

Course Outline (F2024-W2025)

BME70AB: Biomedical Engineering Capstone Design

Instructor(s)	<p>Dr. Karthikeyan Umapathy [Coordinator] Office: ENG459 Phone: (416) 979-5000 x 557207 Email: kumapath@torontomu.ca Office Hours: By Appointment</p> <p>Stephen Waldman Office: Appointments through Zoom Phone: TBA Email: swaldman@torontomu.ca Office Hours: TBA</p> <p>Dr. Sridhar Krishnan Office: EPH 439 Phone: 554931 / 557548 Email: krishnan@torontomu.ca Office Hours: Mondays, 2pm to 3pm</p> <p>Dr. Victor Yang Office: EPH400Q Phone: (416) 979-5000 x 552143 Email: yangv@torontomu.ca Office Hours: TBA Tues after lecture</p>
Calendar Description	<p>This two-term course provides a training platform for systematic open-ended design process and project management. Student groups apply their acquired knowledge and engineering skills to develop and build a design project from concept to working prototype. The lecture component provides advice and information on the design process, project management, reliability, system components, documentation, safety, and program specific aspects. In the laboratory component, once a project topic is assigned, student groups plan, design, source components, build, test/debug, and analyze, under the supervision of a faculty lab coordinator and submit a final design project report.</p>
Prerequisites	<p>BME 501, BME 516, BME 632, BME 639, BME 674, BME 634, MTH 410</p>
Antirequisites	<p>None</p>
Corerequisites	<p>None</p>
Compulsory Text(s):	<p>1. Teamwork and Project Management, Karl A. Smith, 4th edition, McGraw Hill, 2013 - Required text from this book is provided under library e-reserve (D2L) for all students.</p>
Reference Text(s):	<p>1. Design of Biomedical Devices and Systems, Paul H. King and Richard C. Fries, 2nd edition, CRC press, 2008. 2. Standard Handbook of Biomedical Engineering & Design, M. Kutz, 2002, McGrawHill</p>

3. The Biomedical Engineering Handbook, Joseph D. Bronzino, 2000, CRC Press(Available online at TMU Library)
4. Fundamentals of Project Management by Joseph Heagney, AMACOM; 5th edition, 2016
5. Managing Teams For Dummies by Marty Brounstein, For Dummies; 1st edition, 2002

At the end of this course, the successful student will be able to:

1. Develop creative thinking and capabilities of conducting research/interconnecting various engineering knowledge to formation of realistic designs. **(1c), (1d)**
2. Develop ability and technical skills to make decisions in engineering designs using judgement in solving problems with uncertainty and imprecise information. **(2a)**
3. Understanding foundational elements of the engineering design, and using principles of natural and engineering sciences, and mathematics in arriving at design solutions iteratively using feedback. **(3a)**
4. Experimental data collection by following appropriate principle of sensing and measurement, and using critical skills of data analysis by appropriate usage of statistical principles. **(3b)**
5. Develop skills of problem solving, systematic diagnose, trouble shooting, critical path analysis, logical decision, and engineering trade-off. **(4a), (4c), (4b)**
6. Develop student's ability of implementing prototype design, measurement and performance analysis. **(5a), (5b)**
7. Develop project management and teamwork skills, which includes leadership, organization, planning, motivation, conflict resolution, design process management, co-operation and contribution, decomposing project into key tasks, determining tasks inter-relationship, and managing project to meet budget and time line. **(6a), (6b)**
8. Demonstrates written communication skill through the ability of constructing effective arguments and drawing conclusions using evidence in discussing design choices, using technical vocabulary, and presenting information clearly and concisely. Develop reporting and technical writing skills through timely project progress reports and final report. Also, develop presentation skill through milestone demonstrations and public presentation in open-house. **(7a), (7b), (7c)**
9. Develop reporting and technical writing skills through timely project progress reports and final report. Also, develop presentation skill through milestone demonstrations and public presentation in open-house. **(8a), (8b)**
10. Considering sustainable design elements during phased-design stages, and taking into account regulatory and safety standards as applied to healthcare technology development and enablement **(9a), (10a)**
11. Develop project management and teamwork skills, which includes leadership, organization, planning, motivation, conflict resolution, design process management, co-operation and contribution, decomposing project into key tasks, determining tasks inter-relationship, and managing project to meet budget and time line. Understand systematic decomposition of project into key tasks, determine tasks inter-relationship, and manage project to meet budget and time line. **(11b)**
12. Develop resource management skills during project management phase, and in evaluating the functional aspects of the final design. **(11a)**
13. Exposure to state-of-the-art literature and summarizing as part of the written report, and communicating during oral exam and open house demos. Demonstrate ability to assimilate existing knowledge of the field, understand how literature is produced and maintain currency. **(12b), (12a)**

