

Course Outline

Biomedical Engineering Industry Internship

Term: Summer

Number of Credits: 18

Pre-requisites: Completion of no less than 3 credits from the following core courses: BMDE-653, BMDE-654, BMDE-655, BMDE-656

Course co-requisite(s): None

Restriction(s): This course is restricted to graduate students registered in the M.Sc. (A.) in Translational Biomedical Engineering; Non-Thesis

Course schedule: Monday – Friday; daily schedule follows that of the host organization

Course Location: Off Campus (at host organization)

Internship duration: 14 weeks (70 workdays, including statutory holidays)

Internship workload: total 490 internship hours (35 hr per week full-time)

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

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Course Overview

This course covers various aspects of translational biomedical engineering at an organization in the biomedical engineering industry (including private, public and non-governmental organizations), which includes applying engineering principles to design, develop, implement, or test biomedical engineering solutions as well as assume active roles in translational projects of biomedical engineering solutions at host organizations.

This course consists of supervised internship at a host organization, and is organized by McGill's Department of Biomedical Engineering (BME). Students will be expected to apprise themselves of internship policies/resources, internship dates/duration and general responsibilities as outlined in this document as well as on the [BME Internship Website](#).

Intellectual property rights are generally retained by the internship host organization.

Students will be mentored by their assigned [Academic Supervisor](#) and [Field Supervisor](#), and will be evaluated by their Field Supervisor and the [Course Instructor](#).

Students and supervisors will be supported by the Course Instructor and [Internship Coordinator](#).

Learning Outcome

By the end of this course, students will have gained exposure to and developed [6 Professional Competencies](#) which are essential for industry professionals.

Instructor Information

Academic Supervisor

Who	Core Faculty or Associate Member of BME
When/Why to Contact	The first point of contact for technical advice on the internship project

Field Supervisor

Who	An employee at the internship host organization, confirmed by the Internship Coordinator.
When/Why to Contact	The first point of contact for questions about host organization policies/procedures and requests for assistance/support while at the host organization

Course Instructor

Name	Ross Wagner
Email	bmde657.bme@mcgill.ca
Phone Number	514-398-6740
Office Location	Duff Medical Building (3775 University Street), Room 315C

Internship Coordinator

Name	Jesse Ehrlick
Email	jesse.ehrlick@mcgill.ca
Phone Number	514-444-5300
When/Why to Contact	The first point of contact for questions about the arrangement of a placement , and questions about the internship policies and procedures; is a second point of contact for questions about host organization policies and procedures, and/or requests for assistance/support that cannot be satisfied by the Field Supervisor

Placement

The internship may start after a student is placed with their host organization. This placement phase typically occurs prior to the start of the term.

The Internship Coordinator will provide ample resources to students to secure internship placements, including resume review, industry outreach, and individual consultations. However, students will be required to take an active role in seeking internships from the start of their studies, and students will be ultimately responsible for securing their own placements.

Students should target host organizations where their career interests lie. Students may relay their career interests to the Internship Coordinator, who will then provide suggestions for potential host organizations. Students may reach out to target host organizations directly to inquire about potential internships, or they may ask the Internship Coordinator to reach out on their behalf. The Internship Coordinator is responsible for developing and nurturing a network of internship host organizations. In exceptional circumstances where students are unable to find external internships, 'Internships in a lab' in translational biomedical engineering will be conducted in a lab run by a member of BME (the acting Field Supervisor) and another external academic must be secured as the Academic Supervisor. Internships in a lab must be approved by the Course Instructor.

Internship Contract

The Internship Contract consists of the following three components:

1. [Internship Proposal](#)
2. [Academic Contract](#)
3. [Company Contract](#)

and must be established **before starting** the internship.

If a student begins their internship before establishing an Internship Contract, they will receive a grade of zero on any deliverables to date until the contract is fully executed and uploaded into myCourses.

Internship Proposal

Once a potential host organization is identified, and there is mutual interest in an internship, the student prepares an Internship Proposal, which includes a clear plan of work with clear overall objectives. The student submits the Internship Proposal to the Course Instructor.

The Internship Proposal is first approved by the Field Supervisor and Course Instructor, and then finally approved by the Academic Supervisor.

The Internship Proposal is signed by the Field Supervisor, Course Instructor, Student, and the Academic Supervisor.

