WELCOME MESSAGE .................................................................................................................................... 3
1. INTRODUCTION ......................................................................................................................................... 4
  1.1 ABOUT THIS HANDBOOK .................................................................................................................... 4
  1.2 ABOUT SBME....................................................................................................................................... 4
2. NEW STUDENTS ........................................................................................................................................ 6
  2.1 GETTING STARTED............................................................................................................................... 6
  2.2 GETTING AROUND .............................................................................................................................. 6
  2.3 UBC STUDENT LIFE .............................................................................................................................. 7
  2.4 INTERNATIONAL STUDENTS ................................................................................................................ 9
  2.5 REGISTRATION AND FEES ................................................................................................................ 9
  2.6 FINANCES ............................................................................................................................................ 9
  2.7 HEALTH INSURANCE.......................................................................................................................... 10
3. ACADEMIC PROGRAM ............................................................................................................................. 11
  3.1 GENERAL GUIDELINES ....................................................................................................................... 11
  3.2 PHD ................................................................................................................................................... 13
  3.3 MASC ................................................................................................................................................. 19
  3.4 MENG ................................................................................................................................................ 23
  3.5 PHD ROTATION PROGRAM ............................................................................................................... 28
  3.6 ENGINEERS IN SCRUBS ...................................................................................................................... 29
4. POLICIES AND PROCEDURES ................................................................................................................... 30
  4.1 LEAVE OF ABSENCE ........................................................................................................................... 30
  4.2 EXTENSION ........................................................................................................................................ 31
  4.3 TRANSFERS ........................................................................................................................................ 31
5. AWARDS & FUNDING .............................................................................................................................. 33
  5.1 FINANCIAL AID .................................................................................................................................. 33
  5.2 AWARDS ............................................................................................................................................ 33
6. RESOURCES ............................................................................................................................................. 35
  6.1 CONTACTS ......................................................................................................................................... 35
7. SOCIAL OPPORTUNTIES ........................................................................................................................... 38
  7.1 SBME GRADUATE STUDENT ASSOCIATION (BMEGA) ................................................................. 38
  7.2 UBC GRADUATE STUDENT SOCIETY ............................................................................................. 38
  7.3 INTERNATIONAL STUDENT DEVELOPMENT .................................................................................. 38
Dear Graduate Students,

Welcome to the School of Biomedical Engineering, Faculties of Applied Science and Medicine, at the University of British Columbia (UBC)!

This Graduate Handbook is provided as

- Companion reference for important information about the departments’ three graduate degree programs
  - Master of Applied Science (MASc)
  - Doctor of Philosophy (PhD)
  - Master of Engineering (MEng)
- Repository of information for the current academic year
- Starting point to engage in conversations with our faculty and staff about planning your academic and professional future

We hope that your time in the School of Biomedical Engineering is engaging and rewarding. We look forward to seeing your contributions to our field!

Warmest regards,

Dr. Peter Zandstra
Director, School of Biomedical Engineering
Faculties of Applied Science and Medicine
University of British Columbia

Dr. Karen Cheung
Graduate Program Director, School of Biomedical Engineering
Faculties of Applied Science and Medicine
University of British Columbia
1. INTRODUCTION

1.1 ABOUT THIS HANDBOOK

This Graduate Student Handbook is prepared for all incoming and current graduate students in the School of Biomedical Engineering (SBME) at the University of British Columbia. Its purpose is to help guide students through their program by providing in-depth information on policies, procedures, and program milestones.

All of this information can be found on our website: www.bme.ubc.ca/graduate. Since this handbook is only updated once per year, the website is the most up-to-date source for policies.

1.2 ABOUT SBME

Our momentum is palpable. Established in 2017, we are founded through partnerships with more than 20 joint faculty members that are leaders in research areas from molecular and cellular engineering, to biological imaging, computational biology and human interfacing devices. With access to world-leading research infrastructure, and with close partnerships with our research intensive hospitals and local industry, the School aims to provide a clear route from the discovery of new fundamental biomedical technologies to their innovative application and development to benefit human health.

For students, building on our long-standing Biomedical Engineering Program, we are broadening access to our graduate education opportunities and offering a new undergraduate program. Our curriculum is based on the philosophy that future leaders in BME will benefit from a rigorous grounding in fundamental biology combined with in-depth engineering design and computational foundations. We have over 100 graduate students in our program and have welcomed our first cohort of undergraduate BME students in September 2018. As a flagship program at UBC we are attracting the best and brightest students, and providing them with innovative programs (such as Engineers-in-Scrubs, research rotations and study-abroad) that will prepare them for the rapidly expanding opportunities available in the Biomedical Engineering space.

