

## Course Outline

### 1. COURSE INFORMATION

<b>Session Offered</b>	Winter 2021	
<b>Course Name</b>	Capstone Project I	
<b>Course Code</b>	BIOTECH 4TR1	
<b>Date(s) and Time(s) of lectures</b>	Fridays: 13:30-16:20pm	
<b>Program Name</b>	Biotechnology	
<b>Calendar Description</b>	This course requires students to research, design, develop, and implement an independent project. The project plan and a model developed will be documented as a technical report and presented in a seminar. One tutorial, one lab (two hours); one term	
<b>Instructor(s)</b>	Dr. Rashid Abu-Ghazalah	E-Mail: abughar@mcmaster.ca Office Hours: Tuesdays 11:30-13:20 by appointment

### 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	7
	L	Laboratory, workshop or fieldwork	26
	T	Tutorial	6
	DE	Distance education	
	<b>Total Hours</b>		39
<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>	
	http://avenue.mcmaster.ca		
<b>Prerequisite(s)</b>	BIOTECH 3BP3, 3FM3, 3FR3, 3PM3, GEN TECH 3MT3		
<b>Corequisite(s)</b>	N/A		
<b>Antirequisite(s)</b>	N/A		
<b>Course Specific Policies</b>	<p>1. The materials of technical writing will be posted on the avenue to learn for the purpose of self learning. The information on the technical writing will be tested by two online quizzes in class (10%).</p> <p>2. Each group will submit a Mid Term Report* which will include project concept and its viability, project background and plan, and list of items with supplier names and prices for ordering and other required items. The Mid Term report is required by the end of week 6 in the semester. The list of items that need ordering should be submitted ASAP. (15%)</p> <p>3. Each student will submit one assignment on technical writing (5%)</p> <p>4. Each group will submit a Final report* at the end of the semester. The evaluation of this report will be based on:</p>		

- a) Project plan and its implementation, technical content, depth and comprehension, originality, working model demonstration, and problem solving skills (40%)
- b) background, report structure & format, and written communication skills (10%)
- c) literature references (internet, text & references books, reports, and original journals). (10%)
5. Each group will present their project plan to the class. The evaluation will be based on the project concept. Its viability, technical depth, and results. (5%). This activity will occur in the 12th week of the semester.
6. Each student will keep a log of work performed each week outside and inside the lab/class room. This task will be documented in an electronic record book used only for this course. The electronic logbook will have the following information: project process as compared to the plan, what tasks were accomplished and what was learned. The logbook will also contain any suggestions that were made and any action taken on them.
- The electronic logbook must be initialed by your Prof. every other week to be eligible to obtain the max marks in this category. The logbook will be used to assess the amount of work done outside the class room environment and will be reflected in the marks awarded in this category. This log will be submitted to your Prof. at the end of the semester along with your final report. A mark of 0% will be assigned if a logbook is not submitted. (5%).
7. Each student will need to start laboratory work from the second week to the end of this semester (week 2-week 12) to complete the equipment training and initiate preliminary experiments and proof of concept.
8. It is expected that each student will also work on their project outside the assigned class room/lab time. It is expected that for this course for every classroom hour spent the students are expected to spend three outside hours. These activities will be recorded in the logbook as described above.
9. Final written report along with a soft copy and electronic log book must be submitted in the last week of the term. Without a log book the final report will not be accepted.
10. The late reports will result in 10 % loss of marks per day for a maximum of two days. Not submissions will be accepted after two days.
11. Any issue related to your partner not contributing equally must be brought to the attention of your Prof.
12. The departmental Safety and biosafety policy will be followed by the students working in the lab.
- \*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.

Students should be aware that, when they access the electronic components of this course, 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 this course will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure please discuss this with the course

	instructor. The instructor may also use other software including: e-mail, Avenue, LearnLink, web pages, capa, Moodle, Thinking Cap, etc. The communications via email is strictly by <b>Official McMaster University Account</b> ,	
<b>Departmental Policies</b>	<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>	
<b>3. SUB TOPIC(S)</b>		
Week 1	Introduction, project choices, Lab tour	
Week 2	Project and Time management, Project selection, writing Lab protocols and Methodology, Technical writing online training	
Week 3	Literature search & Preliminary project proposals, Laboratory work, Technical writing online training <b>Technical writing quiz 1</b>	
Week 4	One to One meeting and Discussions, Equipment item lists, Laboratory work, Technical writing online training	
Week 5	One to one meetings and discussion, Equipment item lists, Laboratory work, Technical writing online training <b>Technical writing quiz 2</b>	
Week 6	One to one meetings, Laboratory work	
Week 7	One to one meetings and discussion <b>Assignment1 due</b>	
Week 8	Project proposal and Laboratory work, <b>Midterm report</b>	
Week 9	Project proposal and Laboratory work, Working in the lab,	
Week 10	Project proposal and Laboratory work, Working in the lab,	
Week 11	Project Proposal and Laboratory work	
Week 12	Project proposal, Laboratory work	
Week 13	Final report due	
Week 14	Project presentations	
Midterm Recess: Monday, February 15 to Sunday, February 21		

Classes end: Wednesday, April 14

Final Examination Period: Thursday, April 15 to Friday, April 30

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.

4. ASSESSMENT OF LEARNING *including dates*	Weight
Assignment	5 %
Mid-term report	15 %
Technical writing quizzes	10 %
Logbooks	5 %
Project plan presentation	5 %
Final report	60 %
<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. Identify the different stages of project design
2. Applying the molecular, biological and biotechnological techniques
3. Design independently special technical project and implement the technical methodology
4. Applying the technical and scientific writing skills
5. Classify technical project requirements and sources
6. Applying safety and biosafety policies and regulation
7. Evaluate stages of project preparation and time management
8. Link between the different courses of B. tech and the technical expertise

### 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**

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.