Academic Contract

The Academic Contract contains academic requirements, evaluation responsibilities, and relevant [submission deadlines](#) in accordance with this Course Outline. The Course Instructor coordinates with the student to prepare the contract, identify the Academic Supervisor, and collect signatures.

The Academic Contract is signed by the Field Supervisor, Student, and Course Instructor.

Company Contract

The Company Contract details all relevant logistical, legal and financial information, including the location and duration, as well as any rights to compensation and intellectual property. The Internship Coordinator arranges the Company Contract.

The Company Contract is signed by a representative from the Host Organization and the student.

In lieu of a formal signed contract, an email chain that clearly shows an agreement between the student and Host Organization is an acceptable equivalent.

Vetting of Host Organizations

Before a placement is finalized, BME will vet the host organization to determine its suitability to host internships that conform to the requirements established in this document. The Course Instructor, supported by the Internship Coordinator, will be responsible for the vetting of host organizations. Once vetted, and before starting the internship, an Internship Contract will be established.

Instructional Method

Students will be observed and assessed using the mechanisms listed in the table below.

Deliverable / Form	Description
Internship Proposal	The Internship Proposal is a job description that has been approved before starting the internship. See Internship Proposal section above.
Internship Contract	<p>The <i>Internship Proposal</i>, <i>Academic Contact</i>, and <i>Company Contract</i> are collectively called the “Internship Contract” and must be established before starting the internship. See Internship Contract section above.</p> <p>The student must compile all components of the Internship contract into one document and upload it to myCourses, as an assignment, at the start of the term.</p>
Internship Log	<p>The student regularly records/summarizes their activities and reflections in Internship Logs, using a standardized form, submitted as assignments in myCourses. See Course Phases / Schedule section below for timeline. See Required Course Material section below for the form.</p> <p>The student will be expected to attain appropriate mastery and deployment of 6 Professional Competencies, and should utilize all of them in their work practices and document their progress through the Internship Logs.</p> <p>Internship Logs are to be considered as homework and should not be worked on during host-company time. It is recommended to include details that will help when writing the Final Report.</p> <p>Students are encouraged to share content from their Internship Logs on the myCourses discussion board (while respecting confidential matters) to compare their experiences.</p>
Interim Assessment	<p>The Field Supervisor completes an assessment at an early stage of internship that evaluate the student’s progress and development of the 6 Professional Competencies. See Course Phases / Schedule section below for the timeline.</p> <p>The Interim Assessment will be submitted to the Course Instructor. The student will receive a copy via email.</p>
Final Assessment	<p>The Field Supervisor completes a final assessment at the end of the internship that evaluates the student’s overall progress and development of the 6 Professional Competencies. See Course Phases / Schedule section below for timeline.</p> <p>The Final Assessment will be submitted to the Course Instructor. The student will receive a copy via email.</p>
Final Report	The student summarizes their activities and final reflections in a 5- to 15-page report which must be submitted via myCourses at the end of the internship . The report should include details about the host organization, tasks performed, lessons learned, and progress made (while respecting confidential matters). See Course Phases / Schedule section below for the timeline.

Deliverable / Form	Description
Final Presentation	<p>The student summarizes their overall internship activities and Final Report in a 15- to 20-minute presentation to their peers at the end of the internship. The presentation must cover the same details in the Final Report. See Course Phases / Schedule section below for the timeline.</p> <p>The Course Instructor will schedule all final presentations.</p>
Final Presentation Peer Feedback	<p>The student must submit feedback for each of their peers' final presentations, using a standardized form, submitted as assignments in myCourses at the end of the internship. See Course Phases / Schedule section below for the timeline.</p>
Competency Improvement Plan (CIP)	<p>The Field Supervisor and/or Course Instructor completes this form when there are concerns about student performance, including but not limited to, pedagogical weaknesses, poor punctuality/reliability, not responding well to feedback/suggestions, not following rules/policies, not adhering to dress/grooming regulations, etc.</p> <p>A student may also request a CIP be issued by submitting a written request to the Course Instructor. This allows students to lodge complaints regarding their internship.</p> <p>When a CIP is issued, the student will be asked to meet with the Field Supervisor and/or Course Instructor to discuss the issue(s) and the appropriate way forward, including a date for demonstrated improvement; all parties sign the CIP.</p> <p>A CIP carries a follow-up component in which all parties meet again on the specified date to determine if the issue(s) is (are) resolved or if the CIP requires an extension/further action.</p> <p>If CIPs remain unresolved beyond the initial designated follow-up date, or if multiple CIPs are outstanding, this will be reflected in grading, or, in extenuating circumstances, may lead to dismissal (see Early Dismissal section below).</p>

Evaluation

The following table summarizes the deliverables after the start of the internship, the grade assignment, and the assessor. See [Course Phases / Schedule](#) for details on deliverable deadlines.