NOTE: Numbers in parentheses refer to the graduate attributes required by the Canadian Engineering Accreditation Board (CEAB).

Learning Objectives (Indicators)

Course Organization

1.0 hours of lecture per week for 13 weeks
 5.0 hours of lab per week for 12 weeks
 0.0 hours of tutorial per week for 12 weeks

Teaching Assistants

TBA

Course Evaluation

Theory	
Design Process and Project Management Exam (A) I	7 %
Quizzes with Specified Seminars (A) I	2.5 %
Report summarizing design activities (A) I/G	7.5 %
Quizzes with Specified Seminars (B) I	2.5 %
Final Engineering Design Report (B) G	22.5 %
Laboratory	
Milestones and Milestone Compliance Reports (A) I	3 %
Project Oral Exam (A) I	5 %
Project Management and Teamwork (B) I	10 %
Milestone Compliance Reports (B) I	10 %
Milestones and Final Demonstrations (B) I	12 %
Project Oral Exam (B) I	15 %
Open-House Participation (B) I	3 %
TOTAL:	100 %

Note: In order for a student to pass a course, a minimum overall course mark of 50% must be obtained. In addition, for courses that have both "**Theory and Laboratory**" components, the student must pass the Laboratory and Theory portions separately by achieving a minimum of 50% in the combined Laboratory components and 50% in the combined Theory components. Please refer to the "**Course Evaluation**" section above for details on the Theory and Laboratory components (if applicable).

Examinations

Course evaluation will be based on students' performance and design reports. Each project group consists of 4 students. Each student will be evaluated both individually and as a group.

BME 70A (Fall Term)
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Please refer to "Activity Schedule" table at the end of the course outline for the time line for exams, evaluation, and deadlines.

Examination on "Design Process and Project Management" is carried out in Week F6 (tentative).

Students must attend specified seminars (& quizzes) and submit project milestones and milestones compliance reports as per the "Activity Schedule" to their FLC for evaluation prior to meeting with their FLCs.

Project design oral exam will be conducted in weeks F12-F13 (tentative). Students "individually" should demonstrate a thorough knowledge of their EDP through the oral examination by their assigned FLC.

The written report at the end of the Fall term (week F13) will be assessed not only on their technical merit, but also on the communication skills of their author as exhibited through the reports. The written report will be evaluated as follows:

i) Introduction and Objective

-Statement of the problem, clarification of need and requirements.

ii) Approach and Methods

-Relevant literature review, use of suitable engineering concepts and methods
-Alternative design approaches examined and analyzed.

iii) Design Analysis and Synthesis

-Design specifications, challenges and methodology
-Use of modern concepts and methods for data gathering, analysis, and synthesis
-Charts on the design process.

iv) Technical Writing and General Organization

-English, spelling, conciseness, clarity, cover page, index, sequence of chapters, references, appendices, overall adequacy, and integration of the report.

BME 70B (Winter Term)

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Please refer to "Activity Schedule" table at the end of the course outline for the time line for exams, evaluation, and deadlines. Students must attend specified seminars (& quizzes)

(a) Project Management & Teamwork: The FLC will mark each student in each phase in their role as a Manager/Team Leader (Leadership, Conductor of meetings, Organizer/planner/motivator, Conflict resolution) or as a Team Member (Co-operation, Contribution, Conflict resolution).

(b) Milestones Compliance Report, Milestones & Final Demonstration: Students are required to demonstrate milestone compliance (& submit milestone compliance report) during the 4 phases of the project, and build a working prototype. Failure to do so will automatically result in a FAIL grade. Students who do not keep their FLC advised of their progress on a weekly basis may be refused an oral examination because authorship and contribution to the project is questionable.