Finally, the School also aims to be an important catalyst in helping innovative technology reach application in our local communities, and as a foundation for the development of a broad range of biomedical technologies that we hope will underpin the industry leaders of tomorrow. Our involvement in programs such as the Creative Destruction Lab Health stream and e@UBC will help to ensure our students and faculty have the resources and expertise available to accomplish this goal.

Vancouver is consistently ranked amongst the top cities in the world to live and work. We welcome you to come and visit, and to stay to be part of the excitement and opportunity!

1.2.1 Research Areas

We are building capacity to increase research opportunities in areas of global importance including molecular and cellular engineering and synthetic biology, genomics and nano-devices, immune-engineering and advanced biomaterials, regenerative medicine, artificial intelligence and simulation
systems with biomedical application, visualization and imaging from nanomolecular to physiological scales.

Our core faculty focus on three main research themes: Cellular & Molecular Engineering, Imaging & Computational Biology, and Human Interfacing Devices.
2. NEW STUDENTS

2.1 GETTING STARTED

2.1.1 Before you arrive

i. Review the Welcome Package for New Graduate Students
ii. Review UBC Faculty of Graduate and Postdoctoral Studies’ (G+PS) Checklist for New Graduate Students
iii. If applicable, clear any G+PS Conditions of Admission in your online application. Instructions and guidelines can be found through your application portal.
iv. If you are new to Vancouver, see the G+PS page on Life in Vancouver.

2.1.2 When you arrive at UBC

i. Obtain a multipurpose UBCcard at the Bookstore. The UBCcard identifies valid UBC students and provides keyless entry to UBC buildings including the Chemical & Biological Engineering Building. Note: Students must be enrolled in at least one course in order to be eligible for the Student UBCCard. Course registration guidelines can be found here: https://students.ubc.ca/enrolment/registration/register-courses
ii. Get your U-Pass
iii. Attend orientation events on campus
iv. Attend the SBME Orientation

2.2 GETTING AROUND

2.2.1 Transit

Graduate students are eligible for the Translink U-Pass, which allows access to buses, trains, and the SeaBus in Vancouver and surrounding areas (3 zones).

Schedules can be found at https://tripplanning.translink.ca/

2.2.2 Hospital Shuttle Service

When on “university business” (research or courses), students are allowed to use the Hospital shuttle which runs between UBC Hospital (Emergency) and VGH (Oak St), leaving on the: 05 and: 35 past the hour. Service starts at 7:05am and the last bus leaves VGH at 4:35pm (westbound) and UBC at 5:05pm (eastbound). All Northbound and southbound shuttles connect with the UBC/VGH Shuttle.

Please sign in on the clipboard as “Faculty of Medicine”, unless your travel has been told to be covered by another group. There are other shuttles that run to the other hospitals as well. The 99 B-Line bus also gives good service between UBC and VGH at the Heather St stop.
2.2.3 Personal Car

Driving to campus is also an option. Nearly all parking at UBC is pay parking, except on some places on SW Marine Dr and 16th Ave. These free areas fill up quickly and result in a long walk to places you’d like to go. The most convenient pay lot for most engineering labs and classes is the Health Sciences Parkade. More info can be found at www.parking.ubc.ca.

2.2.4 Car Sharing

There are car sharing services as well, such as Modo (http://www.modo.coop/), ZipCar (http://www.zipcar.com/), Car2Go (https://www.car2go.com/CA/en/), and Evo (https://www.evo.ca/). ZipCar has reduced rates for UBC students; Modo is a non-profit cooperative, with the most diverse fleet of vehicles of any carshare in the world. There are cars from all organizations on campus, and at locations all over the Lower Mainland. You can get many types of vehicle too - from trucks to smart cars - equipped with useful things like bike racks and snow tires.

2.2.5 Bicycle

UBC is a large campus, and cycling is popular for commuting and getting around campus. You can use your own bike or rent them from HOPR Bike Share (http://gohopr.com/ubc). There is a bike shop in the basement of the SUB (The Bike Kitchen, https://www.thebikekitchen.ca/) which sells bikes and parts as well as pretty affordable service. You can use their tools to fix your own bike for a low hourly rate, or pay a little more for help. Other places to get new or used commuter bikes, or giving your bike some TLC are Our Community Bikes (not-for-profit! https://pedalpower.org/), The Bike Doctor (http://www.thebikedr.com/), Dunbar Cycles (http://www.dunbarcycles.com/), and Sports Junkies (http://sportsjunkies.com/), among others.

Information about biking in Vancouver and a map of the many cycling routes can be found here: https://vancouver.ca/streets-transportation/cycling-routes-maps-and-trip-planner.aspx. Free, pocket-sized bike maps of Vancouver are also available at City Hall, Vancouver libraries, community centres and some bicycle stores. An online cycling route planner for Vancouver and the surrounding area is also available (https://www.cyclinginvancouver.ca/).