Deliverable	Submitted by	Grade	Assessed by
Internship Log (x7)	Student	14% (7 x 2%)	Course Instructor
Interim Assessment	Field Supervisor	10%	Field Supervisor
Final Assessment	Field Supervisor	18%	Field Supervisor
Final Report	Student	30%	Course Instructor
Final Presentation	Student	20%	Course Instructor
Final Presentation Peer Feedback	Student	8%	Course Instructor

[Internship Logs](#) are graded based on completion. Late submissions will be penalized by 50% of the total worth per day.

The [Interim Assessment](#) evaluates early progress and development of the [6 Professional Competencies](#) using a pre-determined scale.

The [Final Assessment](#) evaluates overall progress and development of the [6 Professional Competencies](#) using a pre-determined scale.

The [Final Report](#) is graded evaluating quality and clarity (50%), and achievement of the [6 Professional Competencies](#) (50%). Late submissions will be penalized by 10% of the total worth per day.

The [Final Presentation](#) is graded evaluating quality and clarity (50%), and general presentation and ability to answer questions (50%).

[Final Presentation Peer Feedback](#): Students must submit a feedback report for each of their peers' Final Presentations to receive a portion of the final grade. The value of each feedback report will be pro-rated per submission, based on the total number of students in the class. The grade will be determined by the number of submitted feedback reports by the submission deadline.

The Course Instructor may review all student deliverables and may request a consultation with the Field Supervisor with justification for a higher or lower grade.

All final grading decisions fall to the Course Instructor. Students may appeal any final course grade within 30 days of the grade posting by making a written application to the Course Instructor. If the decision of the Course Instructor, once made, is not accepted by the student, a formal application may be made to Graduate & Postdoctoral Studies (see the [Graduate Studies Reread Policy](#)).

Course Phases / Schedule

Course Phases

The course contains several phases described in the table below.

Phase	Tasks/Workload
BEFORE Week 1	<ul style="list-style-type: none"> • Identify a potential host organization and secure mutual interest • Prepare an Internship Proposal, outlining a plan of work with clear overall objectives • Gain approval from the Course Instructor and Field Supervisor, including comments/suggestions and written feedback, as necessary • Establish the Internship Contract with the Field Supervisor, Academic Supervisor, and Course Instructor
Weeks 1-3	<ul style="list-style-type: none"> • Plan to achieve expectations for the internship with the Field Supervisor • Shadow and teamwork with the Field Supervisor or other host organization employees • Become knowledgeable about host organization routines, policies programs and resources • Gradually take on project responsibility
Weeks 4-14	<ul style="list-style-type: none"> • Show satisfactory progress of professional development across the 6 Professional Competencies • Integrate Master’s program coursework and apply techniques in the field • Implement suggestions and techniques based on the Field Supervisor’s feedback (as given in the Interim Assessment) • Document progress in Internship Logs
Week 15	Final Report
Week 16	Final Presentation Final Presentation Peer Feedback

Course Schedule

Note: Because internships do not all necessarily start on the same day, assignment deadlines cannot be defined in myCourses. As such, each student is responsible for keeping track of the due dates of their deliverables (as appearing in their [Academic Contract](#)).

For this course, a week starts on Monday and ends on Sunday.

For part-time work schedules, a “Week” is the equivalent of 35 hours of internship workload.

The following table summarizes the timeline for deliverables during the internship. The schedule refers to the end of the given week.

Internship Logs and the Final Report must be submitted to myCourses by the Sunday at 11:59pm.

