



# BME 1450H: Bioengineering Science

## 1. Calendar Information

BME1450 is essentially a course that provides you with an opportunity to hone the communication skills you will need to be successful in your research and future careers. The aims of this course are to provide students with:

1. Fundamental skills in research questioning, experiment design, and dissemination as needed to conduct high quality, high impact multidisciplinary research
2. A resource-rich network to support future individual and team-based research in biomedical engineering
3. A broad understanding of the research and methodologies of the core themes of IBBME
4. Access to IBBME faculty through seminars and in-class discussions.

To achieve these aims, all aspects of academic communication will be practiced through interactive workshops that cover literature searching, proposal/grant/award writing, the quantitative display of information, and multidisciplinary team initiatives. The course will include elements of independent and possibly group study. Throughout the semester, independent study will be centred on the student’s own research topic with written and oral communication. There is a significant component of self-directed study that addresses the need to communicate your research to non-specialist audiences. This project will allow students the choice of working collaboratively or individually in a format of their choosing. To demonstrate how the communication skills practiced in this course are necessary to produce high quality research and disseminate knowledge effectively, a series of lectures will be given by guest speakers.

## 2. Learning Outcomes and Graduate Attributes

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

1. Apply literature search techniques to inform and support your research
2. Create a written proposal of your research topic
3. Provide evaluation criteria and constructive reviews of written and oral work
4. Transfer your knowledge to broad audience

## 3. Timetable

Day of the Week	Start Time	Duration (Minutes)	Location
M	9:00	120	MY 360



#### 4. Course Instructors

Course Coordinator

Name	Phone	Office	Email
Prof. Bouwmeester	(416) 978-3702	MB 321A	chris.bouwmeester@utoronto.ca

Office Hours: <https://calendly.com/chris-bouwmeester/fall2018-office-hours>

Teaching Assistants

Name	Phone	Office	Email
Rossini Yue			rossini.yue@mail.utoronto.ca
Alex Vlahos			alex.vlahos@mail.utoronto.ca

#### 5. Final Grade Determination

The final grade in this course will be based on the following components:

Component	Learning Outcome(s) Evaluated	Due Date	Weight
Participation			15 %
Individual Research Proposal			
Research Proposal Review (draft + peer review comments)			10 %
Research Proposal			40 %
Knowledge Translation Project			
Knowledge Translation Pitch			5 %
Knowledge Translation Presentation			25 %
Symposium Participation			5 %
<b>Total:</b>			100 %

**Notes:**

Conversion from a score out of 100 to a letter grade will be done using a scale outlined in the IBBME handbook ([http://www.ibbme.utoronto.ca/wp-content/uploads/2015/11/IBBME-grad-handbook\\_2015-16\\_FINAL.pdf](http://www.ibbme.utoronto.ca/wp-content/uploads/2015/11/IBBME-grad-handbook_2015-16_FINAL.pdf)).

**Participation**

Your participation will be tracked for 4 main reasons: 1) this course uses an active learning space and you are encouraged to participate in the activities designed to assist you with completing the



deliverables in this course, 2) to encourage you to attend guest speaker presentations and provide and answers to speaker assignment questions, 3) complete homework activities, and 4) to direct your learning by demonstrating extra ways to participate positively to this course and share your knowledge with your peers.

Full participation marks will be awarded when 30 points are achieved (see table below). If you choose to achieve more than 30 points (35 max), bonus points will be awarded on a proportional basis of 1 point equals 0.5% of a total grade percentage. For example, if all criteria are met and 35 points awarded, then there would be a 2.5% bonus to the overall grade. As a guide, a single point will be awarded according to the following criteria:

Criteria	Points
Participate in workshop activities*	10
Contribute to guest speaker discussion (must be in attendance)*	5
Complete pre-class assignment, or extra assignment	5
Participate in respectful online discourse by contributing to online peer help or course Q & A discussions (Creating new thread worth 2 points; Reply to a post not of your own creation worth 2 points)	10
Talk to instructor during office hours for at least 5 minutes.	5

\*Participation and classroom discussions will be monitored and facilitated with TopHat. Therefore, you must create a TopHat account and join the BME1450 course. Participation will be checked during a workshop and attendance before the guest speaker presents.