2.3 UBC STUDENT LIFE

With your UBC Card, you get free access to many attractions on campus including:

- Museum of Anthropology
- Beaty Biodiversity Museum
- Nitobi Garden
- Botanical Gardens
- UBC Pool and gym in the Aquatic Centre
Load it with money and you can use it to make purchases at the UBC Bookstore and at Food Services’ many locations across campus.

Any student with a valid UBCcard is eligible to receive perks from the Wesbrook Village partners. Simply display your UBCcard during purchase to receive the offer.

*Please note that students cannot pay for their purchases with the UBCcard at Wesbrook Village.

- BierCraft: 15% discount on food
- Hot Box Yoga: Qualify for student rates at the Hot Box Yoga, as well as the UBC Staff and Faculty auto-renew program
- Jugo Juice: Receive a free regular Xtra-Benefits to any smoothie purchase.
- Mozart School of Music: No registration fee for UBC Students ($40 savings!)
- Vicki's Nail Studio: 10% discount on purchase.

The UBCcard acts as your library card, allowing you to borrow books and equipment from UBC libraries.

The Chan Center offers reduced rate tickets for students to concerts and other events. https://chancentre.com/students/

Other UBC events can be found at: http://ceremonies.ubc.ca/ and https://events.ubc.ca/.


The Alma Mater Society of UBC has over 370 Clubs for almost anything you might be interested in. Learn about them here: https://www.ams.ubc.ca/get-involved/clubs/.

The Graduate Student Society (GSS) offers fun courses, activities, and trips for UBC grad students throughout the year. http://gss.ubc.ca/main/

Commuter Student Hostel

http://vancouver.housing.ubc.ca/other-housing/commuter-student-hostel/

UBC offers commuter students affordable overnight accommodation during Winter Session to support academic success and involvement in campus co-curricular activities. The Commuter Student Hostel is located in Walter Gage and available Sunday-Thursday from mid-September to the end of April (except during the holiday break) and all week during exam periods.

*Online reservations ONLY.

Credit card required to reserve a room online—cash payment accepted at check-in.
2.4 INTERNATIONAL STUDENTS

2.4.1 International Student Guide

Review the International Student Guide at https://students.ubc.ca/international-student-guide, where you can find important information and documents you’re responsible for throughout your time at UBC, as well as the resources that can help you navigate life on campus as an international student. Topics covered include but not limited to: immigration, health insurance, working in Canada, taxes, and life beyond graduation. If you have any questions related to your status as an international student, you can contact International Student Development, or chat with an International Student Advisor on campus.

2.4.2 Student Visas

Individuals who are not Canadian citizens or Permanent Residents require a Study Permit in order to enter Canada to study.

2.5 REGISTRATION AND FEES

2.5.1 Registration

Graduate students must maintain continuous registration at UBC until completion of their degree. Students who fail to register for two consecutive terms may be required to withdraw from their program. Registration information can be found at: https://www.grad.ubc.ca/current-students/managing-your-program/course-registration.

2.5.2 Tuition

Tuition fee information is available at: http://www.calendar.ubc.ca/Vancouver/index.cfm?tree=14,266,773,1450

Tuition payment options can be found at: http://students.ubc.ca/enrolment/finances/payment

Graduate students employed as a Research or Teaching Assistant may also apply to have tuition fees deducted from payroll or deferred*:
https://students.ubc.ca/sites/students.ubc.ca/files/Payroll_Deduction_Deferral_2018_02.pdf

*Fee deferments are not continuous and students must submit requests annually for each new academic year.

2.6 FINANCES

2.6.1 Social Insurance Number (SIN)

All research students must apply for their SIN prior to the start of their research. Please consult the following website for detailed guidelines to obtain the SIN:
https://students.ubc.ca/enrolment/finances/taxes/social-insurance-number-sin.
2.6.2 Taxes

Graduate research assistants (GRA) and graduate teaching assistants (GTA), as well as those receiving scholarships and fellowships, are required to pay Canadian income tax, which is deducted automatically from their monthly salaries.

2.6.3 Direct Deposit and Payroll

Students are paid through direct deposit. Complete and submit the payroll direct deposit form.

Payroll information is available at https://finance.ubc.ca/payroll/your-pay.

2.7 HEALTH INSURANCE

Good health starts with ensuring you have up-to-date health insurance. UBC requires that all students, both domestic and international, have basic and extended health insurance for the duration of their studies. Information is available at: https://students.ubc.ca/health-wellness/health-insurance
3. ACADEMIC PROGRAM

3.1 GENERAL GUIDELINES

This section summaries the information about course requirements, supervisory committees, and examination procedures for the Research Programs (PhD, MASC) and Professional Program (MEng) offered by the School, under the guidelines specified by the Faculty of Graduate and Postdoctoral Studies (G+PS) and provided in the UBC Calendar.