Schedule	Deliverables by	
	Student	Field Supervisor
Start of Course	Internship Contract	
Week 2	Internship Log #1	
Week 4	Internship Log #2	
Week 5		Interim Assessment
Week 6	Internship Log #3	
Week 8	Internship Log #4	
Week 10	Internship Log #5	
Week 12	Internship Log #6	
Week 14	Internship Log #7	
Week 15	Final Report	Final Assessment
Week 16	Final Presentation Final Presentation Peer Feedback	

Professional Competencies

Throughout the internship, students will be evaluated on the 6 Professional Competencies (soft skills) below:

Professional Competency	Demonstrated Outcomes
#1: Professionalism	<ul style="list-style-type: none"> Act in a professional manner with management and colleagues Understand the organizational mission, goals and culture Engage people with empathy and diplomacy Recognize, interpret and act upon progress evaluations
#2: Communication skills	<ul style="list-style-type: none"> Demonstrate excellent oral and written language skill appropriate to the audience Communicate effectively and professionally with ease, precision, clarity and accuracy
#3: Time management	<ul style="list-style-type: none"> Create a clear and detailed project plan that fits logically within host organization objectives Manage projects with purposeful activities and milestones

Professional Competency	Demonstrated Outcomes
#4: Organization skills	<ul style="list-style-type: none"> • Manage day-to-day activities that promote project/organizational development • Develop a framework to track and evaluate progress • Establish and maintain routines that ensure the smooth progression of projects • Identify and correct organizational problems that hinder the smooth progression of projects • Establish and apply methods to solve problems that hinder project/organizational development
#5: Professional development	<ul style="list-style-type: none"> • Identify their own level of achievement in professional competency development • Access and use available resources to improve professional skills • Be a critical, reflective practitioner • Undertake research projects related to specific aspects of their work and/or objectives of the host organization
#6: Ethical practice	<ul style="list-style-type: none"> • Demonstrate ethical and responsible professional behavior in the performance of your duties • Be trusted, without reservation, as a colleague • Display diligence, responsibility, discretion, fairness, respect, acceptance and caring in all dealing with management, colleagues, and partners in the community • Support actions with well-founded reason • Be aware of, and abide by, the legal and regulatory obligations of the profession

BME Internship Policies

Internship placements are made through BME. Students are expected to conduct their internship at the host organization designated by the Department and following the policies contained in this document and on the [BME Internship Website](#).

Required Course Materials

Students will be **required to read** the materials listed below in advance of their Internship (accessible through the [BME Internship Website](#)):

- Course Outline (appropriate for their term)
- Internship Log
- Internship Contract
 - Internship Proposal

- Academic Contract
- Company Contract (*supplied by host organization*)

Optional Course Materials

Students have access to optional materials on the [BME Internship Website](#) which contains links to:

- Career Planning Service (CaPS)
 - Internships: Overview
 - Find an Internship
 - Create a Resume & Cover Letter
 - Prepare for an Interview
- Internship Offices Network
 - Internships: A Guide
- SKILLSETS
 - Individual Development Framework
 - Project Management

McGill students also have access to the main library system, including access to course materials, both print and online, in its [Course Reserves](#) section. The Library puts course reserve materials on short-term loan at the branch libraries, while also linking to online materials (both e-books and e-journal articles.)

Attendance & Absences

Students are expected to attend their host organization all day and be on time every day of their internship. Students follow their host organization's schedule, not their Field Supervisor's (if different from the host organization's). All requests for absence from the host organization must be approved by the Course Instructor.

Activities & Travel

Students are strongly advised not to engage in activities (e.g., employment, etc.) which could interfere with the time and energy required to work effectively during the Internship. Students are required to be available until the end of the term and, therefore, must not book any travel immediately following the Internship.

Family Members

Students will not be placed in host organizations where they have relatives working or attending (e.g., management, colleagues, staff, etc.) and are responsible for disclosing such conflicts in their Internship Contracts.

Excursions

Students must request permission from the Internship Coordinator to participate in overnight excursions with their host organization.

Illness

Days missed due to illness must be made up at the end of the Internship. Students must notify their host organization administrative office, their Academic Supervisor, their Field Supervisor and their Internship Coordinator as soon as they realize that they will be absent due to illness. The first two days of absence due to illness do not require a medical note, however, after the 2nd day, the student must provide a medical note to the Internship Coordinator. In cases where a student has missed 2 or more days due to medical absence, the outcome of the Internship may be determined by the Course Instructor.