(c) Project design oral exam will be conducted in weeks W12-W13 (tentative). Students "individually" should demonstrate a thorough knowledge of their EDP through the oral examination by their assigned FLC.

(c) Open House Presentation: Students are required to participate in an "Open House" exhibition that will be scheduled by the department. Please advise prospective employers of this requirement. At the Open House, students will demonstrate and discuss their project with visitors from the academic community, their peers, and visitors from industry. Participation in this exhibit may result in a grade revision for enhancements or improvements to the project. Students absent from the Open House will have their grade reflect this.

(d) Final Engineering Design Report (W13): The main body of the final report is limited to 40 pages, including text, analysis equations/algorithms diagrams, schematics, tables and references list. Additional material (e.g. source code, datasheets, etc.), not subjected to grading, can be inserted in the APPENDIX. Mark reduction will be applied for report exceeding the 40-page limit. One unbound copy of your group final Engineering Design report is required to submit to your FLC by the deadline set by dept/Course Coordinator. A report submitted without prior satisfactory demonstration of your group project will automatically be given a FAIL grade. The format of the report should conform to professional standards and adequately document the design activities. If the project includes software, the source code must be included/uploaded with the report. The final report will be returned to the students during the Open House together with corrections and suggestions for improvement. The students must make the necessary revisions and submit the final version by the deadline set by the department/CC. If the deadline set by the department/CC is not met for Engineering Design Report submission, the student will not be eligible to graduate. All written reports will be assessed not only on their technical merit, but also on the communication skills of the author as exhibited through these reports.

**Other
Evaluation
Information**

The EDP grade awarded to a student who has completed all the requirements, including a successful and timely project demonstration and oral examination, is based on an assessment made by their FLC. Though the wide variation in EDP topics, approach, and challenges encountered by the student does not allow a precise marking scheme to be uniformly applied, the factors described below will be weighted by the FLC in determining the student grade.

(a) Design and Laboratory Work

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All EDPs require that a concept, an idea, bounded by design specifications in the EDP topic description be researched to provide sufficient knowledge to enable a realistic design be fleshed out. This design is implemented in the laboratory. The foundations for the EDP grade rest on the design and implementation process. Unless the design is sound and based on solid engineering, the laboratory time will be inefficiently used and the effort frustrating to all involved including the FLC.

Even with a good design, the student will be challenged with implementation and bringing the design to life. The key aspect is the process by which the student tackles the challenges encountered. Is a problem analyzed to thoroughly understand its root and a logical decision made as to what options are viable and a strategy devised to confirm the diagnosis and attempt a solution, or is a trial and error quick-fix method employed? How systematic and skilled are the troubleshooting procedures employed; for instance, are results studied carefully or program flow examined etc.?

Other factors used in evaluating lab performance include time and project management skills. How well did the student meet milestones and GANTT chart schedules, and the consistency with which the project was tackled and ongoing technical documentation?

The variations in project topic and approach, student creativity, ingenuity, novelty and complexity of implementation or success in meeting practical implementation challenges are all factors in grading decisions. Although a project that has been demonstrated as meeting or exceeding the initial requirements is fundamental for a good grade, the FLC will consider all the aspects in establishing the final grade.

(b) Reports (70A & 70B)

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The report (70A & 70B) are essential and important course components. These are the documents on which anyone not intimately involved with the laboratory work assesses the project. The report should adequately describe the design activities undertaken in the project. Poor EDP reports will certainly demerit even excellent laboratory performance and will be reflected in the overall course grade.

Report (70A): The report summarizing design activities at the end of 70A will normally contain the following standard sections:

Title Page, Acknowledgements, Certification of Authorship, Table of Contents, Abstract, Introduction & Background, Objectives, Approach and Methods, Design Analysis and Synthesis, Conclusions, Appendices, and References.

Final EDP Report (70B): The Final EDP report (70B) will normally contain the following standard sections:

Title Page, Acknowledgements, Certification of Authorship, Table of Contents, Abstract, Introduction & Background, Objectives, Theory and Design, Documentation including Schematics and Parts Lists, Measurement Procedure, Performance Measurements, Analysis of Performance, Conclusions, Appendices, and References.