3.1.1 Supervision

For MASC and PhD students, as a graduate student, you are making a commitment to devote the time and energy needed to engage in research and write a thesis. Your supervisor has a right to expect substantial effort, initiative, respect and receptiveness to suggestions and criticism.

The principal role of the supervisor is to help students achieve their scholastic potential. They will provide reasonable commitment, accessibility, professionalism, stimulation, guidance, respect and consistent encouragement to the student.

For research students, the supervisory committee should be in place by the end of the first academic year. Details on graduate student-supervisor relationships and expectations can be found in the Handbook of Graduate Supervision.

3.1.2 Student and Supervisor Agreement

All incoming MASc and PhD students and their supervisors will be given a set of expectation documents. Students are required to meet with their supervisors at the onset of their program to discuss roles, responsibilities, and expectations of both student and supervisor. Mutual understanding of expectations between students and their supervisors is critical to achieve excellence in research, and to the overall success of a graduate program. This document is intended to be read and discussed by students and their supervisors at the onset of the students’ programs.

Ideally, supervisors and students will discuss the document, retain copies of the document, and have a copy of the document placed in a student’s file. Discussion of expectations can foster open communication between supervisors and students and prevent misunderstandings that might otherwise arise. This document is not a replacement for University rules. To the extent that any statements in this document contradict University of British Columbia policies, rules, or regulations, the University of British Columbia policies, rules and regulations prevail. Ultimately, successful completion of a graduate program of study is the student’s responsibility.

Research students (PhD, MASC) are required to review the SBME Graduate Student/Supervisor Expectation agreement (please see links below) with their supervisor and to provide a completed copy to the SBME Student Services Office within the first month of their studies.
Supervisors of students with program start dates prior to September 2018 are encouraged to use this document as well to facilitate a discussion on the graduate student-supervisor relationship.

MASC Supervisor Agreement

PHD Supervisor Agreement

3.1.2 Course Selection

Course selection should be carried out in consultation with the designated supervisor(s) and/or Graduate Advisor(s). Thesis and seminar courses are requirement for research students. Project and seminar courses are requirement for professional students.

Please see Program Requirements Checklists for individual program requirements based on program and year entered.

3.1.3 Annual Report

All MASc and PhD graduate students and their supervisors (or supervisory committee) in the School of Biomedical Engineering will be asked to complete an annual report detailing their progress over each academic year. Upon receipt of the completed document, the department/Graduate Advisor will determine if the student’s progress has been satisfactory, and make any necessary recommendations.

https://www.bme.ubc.ca/graduate/current-students/policies-procedures/progress-tracking/annual-progress-reports/

3.1.4 Program Completion

Submission deadlines for May and November Convocations are listed in the Academic Year section of the Calendar.

*REMEMBER to submit a Program Requirements Checklist to the SBME Student Services Office (students@bme.ubc.ca) before graduation.
3.2 PHD

3.2.1 Program Requirements

The Doctorate of Philosophy (PhD) program in Biomedical Engineering is a graduate-level study program that includes courses, research investigation, and the writing of a thesis. PhD students are required to:

i. Complete course requirements
ii. Write a research proposal
iii. Pass an oral comprehensive exam
   a. orally present and defend the proposal
   b. display competency of material fundamental in nature relevant to the proposed research topic
   c. know the material covered in SBME required courses
iv. Execute the proposed research
v. Write and defend the thesis at a Departmental Oral Examination and a UBC Final Oral Examination.
vi. Complete and submit to the SBME Student Services Office an Annual Progress report every May.

3.2.2 Credit Requirement Summary

Please see Program Requirements Checklists for individual program requirements based on program and year entered.

3.2.3 Academic Standing

PhD students must achieve a minimum mark of 68% (B-) in all courses taken for credit. PhD students are required to take the PhD thesis proposal course, BMEG 699, even if they have completed the Master’s proposal course, BMEG 599.

3.2.4 PhD Supervising Committee

Overview

The program of each student is overseen by a committee of not less than 3 committee members (normally at least at the rank of Associate Professor), plus the student’s Research Supervisor who acts as chairperson of the supervisory committee.

The supervisor provides academic guidance directed toward the completion of Ph.D. dissertation of high quality, and assists with the financial planning associated with the program. In case of absence from the campus of a month or more, the advisor must appoint an acting advisor for each of his/her Ph.D. candidates.

Eligibility

The research supervisor or a co-supervisor must be a full-time, regular faculty (at least at the rank of Assistant professor) or associate faculty member in the School. Emeritus or Associate faculty is normally
required to appoint a full-time regular or associate faculty member as a co-supervisor. Further information is at https://www.grad.ubc.ca/current-students/supervision-advising.

