

## Course Outline

### 1. COURSE INFORMATION

<b>Session Offered</b>	Fall 2020	
<b>Course Name</b>	Capstone Project II	
<b>Course Code</b>	BIOTECH 4TR3	
<b>Date(s) and Time(s) of lectures</b>	Wednesdays at 12:30-15:20 and Thursdays at 13:30-14:20 (Virtually)	
<b>Program Name</b>	Biotechnology	
<b>Calendar Description</b>	This course is a continuation of Technical Report I and it requires the students to conduct further research, modify/refine the project design, develop, and implement the independent project proposal submitted as a part of the Technical Report I course. The project will be documented as a technical report and presented in a seminar. One tutorial, one lab (three hours); one term.	
<b>Instructor(s)</b>	Dr. Rashid Abu-Ghazalah	E-Mail: <a href="mailto:abughar@mcmaster.ca">abughar@mcmaster.ca</a> Office Hours & Location: Wednesday 11:30-12:20

### 2. COURSE SPECIFICS

<b>Course Description</b>			
<b>Instruction Type</b>	<b>Code</b>	<b>Type</b>	<b>Hours per term</b>
	C	Classroom instruction	
	L	Laboratory, workshop or fieldwork	48
	T	Tutorial	
	DE	Distance education	
	<b>Total Hours</b>		48
<b>Resources</b>	<b>ISBN</b>	<b>Textbook Title &amp; Edition</b>	<b>Author &amp; Publisher</b>
	ISBN:		
	<b>Other Supplies</b>	<b>Source</b>	
	Avenue to Learn	<a href="http://avenue.mcmaster.ca">http://avenue.mcmaster.ca</a>	
<b>Prerequisite(s)</b>	BIOTECH 4BL3; BIOTECH 4BM3; BIOTECH 4GP3; BIOTECH 4TR1		
<b>Corequisite(s)</b>	N/A		
<b>Antirequisite(s)</b>	N/A		
<b>Course Specific Policies</b>	<p>1. Each team will submit a Mid Term Report. The Mid Term report is required by the end of week 7 in the semester. The list of items that need ordering, if it all at this time should be submitted ASAP. The report should have the structure that would form the basis of the final report. Any change in the project scope as outlined in the 4TR1 course should be clearly identified (20%)</p> <p>2. Each student will submit a Final Report* at the end of the semester. The evaluation of this report will be based on :a) project plan, its implementation and accomplishments,, technical content, depth and comprehension, originality, working demonstration, and problem solving skills(50%) ; b) background, report</p>		

	<p>structure &amp; format, &amp; written communication skills(10%); and c) literature references( internet, text &amp; reference books, reports, &amp; original journals). (5%)</p> <p>3. Each student will present their project report to the class. This activity will most likely occur in the 12th week of the semester. This will be confirmed during the semester. (10%)</p> <p>4. Each student will keep a log of work performed each week outside and inside the lab/class room. This task will be carried out in a hard covered record book used only for this course. The log book will have the following information: project progress as compared to the plan, what tasks were accomplished and what was learned. The log book will also contain any suggestions that were made and any action taken on them. The logbook must be initialed by your Prof. every other week. This log will be submitted to your Prof. at the end of the semester along with your final report. (5%)</p> <p>5. It is expected that each student will also work on their project outside the assigned class room/lab time. These activities will be recorded in the logbook as described above.</p> <p>6. Without the use of log book the final report will not be accepted.</p> <p><b>7. Late submissions will result in 10 % loss of marks per day for a maximum of two days</b></p> <p>8. The departmental Safety Policy will be followed by the students while working in the lab.</p> <p>*These submitted reports after grading will become the property of the department and will not be returned to the students. The student will be able to view them after grading</p>
<p><b>Departmental Policies</b></p>	<p>Students must maintain a GPA of 3.5/12 to continue in the program.</p> <p>In order to achieve the required learning objectives, on average, B.Tech. students can expect to do at least 3 hours of “out-of-class” work for every scheduled hour in class. “Out-of-class” work includes reading, research, assignments and preparation for tests and examinations.</p> <p>Where group work is indicated in the course outline, such collaborative work is mandatory.</p> <p>The use of cell phones, iPods, laptops and other personal electronic devices are prohibited from the classroom during the class time, unless the instructor makes an explicit exception.</p> <p>Announcements made in class or placed on Avenue are considered to have been communicated to all students including those individuals that are not in class.</p> <p>Instructor has the right to submit work to software to identify plagiarism.</p>
<p><b>3. SUB TOPIC(S)</b></p>	
<p>Week 1</p>	<p>Project Work and Consultation</p>
<p>Week 2</p>	<p>Project Work and Consultation</p>
<p>Week 3</p>	<p>Project Work and Consultation</p>
<p>Week 4</p>	<p>Project Work and Consultation</p>
<p>Week 5</p>	<p>Project Work and Consultation</p>

Week 6	Reading Week	
Week 7	Project Work and Consultation Midterm Report Due	
Week 8	Project Work and Consultation	
Week 9	Project Work and Consultation	
Week 10	Project Work and Consultation	
Week 11	Project Work and Consultation	
Week 12	Project Work and Consultation	
Week 13	Project Work and Consultation	
Week 14	Final Report Due Oral Presentations	

Midterm Recess: Monday, October 12 to Sunday, October 18  
 Classes end: Wednesday, December 9  
 Final examination period: Thursday, December 10 to Wednesday, December 23  
 All examinations MUST be written during the scheduled examination period.

