

Location and Time: Lectures: Mondays 1:35 PM – 2:25 PM Montreal time
 McIntyre Building, room 521
 Lab Experiments: Tuesday, Wednesday, Thursday, Friday 1:35 PM – 6:25 PM Montreal time
 McIntyre Building, room 910
 Access live sessions and prerecorded lab videos via [MyCourses](#)

Instructors: Course Coordinator: Dr. J. Teodoro, jose.teodoro@mcgill.ca
 Lab Course Coordinator: Vicky Kottis, vicky.kottis@mcgill.ca
 TAs' contact information will be emailed to students

| Date | Day | LECTURE Title and Schedule | Lecture | Instructor |
|----------------------|-------|--|--------------|------------|
| SEPT. 01 | Thurs | Course Introduction PLASMIDS: TRANSFORMATION, ISOLATION AND RESTRICTION DIGESTION (PART 1) | 1 | J. Teodoro |
| SEPT. 05 | M | Labour Day No Lecture | | |
| SEPT. 12 | M | PLASMIDS: TRANSFORMATION, ISOLATION AND RESTRICTION DIGESTION (PART 2) | 2 | J. Teodoro |
| SEPT. 19 | M | PROTEIN PURIFICATION AND TRANSLATION (PART 1) | 3 | J. Teodoro |
| SEPT. 26 | M | PROTEIN PURIFICATION AND TRANSLATION (PART 2) | 4 | J. Teodoro |
| OCT. 03 | M | BIOINFORMATICS (Dry Lab with assignment) | 5 | J. Teodoro |
| OCT. 10 | M | Thanksgiving Day No Lecture | | |
| OCT. 17 | M | THE POLYMERASE CHAIN REACTION (PCR) (PART 1) | 6 | J. Teodoro |
| OCT. 24 | M | THE POLYMERASE CHAIN REACTION (PCR) (PART 2) | 7 | J. Teodoro |
| OCT. 31 | M | ISOLATION OF RNA AND ANALYSIS OF GENE EXPRESSION BY RT-PCR (PART 1) | 8 | J. Teodoro |
| NOV. 07 | M | ISOLATION OF RNA AND ANALYSIS OF GENE EXPRESSION BY RT-PCR (PART 2) | 9 | J. Teodoro |
| NOV. 14 | M | Using RNAi and CRISPR/Cas9 to control gene expression. (Part 1) | 10 | J. Teodoro |
| NOV. 21 | M | Using RNAi and CRISPR/Cas9 to control gene expression. (Part 2) | 11 | J. Teodoro |
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| Date | | LAB EXPERIMENTS | Lab | TAs |
| SEPT. 06, 07, 08, 09 | | PLASMIDS: TRANSFORMATION, ISOLATION AND RESTRICTION DIGESTION | Lab 1 week 1 | TAs |
| SEPT. 13, 14, 15, 16 | | PLASMIDS: TRANSFORMATION, ISOLATION AND RESTRICTION DIGESTION | Lab 1 week 2 | TAs |
| SEPT. 20, 21, 22, 23 | | PROTEIN PURIFICATION AND TRANSLATION | Lab 2 week 1 | TAs |
| SEPT. 27, 28, 29, 30 | | PROTEIN PURIFICATION AND TRANSLATION | Lab 2 week 2 | TAs |
| OCT. 04, 05, 06, 07 | | PROTEIN PURIFICATION AND TRANSLATION | Lab 2 week 3 | TAs |
| OCT. 11, 12 | | Fall Reading Break No Labs All Week | | |
| OCT. 18, 19, 20, 21 | | THE POLYMERASE CHAIN REACTION (PCR) | Lab 3 week 1 | TAs |
| OCT. 25, 26, 27, 28 | | THE POLYMERASE CHAIN REACTION (PCR) | Lab 3 week 2 | TAs |
| NOV. 01, 02, 03, 04 | | ISOLATION OF RNA AND ANALYSIS OF GENE EXPRESSION BY RT-PCR | Lab 4 week 1 | TAs |
| NOV. 08, 09, 10, 11 | | ISOLATION OF RNA AND ANALYSIS OF GENE EXPRESSION BY RT-PCR | Lab 4 week 2 | TAs |
| NOV. 15, 16, 17, 18 | | Using RNAi and CRISPR/Cas9 to control gene expression. | Lab 5 week 1 | TAs |
| NOV. 22, 23, 24, 25 | | Using RNAi and CRISPR/Cas9 to control gene expression. | Lab 5 week 2 | TAs |

Marking Scheme

Lab Reports: 55% Lab reports 1-5 worth 10% each, Bioinformatics assignment worth 5%
 Quiz Grade: 5%
 TA Grade: 5%
 Final Exam: 35%

NOTE: Students unable to write the Final must contact the Exam Center (<https://www.mcgill.ca/exams/>) and register for a deferred Final. Students are required to provide a valid doctor's note to be eligible to write the deferred final.

Pre-requisites

Prerequisite: BIOC220

Restriction(s): Not open to students who have taken BIOC300D1/D2 or BIOL 301. For students in Biochemistry programs, others with permission of instructor/department.

Learning Outcomes – Theoretical Content & Higher Skills

- Biochemistry: Introduction to key methodologies in molecular biology, gene cloning, protein purification and translation, PCR, gene expression by RT-PCR, qPCR and effect of siRNAs on gene expression. Bioinformatics and analysis of biochemical data.
- Independent Learning: Lab report writing, organizing, and reporting knowledge, finding reliable sources of information for referencing.