Other members of the supervisory committee are nominated by the student’s advisor. The committee should be as diverse as possible, including faculty members with primary appointments in Faculty of Medicine and the Faculty of Applied Science.

The supervisory committee membership may include senior instructors, honorary faculty, adjunct faculty, off campus professionals as well as faculty members from other universities. A request for approval for these members submitted to the Dean of the Faculty of Graduate Studies must include a copy of the individual’s curriculum vitae and a letter from the graduate program advisor.

Timing

Other members of the supervisory committee are normally set before the research proposal defense, and certainly no later than the student’s admission to candidacy. It is the best interests of the student, and a G+PS requirement, for the student to schedule a meeting with the supervisory committee every year, especially after admission to candidacy. The majority of cases with a very difficult doctoral examination or extended completion time occur when there are no regular meetings with the supervisory committee.

Annual Meetings

It is required that the supervisory committees meet regularly to ensure student’s progress. Annual meetings require 3 people (of which the supervisor is one). If a committee member cannot attend, they will organize a one-on-one meeting with the student.

Below is the minimum required timeline for annual meetings:

<table>
<thead>
<tr>
<th>Type</th>
<th>From start of program</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Meeting</td>
<td>6-12 months</td>
</tr>
<tr>
<td>Second Meeting</td>
<td>18-24 months</td>
</tr>
<tr>
<td>Third Meeting</td>
<td>36 months</td>
</tr>
<tr>
<td>Final meeting</td>
<td>If the defense does not happen by the fourth year, committee must meet yearly (month 48, 60, etc) until thesis defense</td>
</tr>
</tbody>
</table>

3.2.5 Comprehensive Exam

Overview

Normally, the examination will be held after the completion of all required course work. The comprehensive examination is in addition to any course examinations and is intended to test the student’s understanding of the chosen field of study as a whole and the student’s preparation for the thesis research
to follow. A Ph.D. student must satisfy all the course work requirements and pass the comprehensive examination before being admitted to Ph.D. candidacy. In the School of Biomedical Engineering the comprehensive examination is in the form of the Ph.D. Comprehensive Examination.

It is recommended that the Comprehensive Examination be held within 18-24 months of a student’s program start date. If the comprehensive exam has not been held within 24 months after the program start date, the student will prepare a status report for the supervisory committee and the School (Graduate Advisor) with a detailed plan for how to prepare for the examination. Based on the report, the supervisory committee and the graduate advisor will determine further deadlines for the student.

Prior to the comprehensive exam

1. Within 18-24 months of registering, a PhD candidate must take the PhD comprehensive Examination.

2. The purpose of the examination is to ascertain whether the proposed topic is suitable for a PhD thesis and whether the candidate is capable of carrying out the work required to successfully complete the Ph.D. degree. Suitability relates largely to the possibility of making original and significant contributions. Capability relates largely to knowledge and understanding of material in the subject area of the proposal as well as areas related to it that affect the proposed research.

3. The examination consists of the presentation of the proposal for the thesis work, followed by questions from the examining committee. The questions are to address both the specific research topic and topics related to the general subject area of the proposal.

4. Within 12-15 months of registering, the candidate should submit a draft copy of the proposal to the Graduate Advisor who will then advise the candidate on the acceptability of the format of the proposal.

5. To schedule the examination (a 2.5 hour period), the candidate must

   - Book an appropriate room for the examination. Typical rooms booked for a defense include CEME 2202, KAIS 3028, KAIS 4018
     - To book CEME 2202, contact reception@mech.ubc.ca or call 604-822-2781 (only students with supervisor whose primary appointment is in MECH)
     - To book KAIS 3028 or 4018, contact bookings@ece.ubc.ca.
     - Other rooms may be used as suggested by your supervisor (i.e. ICORD, CHHM, BRC, etc).
   - Send the following details to the BME program office (students@bme.ubc.ca) after confirmation of booking.
     - Thesis proposal title
     - Date, time, & place
     - Names of supervisor and examining committee (identify chairperson)
The BME office will confirm that the candidate has met program requirements and can sit the comprehensive exam. They will email documents required for the exam (Recommendation for Advancement to Candidacy and Departmental Exam Form) to the chairperson.

6. At least one week before the examination, the candidate must give a copy of the proposal to each member of the examining committee.

**Preparation of the written proposal**

The written proposal should have 3 chapters

1. Introduction and Overview: In which the background to, and motivation for, the proposed topic is succinctly discussed. This is the only chapter that the necessary details of the work of others are to appear. This work must be clearly and properly referenced.