Pregnant Students

BME operates in accordance with McGill's [Policy on Accommodation of Pregnant Students](#). Students who, because of pregnancy, may not be able to meet obligations to the field are responsible for informing their Internship Coordinator as soon as possible. The student must provide relevant medical and other supporting documentation, for example: proof of medical appointments or expected date of delivery or confirmation of birth. Depending on the circumstances, the student may be requested to meet with the Course Instructor to review their schedule for the period of their pregnancy, along with their plans during the pregnancy and following delivery. The student may be asked to have their doctor complete an Internship health risk assessment form. In cases where a student is unable to complete the Internship for reasons related to their pregnancy, the outcome of the Internship will be determined by the Course Instructor.

Religious Observation

BME in accordance with McGill's [Policy on Holy Days](#). Student who intend to be absent from their Internship for the purposes of religious observation must make these days up at the end of the Internship. Students must notify their Academic Supervisor, Field Supervisor and their Internship Coordinator at least two weeks before the planned absence. Students may consult a [list of recognized holy days here](#).

Snow Days etc.

Students are expected to be at their host organization during inclement weather unless the host organization is closed for the day. In these cases, snow days do not need to be made up by the student provided they do not exceed two days. In the case of closures in excess of 2 days, the Internship Coordinator will decide as to the number of days to be made up.

Varsity Sporting Event

Students who wish to be absent from their Internship for the purposes of participating in a McGill varsity sporting event must submit their request by e-mail to their Internship Coordinator at least two weeks before the event. Please attach a completed 'Participation in an Intercollegiate Sport Event' form to the e-mail, signed by McGill Athletics (copies of the form can be obtained from [Lisen Moore](#), Manager, Varsity Sports). Request for absence for reason of participation in a varsity sporting event will be evaluated by the Course Instructor on a case-by-case basis.

Early Dismissal

Students may be removed from their Internship at any time, either at the request of the host organization or BME. In this situation, the student will meet with the Course Instructor who will determine the final outcome of the placement. Circumstances that could lead to an early dismissal include, but are not limited to:

- Pre-requisite courses not successfully completed
- Failure to pass a judicial record check (if required by the host organization)
- Behaviour that contravenes the [Code of Student Conduct](#)
- Failure to make the improvements outlined in a Competency Improvement Plan (CIP) by the date indicated

When a student is dismissed from an Internship early, possible outcomes include:

- **Reassignment** in the same semester (subject to the decision of the Course Instructor and the availability of placements)
- **Withdrawal** from the Internship; a grade of 'W' is entered for the course with or without refund at the discretion of Graduate & Postdoctoral Studies; the student will repeat the Internship (course) when next regularly offered.
 - See the Graduate & Postdoctoral Studies [Policy](#) on University Withdrawal
- **"F"** for the course
 - See the Graduate & Postdoctoral Studies Failure [Policy](#)

For questions about any of the policies listed above, please contact the Internship Coordinator.

McGill University Policies/Statements

Academic Integrity

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](#).

Language of Assessment/Submission

In accordance with McGill University's [Charter of Students' Rights](#), students in this course have the right to submit in English or French any written work that is to be graded.

Policy on E-Mail Communication with Students

[Link to policy](#)

E-mail is one of the official means of communication between McGill University and its students. As with all official University communications, it is the student's responsibility to ensure that time-critical e-mail is assessed, read, and acted upon in a timely fashion. If a student chooses to forward University e-mail to another e-mail mailbox, it is that student's responsibility to ensure that the alternate account is

viable. Please note that to protect the privacy of students, the University will only reply to students on their McGill e-mail account. It is a violation for any user of official McGill e-mail address to impersonate a University officer, a member of the faculty, staff or student body, in line with the McGill University “Code of Computer User Conduct” and relevant federal and provincial legislation.

University Student Assessment Policy

[Link to policy](#)

This document exists to ensure fair and equitable academic assessment for all students and to protect students from excessive workloads. All students are encouraged to review this Policy, which addresses multiple aspects and methods of student assessment, e.g. the timing of evaluation due dates and weighting of final examinations.

First Nations Land Acknowledgement

McGill University is on land, which has long served as a site of meeting and exchange amongst Indigenous peoples, including the Haudenosaunee and Anishinabeg nations. We acknowledge and thank the diverse Indigenous people whose footsteps have marked this territory on which peoples of the world now gather.

Additional Resources

- [Registration Dates](#)
- [Charter of Students’ Rights](#)
- [Student Rights & Responsibilities](#)
- [Code of Student Conduct & Disciplinary Procedures](#)
- [Office for Students with Disabilities](#)
- [Office of the Dean of Students](#)
- [Counselling Services](#)