Recommended Textbook

The BIOC320 2022 Lab Manual available on MyCourses.

Biochemistry textbooks

Instructional Methods in this Course

- In person lectures and Zoom-recorded lectures through MyCourses/Zoom.
- In person labs and pre-recorded lab videos on MyCourses.
- The instructional approach is based on student **attendance** and **active participation**.

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Online-Learning Etiquette

- Mute your microphone upon joining sessions. Changing your name is forbidden.
- Students' participation makes the course interesting for everyone. Students may use the chat to ask questions or raise their hand while having their camera on during Zoom sessions.
- Polite and respectful language must be used at all times. Disrespectful comments and/or disruptive behavior will not be tolerated (Article 5, https://www.mcgill.ca/secretariat/files/secretariat/code_of_student_conduct_and_disciplinary_procedures.pdf).

Evaluation Method: 5 Lab reports, 1 Bioinformatics assignment, TA grade, 11 Pre-Lab Quizzes and 1 Final

- Unless otherwise indicated by the instructor, **all assessments must be written INDIVIDUALLY**. Lab reports, quizzes and the Final exam are not meant to be collaborative work. Answers will be vetted for cheating and/or plagiarism using a text-matching software. Any suspicious case will be submitted to the Faculty of Science Disciplinary Officer.
- **55% Lab reports 1-5 worth 10% each, Bioinformatics assignment worth 5% (please refer to the Lab Manual for guidance on Lab Report writing)**
Lab reports are due one week after scheduled finish of the experiment. Reports must be submitted online through MyCourses by 12:00 p.m. of registered lab day.
- **5% Timed 5 minutes Pre-Lab Quizzes (please note there are NO rewrites for the quizzes even if missed)**
Pre-Lab quizzes can be answered in 5 minutes or less and a hard copy is given to students at the beginning of each in person lab and are then collected by the TAs and graded. Pre-lab quizzes are not given back to students. Pre-Lab quizzes will be answered and discussed by Teaching Assistants in the lab.
In the event that the labs are given remotely by pre-recorded lab videos the pre-lab quizzes will be accessible to students via MyCourses before the video presentations on their lab day. Once a quiz is started, students have 35 minutes

(5 minutes plus 30-minute grace period) to complete it within a time frame of 24 h.)

* Pre-Lab quizzes will be answered and discussed by Teaching Assistants.

- **5% TA grade.**

This is the TAs' evaluation grade of the students' hands on performance in the lab.

This grade is final and non-negotiable.

- **35% Final Exam**

The Final exam is designed to be answered in 3 hours or less. This is an in-person exam.

- **Language**

Les étudiants peuvent soumettre en anglais ou en français tout travail écrit destiné à l'évaluation.

In accord with McGill University's Charter of Students' Rights, students have the right to submit in English or in French any written work that is to be graded (except in courses where knowledge of a language is one of the objectives of the course).

- *In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.*

Deferred Final and Supplemental

The Deferred Final (worth like the Final) and Supplemental (worth like the Final) are managed by Exam Center and are usually written during the March break. Students unable to attend the final exam must contact the Exam Center and follow the procedure stated here <https://www.mcgill.ca/exams/>. In some cases, a valid medical note may be required.

Grading:

The department of Biochemistry will **NOT** revise/upgrade marks except on sound academic grounds*. Once computed, the marks in this course will **NOT** be altered/increased. The Final Course Grade will be "rounded off" as follows: if the final aggregate mark is computed to be 79.5%, the mark will be reported as 80% (an A-); a final aggregate mark of 79.4% will be reported as 79% (a B+). These marks are **FINAL and NON-NEGOTIABLE**.

*** Reviewing Lab Reports**

In addition to the abovementioned policy to NOT revise/upgrade marks, **the coordinator may impose a 1% penalty on any marking challenge that is not based on sound academic grounds.**

Examples: Should the re-read 1) be in favor of the student, the student gets the disputed marks back.

2) NOT be in favor of the student, a 1% penalty can be imposed on the final grade.

Useful resources

- **Student Rights and Responsibilities**

<https://www.mcgill.ca/students/srr/academicrights>

McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see <http://www.mcgill.ca/students/srr/honest/> for more information).

- **McGill Academic Calendar** (add/drop, withdrawal and other deadlines)

<https://www.mcgill.ca/study/2020-2021/important-dates>

- **Time management**

<https://www.mcgill.ca/tutoring/channels/event/time-management-your-best-ally-323895>

<https://www.mcgill.ca/osd/student-resources/learningresources/time-management>

- **Stress management**

<https://www.mcgill.ca/osd/student-resources/learningresources/stress-management>

- **Office for Students with Disabilities (OSD)**

<https://www.mcgill.ca/osd/>

- **Health and Wellness Resources at McGill**

Student well-being is a priority for the University. All of our health and wellness resources have been integrated into a single Student Wellness Hub, your one-stop shop for everything related to your physical and mental health. If you need to access services or get more information, visit the Virtual Hub at www.mcgill.ca/wellness-hub or drop by the Brown Student Services Building (downtown) or Centennial Centre (Macdonald Campus). Within your faculty, you can also connect with your Local Wellness Advisor (to make an appointment, visit <https://mcgill.ca/lwa>).