

# BIOL 403

## Experimental Techniques in Biology

**Winter** Term (2021-22)

### CALENDAR DESCRIPTION

**Self-directed and self-selected hands-on experimental techniques used in fundamental biology research, biotechnologies, and medical sciences.**

PREQUISITE BIOL 205/3.0

### SCHEDULE

Date and time selected by student

<b>Instructor</b>	<b>L. Seroude</b>
<b>Instructor Contact</b>	BioSciences 2512
<b>Office Hours</b>	Mon-Fri 10am-6pm
<b>TA:</b>	Taylor Barwell
<b>TA Contact Information</b>	NA
<b>Office Hours</b>	NA

### LEARNING OBJECTIVES

Selected experimental techniques

### LEARNING HOURS

<i>Teaching method</i>		<i>Average hours per week</i>	<i>Number of weeks</i>	<i>Total hours</i>
In-class hours	Lecture			
	Seminar			
	Laboratory	4	8	32
	Tutorial			
	Practicum			
	Group learning			
	Individual instruction			
Other	Online activity			
	Off-campus activity	6	8	48
	Private study	10	4	40
Total hours on task				120

**COURSE OUTLINE**

Week 1-4: Introduction, Measurements, Conversions and Solutions

Week 4-12: Spectrophotometry absorption spectrum

Week 4-12: Spectrophotometry molar absorptivity

Week 4-12: Protein detection

Week 4-12: Protein Quantification

Week 4-12: Enzyme: catalytic activity)

Week 4-12: Enzyme:  $K_M$  and  $V_{max}$

Week 4-12: Protein extraction

Week 4-12: Protein electrophoresis

Week 4-12: Plasmid DNA extraction

Week 4-12: DNA electrophoresis

Week 4-12: DNA digestion

**TEXTBOOKS/READINGS**

<http://130.15.90.125/BioLab/Biol403.html>

**GRADING SCHEME**

<b>Component</b>	<b>Weight (%)</b>	<b>Date</b>
Calculation Quiz	10	Chosen by student Week1-4
Pipetting Quiz	5	Chosen by student Week1-4
Lab reports	40	Chosen by student Week 4-12
Safety and guidelines	5	
Final (Practical exam)	40	week 11 or 12

## GRADING METHOD

In this course, components will be graded using numerical percentage marks.

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**

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>)

[www.queensu.ca/artsci/academic-calendars/regulations/academic-regulations](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.

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### **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/hcnds/ds/>*