2. Accomplished: In which the original work that the candidate has done on advancing the state-of-knowledge on the proposed topic is described. What makes the research novel? What has the candidate done thus far? The candidate is expected to show evidence, commensurate with the period since registering in the PhD program, and demonstrates the viability of the thesis proposal.

3. Work Planned: In which the procedures to be implemented in carrying out the remaining and probably major part of the work are outlined. A tentative time schedule for completion is also to be included in this chapter.

The written proposal should not exceed 10 pages (12-point font, single spaced with approximately 52 lines per page, 6.5-inch line length), plus 2 pages for figures, 1 page for the list of references, and 1 page for the summary.

**The Examining Committee**

The examining committee is comprised of the candidate’s supervisory committee (supervisor plus three other members), of which one committee member (not the supervisor) is designated as the chairperson.

The chairperson ensures that the committee uses good judgement about questions on related topics. As an examiner, she/he will participate in the questioning and will also clear up misunderstandings by the other members of the committee, to expose possible important weaknesses.

**During the Examination**

The first 25 minutes of the examination are devoted to the presentation of the proposal. Under no circumstances will the presentation be allowed to exceed 30 minutes. The remainder is devoted to committee questions and deliberation. The committee should ask both specific questions about the proposal as well as general questions about the research area.

The supervisor may attend the proposal presentation and question period. During deliberation, the committee may ask the supervisor to answer some questions or give feedback, but she/he will be asked to leave the room while the committee discusses the outcome of the examination.
After the Examination

The examining committee may make one of the following recommendations.

A. The candidate continue in the Ph.D. program.
B. The candidate be given a conditional pass.
C. The candidate be re-examined within 3 months’ time.
D. The candidate’s case be reviewed by an arbitration committee.
E. The candidate be asked to withdraw from the Ph.D. program but permitted to complete requirements for the M.A.Sc. degree.
F. The candidate be withdrawn from the University.

All recommendations of the examining committee must be submitted in writing to the School office and be signed by all members of the committee.

- If the vote of the examining committee is unanimous, the recommendation stands.
- In the event of recommendation B, the pass is subject to satisfactory correction of specified deficiencies of a minor nature. Assessment of these corrections is to be the sole subject of a meeting of the committee and the candidate. The outcome of this assessment cannot be again category B.
- In the event of recommendation C, the re-examination is a completely new examination. The outcome of this examination cannot be again category C.
- In the event of recommendation E, the student may need courses to fulfill MASc course requirements, will need to write a thesis, and will then be examined on their thesis in order to graduate.
- If the vote of the examining committee is not unanimous, the case will be referred to the program office.

After the Examination

After the examination, the committee must relay the outcome to the department by submitting the signed “Comprehensive Examination Form” with the outcome/recommendation included. Should the committee decide that the candidate continue on to the PhD program, they must also submit the “Recommendation for Advancement to Candidacy Form”. These can be delivered (or sent via campus mail):

- to the APSC Dean’s Office (KAIS 5000) for drop off in the BME mailslot (in which case the chairperson should inform the BME office (students@bme.ubc.ca) that they have dropped off the form) OR
- to the BME program office in BRC 251

Resources:

For faculty: https://www.grad.ubc.ca/faculty-staff/policies-procedures/comprehensive-examination
For students: https://www.grad.ubc.ca/current-students/managing-your-program/advancement-candidacy
3.2.6 Departmental PhD Thesis Exam

Overview

The purpose of the departmental exam is to obtain department approval of the thesis for submission of the external examiner of the Final Oral Defense.

There is no official meeting for the internal defense prior to the university examination. Instead, 2 committee members (not the supervisor) must read the full thesis and provide edited versions to the student and the supervisor, and sign for approval to send thesis to external exam. The 3rd committee member will read the thesis for the university exam.

When the student is ready for his/her thesis to be read by committee members, he/she must contact students@bme.ubc.ca with the following information:

- Names of the two committee members who will be reading the full thesis and providing feedback
- Supervisor Name
- Name of 3rd committee member who will read thesis for university exam
- Dissertation Title

SBME Student Services will provide the internal approval form to the committee members for their signature. Student Services will also prepare the department approval form for signatures and submission to G+PS.

Exam Committee

The exam committee normally consists of the 2 members of the supervisory committee.

3.2.7 Final Oral Examination

The School of Biomedical Engineering follows the Faculty of Graduate Studies guidelines for the Final Oral Defense. Please review these guidelines at: https://www.grad.ubc.ca/current-students/final-doctoral-examination.
3.3 MASC

The Master of Applied Science (M.A.Sc.) is a graduate-level study program that includes a research investigation and the writing of a thesis. Requirements for the M.A.Sc. include satisfactory completion of 30 credits of graduate-level courses, original research under the supervision of a faculty member, and a thesis. The thesis is assigned 12 credits and is counted as part of the coursework requirement. A typical completion time for the M.A.Sc. is 24 months and all students must complete the program within 5 years. ([http://www.grad.ubc.ca/current-students/student-status-classification](http://www.grad.ubc.ca/current-students/student-status-classification))

Students who, for health or personal reasons, including childbirth and having primary responsibility for the care of a child, must interrupt their studies, should apply for leave (see Leaves and Extensions).