#### Individual Research Proposal

Your goal is to create a document that you can use for a potential CGS-M or OGS scholarship application. You will apply the research and communication skills practiced in class to the preparation of a 1-page detailed description of your proposed research project. Through this process you will practice peer review and critiquing skills.

#### Knowledge Translation Project

The goal of this project is to translate the knowledge you propose to gain to a broad audience. This project is meant to be open-ended and challenge you to find creative ways to communicate and connect with non-specialist audiences. You have the choice of working individually or finding a group to tackle a more ambitious idea (max 4 people) that translates a single thesis proposal in a format or context of your choosing.



## 6. Deliverables

Guideline documents are provided for the 1-page research proposal and knowledge translation activity. All **deadlines are 11:59 PM** on the dates listed, unless otherwise noted, and the award for lateness will be strictly applied. Whenever possible, you must submit documents in Adobe PDF format.

Research Proposal Draft and Peer Review Debrief: Oct 15

You must have a printed copy of your proposal draft ready for the class on October 15. After the workshop activities you must also attach a page with the peer review comments you received. You will receive 5 points (10 total) of your Research Proposal Review mark for completing the draft and 5 points for the summarized comments provided by each peer reviewer.

Knowledge Translation Plan Pitch: Due Oct 29

You must submit a pitch for your knowledge translation plan. If you have decided to work in a team you must list all the team members (4 max) and the specific research proposal title you will translate as a team. Your pitch must clearly communicate your plan in 200 words or less. These pitches will be ranked to decide which individuals are eligible for oral, poster, or other presentations during the final symposium. Individuals (or teams) ranked the highest will have their choice of presentation format. For more information, please see '*Guidelines for Knowledge Translation Project*'

Research Proposal: Due Nov 5

Submit (in Quercus) your 1-page research proposal according to '*Guidelines for research proposal*'.

Knowledge Translation Project: Dec 10

All knowledge translation projects must be submitted electronically before 9:00 AM before the symposium. See the '*Guidelines for knowledge translation project*' for more information.

Knowledge Translation Symposium: Dec 10

A symposium is scheduled during the final class of the semester that will allow you to present your knowledge translation project. There will be 1 hour dedicated to presentations and 1 hour dedicated to digital poster presentations. Even if you present during the symposium, you will be required to submit your project electronically; if you gave a presentation: submit your slides or outline (as a PDF); if you presented a poster: submit your file (as a PDF). You will also receive a mark for participating in the symposium by asking questions to your peers and submitting a review of your peer's work during the symposium.



## 7. Course Policies

### Communication Policy

All course-related questions should be posted in the “Course Q & A” discussion. If you have a question you should: 1) check the syllabus or guidelines for your answer, 2) check the Course Q & A discussion to see if your question has already been answered, or 3) ask a peer directly. Every attempt will be made to respond within 3 business days to posts that need the attention of the corresponding TA. If necessary, you may email the corresponding TA (or instructor, if absolutely necessary) regarding personal issues that may impact this course. BME1450 must be used at the beginning of the subject line to ensure prompt response to emails. Every attempt will be made to responded to emails within 3 business days.

### Academic Accommodations

Students with diverse learning styles and needs are welcome in this course. The University provides academic accommodations for students with disabilities in accordance with the terms of the Ontario Human Rights Code. This occurs through a collaborative process that acknowledges a collective obligation to develop an accessible learning environment that both meets the needs of students and preserves the essential academic requirements of the University’s courses and programs. For more information on services and resources available to students, please contact Accessibility Services at (416) 978-8060 or <http://www.studentlife.utoronto.ca/as>. Should you have a Letter of Accommodation, you shall notify the instructor within the first 3 weeks of the term to allow appropriate accommodations to be integrated into the course.

### Lateness Policy

Deliverables received (considering the timestamp on Quercus only) after the posted deadline will be awarded a **50% overall deduction for every day that they are late**. In practice this means that an assignment submitted up to 1 day late will receive half the total marks and an assignment submitted 2 days after the deadline will receive zero total marks. Deliverables will only be accepted through the Quercus learning management engine.