Additional Information: Particularly in engineering, it is essential that a project be properly designed. A designer must satisfy the examiner, the FLC, that the program or circuit will perform its tasks to specification under all or at least the usual, variations in the operating or manufacturing environment. Such issues as component tolerance, voltage variations, maximum and minimum computer cycle times and data throughputs are examples of variables. In other words, the

examiner must be convinced that the project is battle-proof and its operation at the demonstration is not an unusual event. Another guide used to assess whether the design is competent is to consider the mass production of this prototype. Could one anticipate a reasonable yield and customer satisfaction? The working prototype performance must be measured to quantify the extent to which it meets the design specifications. The procedure used to measure performance is to be described in sufficient detail that the reader can repeat it. The measured results must be documented in conjunction with appropriate schematics or flow charts. The results should be analyzed to ensure that they fit the anticipated performance and if not an explanation is called for. The abstract must accurately encapsulate the entire report contents in half a page or less. The conclusions should address the project's objectives; to what extent were they met? Where schematics and quotations are taken verbatim from other sources, these sources must be acknowledged to avoid the potentially serious charges of plagiarism.

(c) Project Management

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The project teams are required to demonstrate their project management skills by implementing the theory learnt into practice. The objectives of the evaluation process are as follows:

i) Each team member receives fair amount of training in project management, and is required to demonstrate the skills of a project manager.

ii) A project manager is evaluated for their capability of planning and achieving a tangible deliverable that can be demonstrated.

iii) Each student is also required to demonstrate the behavior of a professional team member.

Following management attributes and skills are used in the evaluation process:

- Project Management Attributes
- Leadership
- Manager of Design Process
- Motivator
- Organizer/Planner

iv) Skills used to exhibit project management attributes

- Understanding and managing scope of work/deliverables
- Design review meeting, recording of minutes and design discussion
- Timely follow-up
- Learn to identify strengths/weaknesses
- Conflict resolution
- GANTT chart, Critical Path analysis

The 70B semester is divided into four phases of three weeks each:

- Phase 1: Week W1, W2 and W3
- Phase 2: Week W4, W5 and W6
- Phase 3: Week W7, W8 and W9
- Phase 4: Week W10, W11, and W12

v) One student will act as a manager/team leader within a phase, thus each student will get a chance to play the role of manager/team leader

vi) The team will select their manager/team leader for each phase at the beginning of the respective phases and provide the names to the FLC

vi) Each student is marked in each phase in their role according to the following metric:

- Manager/Team Leader
- Leadership
- Conductor of meetings
- Organizer/planner/motivator
- Conflict resolution
- Team Member