3.3.1 Program Requirements

The Master of Applied Science (MASC) in Biomedical Engineering is a graduate-level study program which includes courses, a research investigation, and the writing of a thesis.

SBME MASC students are required to:

i. Complete course requirements (minimum 18 credits of coursework)

ii. Write a research proposal

iii. Write a research proposal

iv. Execute the proposed research

v. Write and defend the thesis at a Departmental MASC Thesis Examination

vi. Complete and submit to the SBME Student Services Office an Annual Progress report every May.

3.3.2 Credit Requirement Summary

Please see Program Requirements Checklists for individual program requirements based on program and year entered.

3.3.3 Academic Standing

MASC students must achieve a minimum of 60% in any course taken for credit in order to be granted Pass Standing. However, only 6 credits of Pass Standing may be counted towards a Master's program; for all other courses credited to the program, at least 68% must be obtained.

3.3.4 MASc Supervising Committee

The program of each student is overseen by a committee of not less than 3 members, including the student’s supervisor. This committee is nominated by the student’s supervisor and approved by the Director of the Graduate Program in consultation with the program graduate advisor, within 4 months of the candidate’s registration in the program. The membership of the research committee may be altered during the program with the approval of the Faculty of Graduate Studies. Meetings of the committee, at least annually, are to be scheduled by the student.
3.3.5 MASc Thesis Examination

Overview

The Master of Applied Science (M.A.Sc.) is a graduate-level study program that includes a research investigation and the writing of a thesis. Requirements for the M.A.Sc. include satisfactory completion of 30 credits of graduate-level courses, original research under the supervision of a faculty member, and a thesis. The thesis is assigned 12 credits and is counted as part of the coursework requirement. A typical completion time for the M.A.Sc. is 24 months and all students must complete the program within 5 years. (http://www.grad.ubc.ca/current-students/student-status-classification)

Thesis Examining Committee

The thesis examination committee is proposed by the supervisor and confirmed by the Program Graduate Advisor. The committee can have the same composition as the supervisory committee. The committee must have at least 3 members, including:

1. The research supervisor
2. The examination chair who is a professor at UBC and affiliated with the School of Biomedical Engineering (identified by the supervisor) – cannot be the student’s supervisor or the co-supervisor*
3. An examiner who is normally a regular faculty member of the university, but could be from an organization with an interest in the student’s project. Such organizations include industrial partners and other research institutions. In the case that the 3rd examiner is not a UBC faculty member, it is expected that the examiner have a high level of expertise approximately equivalent to a PhD.

*The purpose of this requirement is to ensure that the chair has an arm’s length distance from the outcome of the student’s exam.

Thesis Exam

Before your examination, each student is expected to:

1. Book an appropriate room for the exam. Typical rooms booked for a defense include CEME 2202, KAIS 3028, KAIS 4018.
   - To book CEME 2202, contact reception@mech.ubc.ca or call 604-822-2781 (only students with supervisor whose primary appointment is in MECH)
   - To book KAIS 3028 or 4018, contact bookings@ece.ubc.ca.
   - Other rooms may be used as suggested by your supervisor (i.e. ICORD, CHHM, etc).
2. Send the following details to the BME office (students@bme.ubc.ca) at least 2 weeks prior to the examination date. An announcement of the final defense will be circulated to all school faculty and students together with a copy of the thesis abstract
   - Thesis title
- Date, time, & place
- Abstract (PDF attachment)
- Names of supervisor and Examining Committee (identify chair)

3. Confirm that you have met program requirements by sending the [program requirements checklist](mailto:students@bme.ubc.ca) to students@bme.ubc.ca.

4. Send a copy of your final thesis to each member of the examination committee at least one week prior to the exam. The candidate should be available to send an additional copy to the BME office should other parties be interested.

**At the examination:** This defense is open to any interested person, although the Chairperson may restrict the active participation of those not on the examination committee. The candidate will present his/her thesis to the examination committee at the defense, for a time of 20-35 minutes, and will then respond to questioning from the members, and at the discretion of the Chairperson, from others present.

**Grading for BMEG 599:** At the conclusion of the examination, the exam committee chair will return the program approval form and Grad Studies Thesis approval form with the recommended grade and any committee member comments for the thesis to the SBME Office or to students@bme.ubc.ca. Any formal comments given by committee members will be added to the student’s file. A mark of at least 68% must be obtained for the completion of the degree. The grade given for the thesis should reflect the student’s work during their studies, culminating in the written thesis and oral defense. The examiners understand that the challenges faced by students vary widely from project to project, but there is an agreement on the attributes of good research work, articulated in the mark bands below.

