Office Phone Number:** 474-8227

**Email Address:** [belay.ayele@umanitoba.ca](mailto:belay.ayele@umanitoba.ca)

**Course Objectives**

**OBJECTIVES:** This course will provide the student with the opportunity 1) to learn about expression analysis of abscisic acid metabolism genes of wheat during early stage of plant development; 2) to gain firsthand experience in managing experimental materials and performing physiological and molecular biology experimental procedures including RNA extraction, cDNA synthesis and RT-qPCR analysis; and 3) to improve scientific writing abilities.

**Project Description**

The student will perform the following experimental procedures: perform database mining of target genes and design primers, grow seedlings and extract total RNA from the seedling tissues collected, synthesize cDNA samples, and perform quantitative polymerase chain reaction (qPCR) based expression analysis of target genes. Upon the completion of each experimental procedure, the student will analyze the respective data, and finally submit a report in the form of a thesis that discusses the results obtained from the project. The student is also expected to present the findings to lab members in the form of PowerPoint presentation.

**Evaluation**

- Evaluation of the student's progress on a weekly basis (progress on experimental work, lab organizational skill, record keeping, data analysis and presentation in table or figure formats, ability to learn technical skills, work with other lab members, and properly follow lab safety procedures) =30%
- Literature review and mid-term report (due November 4, 2022) = 15%
- Presentation of results to the lab group = 15%
- Thesis (due November 30, 2022) = 40%

Evaluative feedback on student's progress and literature review/mid-term report will be provided prior to the deadline for voluntary withdrawal, which is November 22, 2022.

**Expectations**

Students are expected to perform all the required experiments, attend all meetings officially designated for the course. They will also read pertinent literatures that will enable them to write their literature review and discuss their results. All students are expected to abide by the principles of academic honesty and maintain the utmost level of academic integrity.

## ROASS Schedule “A”

**Section (a) sample re:** A list of academic supports available to Students, such as the Academic Learning Centre, Libraries, and other supports as may be appropriate:

### **Writing and Learning Support**

The Academic Learning Centre (ALC) offers writing and learning supports to help you throughout your academic program. These supports are offered online during the Covid-19 pandemic.

Make an appointment with an ALC writing tutor who can give you feedback at any stage of the writing process, whether you are just beginning to work on a written assignment or already have a draft. The ALC also has an English as an Additional Language (EAL) specialist available to work with students on improving their English-language academic writing skills.

Consult an ALC learning specialist or attend an academic skills workshop to improve your time management, learning strategies and test-taking strategies. Get support in select courses by making an appointment with an ALC content tutor. The ALC also offers peer-facilitated study groups called Supplemental Instruction (SI) for certain courses that students have typically found difficult. In SI study groups, students ask questions, compare notes, discuss content, solve practice problems, and develop new study strategies in a group-learning format.

In addition to one-to-one and group sessions, you can also find writing and study tip sheets and videos on the ALC website.

Academic Learning Centre services are free for U of M students. For more information, please visit the Academic Learning Centre website at: <http://umanitoba.ca/student/academiclearning/>

Contact the Academic Learning Centre by calling 204-480-1481 or emailing [academic\\_learning@umanitoba.ca](mailto:academic_learning@umanitoba.ca). Bannatyne students can contact the Bannatyne Student Services office at 204-272-3190.

### **University of Manitoba Libraries (UML)**

Research begins at [UM Libraries](#). [Learn at the Libraries](#) is a great place to start, with information for students on academic writing, how to search the library, evaluating resources, and writing citations. As the primary contact for all research needs, your [liaison librarian](#) can play a vital role when completing academic papers and assignments. Liaisons can answer questions about locating appropriate resources or managing citations, and will address any other concerns you may have regarding the research process. Liaisons can be contacted by email or phone, and are also available to meet with you online. When working remotely, students can also receive help online through [Ask Us!](#) chat. For further detail about the libraries’ services and collections, [visit the Libraries’ web site](#). Regularly

check our [COVID-19 Update](#) page for available library services and access to resources for Fall 2020

**Section (b) sample:** re: A statement regarding mental health that includes referral information:

**For 24/7 mental health support, contact the Mobile Crisis Service at 204-940-1781.**

**Student Counselling Centre**

Contact SCC if you are concerned about any aspect of your mental health, including anxiety, stress, or depression, or for help with relationships or other life concerns. SCC offers crisis services as well as individual, couple, and group counselling. *Student Counselling Centre:* <http://umanitoba.ca/student/counselling/index.html>

474 UMSU University Centre or S211 Medical Services Building

(204) 474-8592

**Student Support Case Management**

Contact the Student Support Case Management team if you are concerned about yourself or another student and don't know where to turn. SSCM helps connect students with on and off campus resources, provides safety planning, and offers other supports, including consultation, educational workshops, and referral to the STATIS threat assessment team.

<http://umanitoba.ca/student/case-manager/index.html>

520 UMSU University Centre

(204) 474-7423 (Student Support Intake Assistant)

**University Health Service**

Contact UHS for any medical concerns, including mental health problems. UHS offers a full range of medical services to students, including psychiatric consultation. Note that due to fire displacement, UHS is unable to provide in-person medical care on the Fort Garry Campus until October, 2020.