	<p>--Co-operation --Contribution --Conflict resolution</p> <p>Project management evaluation:</p> <ul style="list-style-type: none"> -FLC may attend one group meeting in each phase as an observer -Each project manager is required to submit a tangible deliverable that can be demonstrated in the lab at the end of their term, and a plan to achieve that deliverable. -Student's role is evaluated during the weekly progress meeting, through milestone submissions, milestones compliance reports, and exhibits. -The group may be requested to provide necessary information/documents that help FLC in evaluating their project management role. <p>IMPORTANT NOTE: BME70A/B is a two-term course. If the course is dropped (or receive a "F" grade) in either of the terms, the entire course has to be repeated.</p>
<p>Teaching Methods</p>	<p>Lectures, Seminars, Exams and meetings with FLCs will be in-person unless otherwise specified. Seminar quizzes will be online. If there are any changes to the mode of delivery of any of the course components or evaluations, information will be posted on the D2L.</p>
<p>Other Information</p>	<p>Course Organization Details (BME 70A) [2 hrs Lec/Lab] =====</p> <p>The engineering design projects are selected from a published list of project topics on the course D2L web site. The description of each topic contain a preamble that gives an overview of the project and explains why it is of interest. Partial specifications, objectives, and suggested approach are included. All topics are 4-student projects. Note: BME students can only choose project topics from BME 70A/B approved list of projects.</p> <p>Once the EDP topics are posted in the D2L, students can contact the professors teaching this course termed the Faculty Lab Coordinators (FLCs) to discuss their project topics available for student selection and the design challenges for those projects. If a student(s) wishes to propose (or) modify a topic, the student should first choose the topic(s) closest to their likes from the approved list of BME EDP topics and go through the BME EDP topic selection process. Once they are assigned a topic by the computer selection process, they can then discuss with their assigned FLC to modify their topics subjected to the approval of their respective FLCs.</p> <p>In Week F3 (tentative) lecture hour, a seminar on "Design Process and Project Management" is scheduled. During Week F2, students must select their project topics online. The actual dates of the computer topic selection and the procedure will be announced. If more than one group of students selects a particular project topic, the approval of the selection is based on a random process; those who do not get the approval will re-select another topic.</p> <p>Once topics are assigned to the groups, the students will start the design activities and meet with their FLCs regularly the following weeks of the course. Students must attend specified seminars (& quizzes) and submit project milestones and milestones compliance reports as per the "Activity Schedule" to their FLC for evaluation prior to meeting with their FLCs. During the weeks when seminars/quizzes/exams are scheduled, it is students responsibility to discuss with their FLCs ahead of time and identify alternate meeting times.</p> <p>In Week F6 (tentative) lecture hours, students must do an examination on the subject of Design Process and Project Management. During Weeks F7 to F11, students attend seminars* (that will be announced on the course D2L web site) and/or carry out design work and report to their designated FLC. Seminars may be team taught by the guest speakers or FLCs. These seminars will be scheduled and announced on the course D2L website.</p> <p>*Note: Weeks F7-F11 are tentatively planned for seminars/quizzes, the actual weeks will be announced subjected to the availability of the guest speakers.</p>

During Weeks F12/F13, students must do their Oral Exam with their designated FLCs and submit their report in Week F13.

Course Organization Details (BME 70B) [5 hrs Lab]
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The winter semester is divided into four Phases (I, II, III, and IV). Each phase consists of three weeks. One student will act as a project manager/team leader within a phase, thus each student will have a chance to play the role of manager/team leader. The team will select their manager/team leader for each phase at the beginning of each of the phases and provide the names to the FLC.

In each of the phases, students will decide on the project manager/team leader for that Phase. After discussing with the team members the project manager will submit the milestones & deliverables for that Phase to the FLC (please refer to the GANTT chart that will be posted for due dates). The team will work towards completing the milestones, submit a milestone compliance report, and demonstrate the deliverables for that Phase by the end of the Phase. This cycle repeats until all four phases are completed and the deliverables are demonstrated to the FLC.

The project manager responsible for Phase II will also submit the theory and design sections of the EDP report. During each of the phases (i.e., the 3 weeks period) the respective project managers are responsible for submitting 3 weekly minutes of the meeting and 1 milestone compliance report to the FLC. During the FLC evaluations of deliverables, it will be the project manager's responsibility to explain and discuss with FLC on what was accomplished towards the stated milestone deliverables; what each member accomplished; and to conduct and manage the demo session. The FLC may ask any member of the team for further verification of their aspects of the contributions.

In Week W12, individual project contribution summary will be submitted to the FLCs. Individual oral exam are scheduled during the Week W12 and/or W13. The team will submit their final EDP report during Week W13. Following Week W13, the team will present their project during the open house scheduled by the department and will submit the final EDP report to the department and FLC

Similar to BME70A, there will be one or more seminars (with quiz attached to it) that will be communicated through D2L.

Project Cost, Equipment, and Laboratories
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Project costs for components and other supplies will be borne by the students. Some specialized components may be provided by the Department. This will be noted in the project description. Students should carefully assess the cost implications of a particular project before making a commitment. Requests for equipment or laboratory usage outside of your scheduled lab hours should be directed to your FLC.

