BIOL 402
Experiments in Plant Physiology

Winter Term (2014-2015)

CALENDAR DESCRIPTION

Laboratory-based course emphasizing experimental approaches to understanding the principles of plant physiology covered in BIOL 341/3.0.

COREQUISITE BIOL 341/3.0. EXCLUSION *BIOL 301/3.0.* EQUIVALENCY *BIOL 342/3.0.*

SCHEDULE

Tutorial: Wednesday 12:30-2:30pm, BIOSC 3306. Lab: Friday 8:30-11:30am, BIOSC 3306.

Course Instructor & Lab Instructor	**K. Ko, B.Vanderbeld**
Contact Information for Instructors	kok@queensu.ca, Phone: 613-533-6155 vanderb@queensu.ca, Phone: 613-533-6000 X77438
Office Hours	Please schedule by email or through other means
TA:	Midhat Ubaid
TA Contact Information	5mu@queensu.ca
Office Hours	Please schedule by email or through other means

Learning Objectives

The main goal of Biol 402 is to help students acquire a comprehension of experimental plant biology. The course explores various lab exercises in plant cell biology, physiology, anatomy, bioinformatics, and biochemistry.

The course objectives, broadly speaking, are to help students to:

(i) understand plant biology through experimental methods
(ii) understand the scientific method of hypothesis development and testing
(iii) learn a number of new technical skills applicable to a broad range of scientific endeavours

Learning Hours:

The table below provides an **estimate** of hours of study for Biol402. This is for general reference purposes only and is not intended to describe the precise duration of time the course will require. The nature of assignments will vary year to year and thus the allocation of time to various activities will vary accordingly. A 3.0-unit course would normally require a total of 110 to 130 total learning hours (or hours on task) and Biol402 will fall within that window on any given calendar year. It is prudent to keep in mind however that time commitment to some tasks will vary widely among students depending upon individual aptitude, level of background, etc.

Teaching method		*Average hours per week*	*Number of weeks*	*Total hours*
In-class hours	Lectures			
	Seminars			
	Laboratories	3	12	36
	Tutorials	2	12	24
	Group learning	0	0	0
	Individual instruction			
Other	Online activities	1	6	~6
	Private study	4	12	~48
Total learning hours				~114 (typical range 110-130)

Course Outline

The course explores a broad range of concepts in experimental plant physiology. Topics covered may vary somewhat year-to-year, and are subject to change, but generally include labs exercises on photosynthesis/respiration, plant enzyme analysis, growth and development, phytohormones, genomics/bioinformatics, protein electrophoresis/western blotting, gene expression. In addition, a major independent project is carried out (in pairs) in the final weeks of the course and allows students to participate in discovery-based research where they conduct experiments of their own design. Students present their project to the class in the final lab (and tutorial if necessary) slot. Regular pre-lab quizzes are used throughout the course to help students come prepared for the labs and to gauge their understanding of course material. The lab exam conducted near the end of the course covers all material from the course prior to the independent projects. The nature of graded assignments will vary year-to-year but could include one or more of the following: in-class quizzes, online quizzes/assignments, major independent lab project (in pairs), lab write-ups, participation in discussions in class, class presentation (on your project topic).

Textbooks/Readings

There is no assigned text for this course. Lab protocols and related materials will be provided as pdf via online access (Moodle or similar) or handed out in class

Tentative Grading Scheme

Component	**Weight (%)**	**Date**
Lab write-ups (6 labs, grading weight varies)	35%	TBA
Independent Project	25%	TBA
Prep Quizzes (5 quizzes @2% each)	10%	TBA

Project presentation in class	10%	TBA (last week of classes)
Lab exam	20%	TBA

Grading Method

• In this course, some components will be graded using numerical percentage marks. Other components will receive letter grades, which for purposes of calculating your course average will be translated into numerical equivalents using the Faculty of Arts and Science Letter Grade Input Scheme.

When letter grades are employed, the following scale will be employed for purposes of calculating your course average:

Arts & Science Letter Grade Input Scheme

Assignment mark	Numerical value for calculation of final mark
A+	93
A	87
A-	82
B+	78
B	75
B-	72
C+	68
C	65
C-	62
D+	58
D	55
D-	52
F48 (F+)	48
F24 (F)	24
F0 (0)	0

Your course average will then be converted to a final 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

Academic integrity is constituted by the five core fundamental values of honesty, trust, fairness, respect and responsibility (see www.academicintegrity.org). These values are central to the building, nurturing and sustaining of an academic community in which all members of the community will thrive. Adherence to the values expressed through academic integrity forms a foundation for the "freedom of inquiry and exchange of ideas" essential to the intellectual life of the University (see the Senate Report on Principles and Priorities http://www.queensu.ca/secretariat/senate/policies/princpri/).

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.

Late Policy

Late assignments will be penalized at 5% per day. Consult the Biology Departmental Policy on missed exams and assignments: http://www.queensu.ca/biology/undergrad/integrity/missedexams.html

Copyright

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http://library.queensu.ca/copyright

Disability Accommodations Statement

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