Exceptions may be accommodated for valid reasons, that are out of a student’s control, (some examples may be: severe personal illness, illness or death of a close family member, personal or family crisis, or other extenuating circumstances) and may be considered if supported by written documentation. Exceptions will only be considered within seven days of the deliverable in question and include valid supporting documentation. The most common piece of supporting documentation is the U of T Verification of Student Illness or Injury Form. A doctor’s note, which simply states that the “student cannot write” is insufficient. If possible, please have your doctor complete the form at the time of your visit. A verification that indicates the doctor was told of your illness after the fact is typically insufficient. Please note the successful submission of a completed U of T Verification of Student Illness or Injury Form does not necessarily mean your exception will be accommodated. The severity, duration and date of the illness may be taken into consideration when making a decision regarding an exception. Regarding other



exceptions: official supporting documentation must outline your situation and the dates you were affected. For example, if you were in a traffic accident, you could submit the police accident report; if someone in your family passed away, you could submit a copy of the death certificate or funeral notice. The supporting documentation you need to attach to your petition or appeal must be relevant to your situation.

You are encouraged to submit deliverables well before the deadline to ensure that you can verify your submission has been completed in Quercus. Examples of invalid reasons would include: situations related to computer or internet problems that result in late submissions (including computer crashes, local internet outages, or individual difficulties linking to Quercus), online submissions that were not executed properly by a student, a forgotten deadline, a lack of attention to a deadline date that was changed during the course, a student intended to submit at the deadline but was delayed, or a student submitted the deliverable in some other way that was not through Quercus.

#### Attendance Policy

The learning atmosphere in this course depends on active participation and you will be given individual grades for participating in various ways. Your physical attendance throughout the course will be monitored with TopHat for the purposes of tracking participation. If you are absent or fail to check in properly, you will not be eligible for participation points that require your presence. No participation points will be given if you miss the opportunity to check in and **no accommodations will be considered for this grade item.**

#### Academic Integrity Message

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters ([www.governingcouncil.utoronto.ca/policies/behaveac.htm](http://www.governingcouncil.utoronto.ca/policies/behaveac.htm)) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:

##### *In papers and assignments:*

- Using someone else's ideas or words without appropriate acknowledgement.
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts.
- Obtaining or providing unauthorized assistance on any assignment.

##### *In academic work:*

- Falsifying institutional documents or grades.
- Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.



All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from other institutional resources (see <http://academicintegrity.utoronto.ca/>).

#### Library Resources

University of Toronto Libraries provides access to a vast collection of online and print resources to faculty, staff, and students. Research help is available by phone, e-mail, chat, and in-person. (See Library website for more details: <https://onesearch.library.utoronto.ca/>). Your IBBME reference and instruction librarian, located at the Engineering & Computer Science Library is Michelle Spence ([michelle.spence@utoronto.ca](mailto:michelle.spence@utoronto.ca)).

## **8. Additional Course Information**

#### Movement Breaks

This course will implement movement break(s) from academic content during lectures designed to provide opportunities to reduce sedentary behaviour in undergraduate students. The movement breaks will consist of two 3-minute videos featuring licensed instructors leading you through simple stretches, dance moves, or mindfulness sessions. All activities will be safe and appropriate for all levels of fitness and abilities and suitable for regular clothing. Participation is encouraged to help increase your well-being in the classroom but not mandatory. Please feel free to remain in your seat during the movement breaks if you wish not to participate.

#### Bonus Grade Opportunity

In this class, you will have the opportunity to earn a bonus grade of 2% for participating in a research study. You will be asked to complete 2 brief surveys, one in the first week of class and the second in the last week of class. For the completion of both surveys you will be awarded 2% bonus marks to your final grade.

The surveys will contain basic demographic questions, followed by questions regarding your general, physical, and mental health, as well as your overall wellbeing and level of engagement. Should you feel uncomfortable sharing this information you can earn the bonus by completing an alternative assignment.

The alternative assignment is a 1500-word paper, including 3 citations, on the topic of physical activity in the work place. The paper is due at 8:00am on the last day of class. The assignment is to be submitted to Alyona via email at [Alyona.koulanova@utoronto.ca](mailto:Alyona.koulanova@utoronto.ca) with the subject line “Bonus Paper: your course code”. Please include your UTORid, student number, and full name in the email.



For any questions regarding the bonus grade opportunity please contact the research assistant,  
Alyona via [Alyona.koulanova@utoronto.ca](mailto:Alyona.koulanova@utoronto.ca)