Course Content

Week	Hours	Chapters / Section	Topic, description
F1-13 & W1-13 (26 weeks)			Biomedical Engineering Capstone Design (BME 70 A/B)

Laboratory(L)/Tutorials(T)/Activity(A) Schedule

Week	L/T/A	Description
F1	-	Presenters/Evaluators: EDP Coordinator, FLCs, Staff Activities: Course Management, EDP Topics
F2	-	Presenters/Evaluators: EDP Coordinator, FLCs, Staff Activities: Computer Selection of EDP Topics, Lab Safety, Begin Meetings with FLCs
F3	-	Presenters/Evaluators: EDP Coordinator, FLCs, PM Faculty Activities: Design Process and Project Management Seminar/ FLCs Meetings and Design Activities/ Project Milestone Submission (BME70A)
F4	-	Presenters/Evaluators: FLCs Activities: FLCs Meetings and Design Activities
F5	-	Presenters/Evaluators: FLCs Activities: FLCs Meetings and Design Activities/ Milestone Compliance Report (MCR) submission (St1)
F6	-	Presenters/Evaluators: EDP Coordinator, FLCs Activities: Design Process and Project Management Exam/ FLCs Meetings and Design Activities
F7	-	Presenters/Evaluators: Guest Speakers, EDP Coordinator, FLCs Activities: Seminar*/ FLCs Meetings and Design Activities/ MCR submission (St2). *Note: Weeks F7-F11 are tentatively planned for seminars/quizzes, the actual weeks will be announced subjected to the availability of the guest speakers.
F8	-	Presenters/Evaluators: Guest Speakers, EDP Coordinator, FLCs Activities: Seminar/ FLCs Meetings and Design Activities
F9	-	Presenters/Evaluators: Guest Speakers, EDP Coordinator, FLCs Activities: Seminar/ FLCs Meetings and Design Activities/ MCR submission (St3)
F10	-	Presenters/Evaluators: Guest Speakers, EDP Coordinator, FLCs Activities: Seminar/ FLCs Meetings and Design Activities
F11	-	Presenters/Evaluators: Guest Speakers, EDP Coordinator, FLCs Activities: Seminar/ FLCs Meetings and Design Activities/ MCR submission (St4)

F12	-	Presenters/Evaluators: FLCs Activities: Project Design Oral Exam
F13	-	Presenters/Evaluators: FLCs Activities: Project Design Oral Exam/ Final Report Submission/ Submission of BME 70B plan for all 4 phases
W1	-	Presenters/Evaluators: Course Coordinator (CC) Activities: Course Introduction, FLC meetings, Submission of Phase I milestones and deliverables by project manager of Phase I to FLCs.
W2	-	Presenters/Evaluators: FLCs Activities: FLCs Meetings and Design/Implementation Activities
W3	-	Presenters/Evaluators: FLCs Activities: Phase I MCR submission, deliverables demo., and evaluation, Selection of project manager for Phase II
W4	-	Presenters/Evaluators: FLCs Activities: Submission of Phase II milestones and deliverables by project manager of Phase II to FLCs.
W5	-	Presenters/Evaluators: FLCs Activities: FLCs Meetings and Design/Implementation Activities, Theory and design sections of report submission
W6	-	Presenters/Evaluators: FLCs Activities: Phase II MCR submission, deliverables demo., and evaluation, Selection of project manager for Phase III
W7	-	Presenters/Evaluators: FLCs Activities: Seminars* / Submission of Phase III milestones and deliverables by project manager of Phase III to FLCs. *Note: Weeks W7-W11 are tentatively planned for seminars/quizzes, the actual weeks will be announced subjected to the availability of the guest speakers.
W8	-	Presenters/Evaluators: FLCs Activities: FLCs Meetings and Design/Implementation Activities
W9	-	Presenters/Evaluators: FLCs Activities: Phase III MCR submission, deliverables demo., and evaluation, Selection of project manager for Phase IV

W10	-	Presenters/Evaluators: FLCs Activities: Submission of Phase IV milestones and deliverables by project manager of Phase IV to FLCs.
W11	-	Presenters/Evaluators: FLCs Activities: FLCs Meetings and Design/Implementation Activities
W12	-	Presenters/Evaluators: FLCs Activities: Phase IV MCR submission, deliverables demo., final project demo, and evaluation. Submission of Individual project contribution summary prior to oral exam. (Your FLC may choose to conduct oral exams in week W12 and/or W13)
W13	-	Presenters/Evaluators: FLCs Activities: Project oral exams and Final report submission
TBD	-	Open House Exhibition/Participation
-	-	<p>Additional IMPORTANT Information: =====</p> <ul style="list-style-type: none"> - Seminars will be arranged and the details will be posted on D2L. During the weeks with in-class activities, please arrange alternate meeting times with your FLCs. - Please refer to the GANTT chart (for 70B) that will be posted on D2L for specific due dates and deadlines for Winter term. - The above activity schedule is tentative and if there are any changes, announcements will be made on D2L.