*University Health Service* <http://umanitoba.ca/student/health/>

(204) 474-8411 (Business hours or after hours/urgent calls)

**Health and Wellness**

Contact our Health and Wellness Educator if you are seeking information on health topics, including physical and mental health concerns, alcohol and substance use harms, or sexual violence. You can also access peer support from a *Healthy U* peer health educator.

*Health and Wellness Educator*

<https://umanitoba.ca/student/health-wellness/welcome-about.html>

[britt.harvey@umanitoba.ca](mailto:britt.harvey@umanitoba.ca)

469 UMSU University Centre

(204) 295-9032

**Sexual Violence Resource Centre**

Contact SVRC if you have experienced sexual violence or are seeking information about how to help somebody else. SVRC provides inclusive, survivor-centered, trauma-informed services, such as consultation, referrals, safety planning, and a range of on-site supports, including counselling by Clinic.

*Sexual Violence Resource Centre*

<https://umanitoba.ca/student-supports/sexual-violence-support-and-education>  
[svrc@umanitoba.ca](mailto:svrc@umanitoba.ca)

537 UMSU University Centre  
(204) 474-6562 (Sexual Violence Intake and Triage Specialist)

### **Student Services at Bannatyne Campus**

Contact SS@BC to access a full range of resources and supports for learners at the Rady Faculty of Health Sciences. Services are provided through a one-stop hub that includes a range of supports for personal and academic success, including counselling, mental health consultation, and spiritual care.

*Student Services at Bannatyne Campus*

<https://umanitoba.ca/student-supports/student-services-bannatyne-campus>  
[bcss@umanitoba.ca](mailto:bcss@umanitoba.ca)

### **S211 Medical Services Building**

**(204) 272-3190 (Intake and Triage Specialist)**

**Section (c) sample:** re: A notice with respect to copyright:

All students are required to respect copyright as per Canada's *Copyright Act*. Staff and students play a key role in the University's copyright compliance as we balance user rights for educational purposes with the rights of content creators from around the world. The Copyright Office provides copyright resources and support for all members of the University of Manitoba community.

Visit <http://umanitoba.ca/copyright> for more information.

**Section (d) sample:** re: A statement directing the student to University and Unit policies, procedures, and supplemental information available on-line:

### **Your rights and responsibilities**

As a student of the University of Manitoba you have rights and responsibilities. It is important for you to know what you can expect from the University as a student and to understand what the University expects from you. Become familiar with the policies and procedures of the University and the regulations that are specific to your faculty, college or school.

The [Academic Calendar](http://umanitoba.ca/student/records/academiccalendar.html) <http://umanitoba.ca/student/records/academiccalendar.html> is one important source of information. View the sections *University Policies and Procedures* and *General Academic Regulations*.

While all of the information contained in these two sections is important, the following information is highlighted.

- If you have questions about your grades, talk to your instructor. There is a process for term work and final **grade appeals**. Note that you have the right to access your final examination scripts. See the Registrar's Office website for more information including appeal deadline dates and the appeal form <http://umanitoba.ca/registrar/>
- You are expected to view the General Academic Regulation section within the Academic Calendar and specifically read the **Academic Integrity** regulation. Consult the course syllabus or ask your instructor for additional information about

demonstrating academic integrity in your academic work. Visit the Academic Integrity Site for tools and support <http://umanitoba.ca/academicintegrity/> View the **Student Academic Misconduct** procedure for more information.

- The University is committed to a respectful work and learning environment. You have the right to be treated with respect and you are expected to conduct yourself in an appropriate respectful manner. Policies governing behavior include the:

### **Respectful Work and Learning Environment**

[http://umanitoba.ca/admin/governance/governing\\_documents/community/230.html](http://umanitoba.ca/admin/governance/governing_documents/community/230.html)

### **Student Discipline**

[http://umanitoba.ca/admin/governance/governing\\_documents/students/student\\_discipline.html](http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html) and,

### **Violent or Threatening Behaviour**

[http://umanitoba.ca/admin/governance/governing\\_documents/community/669.html](http://umanitoba.ca/admin/governance/governing_documents/community/669.html)

- If you experience **Sexual Assault** or know a member of the University community who has, it is important to know there is a policy that provides information about the supports available to those who disclose and outlines a process for reporting. The **Sexual Assault** policy may be found at: [http://umanitoba.ca/admin/governance/governing\\_documents/community/230.html](http://umanitoba.ca/admin/governance/governing_documents/community/230.html) More information and resources can be found by reviewing the Sexual Assault site <http://umanitoba.ca/student/sexual-assault/>

For information about rights and responsibilities regarding **Intellectual Property** view the policy:

[https://umanitoba.ca/admin/governance/governing\\_documents/community/235.html](https://umanitoba.ca/admin/governance/governing_documents/community/235.html)

For information on regulations that are specific to your academic program, read the section in the Academic Calendar and on the respective faculty/college/school web site <http://umanitoba.ca/faculties/>

Contact an **Academic Advisor** within our faculty/college or school for questions about your academic program and regulations <http://umanitoba.ca/academic-advisors/>

### **Student Advocacy**

Contact Student Advocacy if you want to know more about your rights and responsibilities as a student, have questions about policies and procedures, and/or want support in dealing with academic or discipline concerns.

<http://umanitoba.ca/student/advocacy/>

520 University Centre

204 474 7423

[student\\_advocacy@umanitoba.ca](mailto:student_advocacy@umanitoba.ca)