BIOL 502
Plant Cellular Responses to Environmental Stress

Winter Term (2016-2017)

CALENDAR DESCRIPTION

Literally rooted in place, plants have adapted robust ways to survive in a changing environment. This course will dissect signal transduction pathways and other molecular responses that are activated in plant cells exposed to environmental stresses such as pathogen infection, drought, or temperature fluctuations. Students will explore and critically evaluate current literature in plant molecular biology and genetics. Emphasis will be placed on understanding techniques used to investigate changes in gene expression, protein-protein interactions, sub-cellular localization, as well as the analysis of mutant and transgenic plant lines.

Instructor	**Jacqueline Monaghan**
Instructor Contact	jacqueline.monaghan@queensu.ca
Office Hours	By appointment

Learning Objectives

Our goal is to understand and critically evaluate current research in molecular plant signal transduction. You will learn about different techniques used to study signal transduction and have the opportunity to design a research plan in the form of a grant proposal. Your ideas will be presented to and critically evaluated by your peers and their feedback should be incorporated into your final paper. The main objective of the course is to help students develop the skills needed to critically read primary scientific literature and to develop research questions. Students should come away with a better understanding of plant stress-response and signal transduction mechanisms.

Learning Hours

Teaching method		*Average hours per week*	*Number of weeks*	*Total hours*
In-class hours	Lecture	1	12	12
	Seminar	2	12	24
	Laboratory	0		
	Tutorial	0		
	Practicum	0		
	Group learning	2	12	24
	Individual instruction	0		
Other	Online activity	0		
	Off-campus activity	0		
	Private study	5	12	60

Total hours on task	120

Course Outline

This course will be a combination of lectures, seminars, presentation and critique of journal articles, and a paper in the form of a research proposal. Participation in discussion groups and peer-to-peer critique is encouraged and will be graded. If you are a 537 student, your research paper cannot be related to your 537 topic.

Textbooks/Readings

There is no textbook for this course but readings will be assigned.

Grading Scheme

Component	Weight (%)	Date
Oral presentations	40	Currently unknown
Written paper	40	Last day of classes
Participation	20	All term

Grading Method

• 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

Academic Integrity and Queen's Code of Conduct

Students are responsible for familiarizing themselves with the regulations concerning academic integrity and for ensuring that their assignments and conduct conform to the principles of academic integrity. Information is available in the Arts and Science Calendar (see Academic Regulation 1 - http://www.queensu.ca/artsci/academic-calendars/regulations/academic-regulations, on the Arts and Science website (see http://www.queensu.ca/artsci/academics/undergraduate/academic-integrity), and at Biology's website (http://www.queensu.ca/biology/undergrad/integrity.html) and from the instructor of this course. Departures from academic integrity include plagiarism, use of unauthorized materials, facilitation, forgery and falsification, and are antithetical to the development of an academic community at Queen's. Given the seriousness of these matters, actions which contravene the regulations on academic integrity carry sanctions that can range from a warning or the loss of grades on an assignment to the failure of a course to a requirement to withdraw from the university.

Accommodation Policy, Exam Conflicts, and Other Conflicts

Students who feel they need accommodations for disabilities or extenuating circumstances, or have a conflict between exams or other commitments should consult the Biology Department's website for details about how to proceed (http://www.queensu.ca/biology/undergrad/integrity.html). In general, the earlier a course coordinator is apprised of an extenuating circumstance, the more likely an accommodation can be made. Students are encouraged to be proactive in anticipating difficulties, when it is possible to do so.

Students may apply to write a make-up or deferred exam if they have an exam conflict as defined in the Academic Regulations of the Faculty (See Arts and Science Calendar Regulation 8 - http://www.queensu.ca/artsci/academic-calendars/regulations/academic-regulations). In this case, the student should report to the Exams Office first to verify that there is a genuine exam conflict. Biology professors will not consider your situation to be a conflict unless it meets the criteria set out by the Faculty of Arts and Sciences.

Students may request a make-up or deferred exam if they have an exam conflict with off-campus travel associated with a field course (e.g BIOL-307/3.0 or 407/3.0) that is held during the fall or winter terms.

Accommodation of Disabilities

Queen's University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability and think you may need accommodations, you are strongly encouraged to contact the Disability Services Office (DSO) and register as early as possible. For more information, including important deadlines, please visit the DSO website at:
http://www.queensu.ca/hcds/ds/