University Policies & Important Information

Students are reminded that they are required to adhere to all relevant university policies found in their online course shell in D2L and/or on [the Senate website](#)

Refer to the [Departmental FAQ page](#) for further information on common questions.

Important Resources Available at Toronto Metropolitan University

- [The Library](#) provides research [workshops](#) and individual assistance. If the University is open, there is a Research Help desk on the second floor of the library, or students can use the [Library's virtual research help service](#) to speak with a librarian.
- [Student Life and Learning Support](#) offers group-based and individual help with writing, math, study skills, and transition support, as well as [resources and checklists to support students as online learners](#).

- You can submit an [Academic Consideration Request](#) when an extenuating circumstance has occurred that has significantly impacted your ability to fulfill an academic requirement. You may always visit the [Senate website](#) and select the blue radio button on the top right hand side entitled: **Academic Consideration Request (ACR)** to submit this request.

For Extenuating Circumstances, Policy 167: Academic Consideration allows for a once per semester ACR request without supporting documentation if the absence is less than 3 days in duration and is not for a final exam/final assessment. Absences more than 3 days in duration and those that involve a final exam/final assessment, require documentation. Students must notify their instructor once a request for academic consideration is submitted. See Senate [Policy 167: Academic Consideration](#).

- If taking a remote course, familiarize yourself with the tools you will need to use for remote learning. The [Remote Learning Guide](#) for students includes guides to completing quizzes or exams in D2L Brightspace, with or without [Respondus LockDown Browser and Monitor, using D2L Brightspace](#), joining online meetings or lectures, and collaborating with the Google Suite.
- Information on Copyright for [Faculty](#) and [students](#).

Accessibility

- Similar to an [accessibility statement](#), use this section to describe your commitment to making this course accessible to students with disabilities. Improving the accessibility of your course helps minimize the need for accommodation.
- Outline any technologies used in this course and any known accessibility features or barriers (if applicable).
- Describe how a student should contact you if they discover an accessibility barrier with any course materials or technologies.

Academic Accommodation Support

Academic Accommodation Support (AAS) is the university's disability services office. AAS works directly with incoming and returning students looking for help with their academic accommodations. AAS works with any student who requires academic accommodation regardless of program or course load.

- Learn more about [Academic Accommodation Support](#).
- Learn [how to register with AAS](#).

Academic Accommodations (for students with disabilities) and Academic Consideration (for students faced with extenuating circumstances that can include short-term health issues) are governed by two different university policies. Learn more about [Academic Accommodations versus Academic Consideration and how to access each](#).

Wellbeing Support

At Toronto Metropolitan University, we recognize that things can come up throughout the term that may interfere with a student's ability to succeed in their coursework. These circumstances are outside of one's control and can have a serious impact on physical and mental well-being. Seeking help can be a challenge, especially in those times of crisis.

If you are experiencing a mental health crisis, please call 911 and go to the nearest hospital emergency room. You can also access these outside resources at anytime:

- **Distress Line:** 24/7 line for if you are in crisis, feeling suicidal or in need of emotional support (phone: 416-408-4357)
- **Good2Talk:** 24/7-hour line for postsecondary students (phone: 1-866-925-5454)
- **Keep.meSAFE:** 24/7 access to confidential support through counsellors via [My SSP app](#) or 1-844-451-9700

If non-crisis support is needed, you can access these campus resources:

- **Centre for Student Development and Counselling:** 416-979-5195 or email csdc@torontomu.ca
- **Consent Comes First - Office of Sexual Violence Support and Education:** 416-919-5000 ext 3596 or email osvse@torontomu.ca
- **Medical Centre:** call (416) 979-5070 to book an appointment

We encourage all Toronto Metropolitan University community members to access available resources to ensure support is reachable. You can find more resources available through the [Toronto Metropolitan University Mental Health and Wellbeing](#) website.