Note that this structure represents a plan and is subject to adjustment term by term.  
 The instructor and the University reserve the right to modify elements of the course during the term. The University may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes.

<b>4. ASSESSMENT OF LEARNING *including dates*</b>	<b>Weight</b>
Midterm Report	20
Project Oral Presentation	10
Log Book	5
Final Report	65
<b>TOTAL</b>	<b>100%</b>

Percentage grades will be converted to letter grades and grade points per the University calendar.

#### **5. LEARNING OUTCOMES**

1. Design and perform experimental project in biotechnology
2. Apply biochemical, molecular and biotechnology techniques in experimental biotechnology
3. Evaluate and interpret experimental data
4. Perform critical thinking and problem solving approaches for technical problems
5. Plan and organize within your team
6. Write scientific reports
7. Present data in a professional form

#### **6. COURSE OUTLINE – APPROVED ADVISORY STATEMENTS**

##### **ANTI-DISCRIMINATION**

The Faculty of Engineering is concerned with ensuring an environment that is free of all discrimination. If there is a problem, individuals are reminded that they should contact the Department Chair, the Sexual Harassment Officer or the Human Rights Consultant, as soon as possible.

[http://www.mcmaster.ca/policy/General/HR/Discrimination\\_Harassment\\_Sexual\\_Harassment-Prevention&Response.pdf](http://www.mcmaster.ca/policy/General/HR/Discrimination_Harassment_Sexual_Harassment-Prevention&Response.pdf)

##### **ACADEMIC INTEGRITY**

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. It is your responsibility to understand what constitutes academic dishonesty.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at <https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/>

The following illustrates only three forms of academic dishonesty: The following illustrates only three forms of academic dishonesty:

- plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
- improper collaboration in group work.
- copying or using unauthorized aids in tests and examinations.

#### **AUTHENTICITY / PLAGIARISM DETECTION**

Some courses may use a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. For courses using such software, students will be expected to submit their work electronically either directly to Turnitin.com or via an online learning platform (e.g. A2L, etc.) using plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty.

Students who do not wish their work to be submitted through the plagiarism detection software must inform the Instructor before the assignment is due. No penalty will be assigned to a student who does not submit work to the plagiarism detection software. All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, other software, etc.). For more details about McMaster's use of Turnitin.com please go to [www.mcmaster.ca/academicintegrity](http://www.mcmaster.ca/academicintegrity).

#### **COURSES WITH AN ON-LINE ELEMENT**

Some courses may use on-line elements (e.g. e-mail, Avenue to Learn (A2L), LearnLink, web pages, capa, Moodle, ThinkingCap, etc.). Students should be aware that, when they access the electronic components of a course using these elements, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in a course that uses on-line elements will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure please discuss this with the course instructor.

#### **ONLINE PROCTORING**

Some courses may use online proctoring software for tests and exams. This software may require students to turn on their video camera, present identification, monitor and record their computer activities, and/or lock/restrict their browser or other applications/software during tests or exams. This software may be required to be installed before the test/exam begins.

#### **COMMUNICATIONS**

It is the student's responsibility to:

- Maintain current contact information with the University, including address, phone numbers, and emergency contact information.
- Use the University provided e-mail address or maintain a valid forwarding e-mail address.
- Regularly check the official University communications channels. Official University

communications are considered received if sent by postal mail, by fax, or by e-mail to the student's designated primary e-mail account via their @mcmaster.ca alias.

- Accept that forwarded e-mails may be lost and that e-mail is considered received if sent via the student's @mcmaster.ca alias.
- Check the McMaster/Avenue email and course websites on a regular basis during the term.

### **CONDUCT EXPECTATIONS**

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all of our living, learning and working communities. These expectations are described in the Code of Student Rights & Responsibilities (the "Code"). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, whether in person or online.

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g. use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students' access to these platforms.

### **ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES**

Students with disabilities who require academic accommodation must contact Student Accessibility Services (SAS) at 905-525-9140 ext. 28652 or [sas@mcmaster.ca](mailto:sas@mcmaster.ca) to make arrangements with a Program Coordinator. For further information, consult McMaster University's Academic Accommodation of Students with Disabilities policy.

### **REQUESTS FOR RELIEF FOR MISSED ACADEMIC TERM WORK**

McMaster Student Absence Form (MSAF): In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar "Requests for Relief for Missed Academic Term Work".

### **ACADEMIC ACCOMMODATION FOR RELIGIOUS, INDIGENOUS OR SPIRITUAL OBSERVANCES (RISO)**

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the RISO policy. Students should submit their request to their Faculty Office normally within 10 working days of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests. <http://www.mcmaster.ca/policy/Students-AcademicStudies/Studentcode.pdf>

### **COPYRIGHT AND RECORDING**

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, including lectures by University instructors

The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

### **EXTREME CIRCUMSTANCES**

**ENGINEERING**  
McMaster-Mohawk  
Bachelor of Technology  
Partnership



The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.