**Overall Mark Guidelines**

<table>
<thead>
<tr>
<th>Overall Mark</th>
<th>Attributes (most comments captured within band generally apply)</th>
</tr>
</thead>
<tbody>
<tr>
<td>95-100%</td>
<td>The research involves some novelty and provides useful developments or answers to important scientific or industrial questions. The as-defended thesis is technically accurate, well structured, well written, has publication quality figures and tables. In producing this work, the student worked independently with normal supervisor involvement. The thesis (or portions of it) is ready to be submitted to a high quality journal. During the defense, the student can competently discuss any aspect of the thesis and has an awareness of the key literature in the field.</td>
</tr>
<tr>
<td>90-94%</td>
<td>As above, but some of the attributes do not apply fully. For example, the work might have required much more than average supervisor input in the research or thesis writing.</td>
</tr>
<tr>
<td>85-89%</td>
<td>The thesis provides useful results for industry or academia. The as-defended thesis has no errors that affect the conclusions, and none that require significant new work to correct. The thesis is mostly well-written and presented, but might require a typographical correction on each page as well as improvement to many of the figures. A good quality paper or industrial report will come from the thesis, but possibly with 40-80 hours of additional work from the student.</td>
</tr>
<tr>
<td>80-84%</td>
<td>As above, but there are substantive gaps in the writing or content that will require 20+ hours to remedy and bring the thesis to a standard that would be acceptable for the UBC</td>
</tr>
<tr>
<td>Grade</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>68-79%</td>
<td>The thesis reflects substantial effort from the student, consistent with a 12 credit course, but major changes (in content and/writing) are required before it can be considered acceptable. In the defense, the student might show difficulty mastering some of the core principles in the thesis, or a lack of awareness of the relevant literature. There was an attempt to address an important problem, but the quality of the results do not allow useful conclusions to be drawn at the end.</td>
</tr>
<tr>
<td>Below 68%</td>
<td>The thesis is poorly structured, difficult to read and full of errors that minimal effort would have corrected.</td>
</tr>
</tbody>
</table>

**After the examination:** Students must return their thesis approval form in person to the BME office for submission to the Faculty of Graduate and Post-Doctoral studies. After they have submitted their thesis approval form, each candidate must submit their completed and approved thesis to circle. Follow the instructions available on the Faculty of Graduate Studies sites:

- [https://www.grad.ubc.ca/current-students/final-dissertation-thesis-submission](https://www.grad.ubc.ca/current-students/final-dissertation-thesis-submission)
- [https://www.grad.ubc.ca/current-students/graduation/program-completion](https://www.grad.ubc.ca/current-students/graduation/program-completion)
- [https://www.grad.ubc.ca/current-students/graduation](https://www.grad.ubc.ca/current-students/graduation)
3.4 MENG

3.4.1 Course Requirements

The Master of Engineering (M.Eng.) is a program of study suited to students who wish to pursue their biomedical engineering education beyond the undergraduate level but do not wish to pursue a thesis-based research program. The M.Eng. program takes about 12-18 months to complete if pursued on a full-time basis.

3.4.2 Specific Course Requirements

Please see Program Requirements Checklists for individual program requirements based on program and year entered.

3.4.3 Academic Standing

For Master of Engineering students, the minimum passing grade in any course is 60%. However, only 6 credits of courses with grades in the C to C+ range (60-67%) may be counted towards a master’s program. For all other courses, a minimum of 68% must be obtained.

3.4.3 BMEG 597 Master of Engineering Project (Internship)

COURSE DESCRIPTION

This six-credit course is required for all BMEG MEng students. The course is usually taken from May to August of each year. Exceptions may be allowed subject to prior approval by the course instructor.

The internship should be a minimum of 16 weeks of full time work (35 hours/week)

The course can be completed in one of the following three formats: Hospital Internship, Industry Internship (including co-op placement) or Supervised Research Project.

1. Hospital internship

The Biomedical Engineering Departments of the hospitals in the Greater Vancouver area and Vancouver Island district from time to time have internship positions available for students in our program. Some of the positions are salaried, but non-salaried positions are also often possible to arrange if there is an insufficient number of salaried positions to meet the interest from students. The program director will assist students by soliciting as many salaried positions as possible but can offer no guarantee that a salaried position will be available to any particular student – such positions represent job offers and the employer has the right to determine if they wish to hire a particular person. When internship positions are available, the information needed to apply will be sent to all MEng students. The selection and hiring of the candidates are conducted by the hospital staff from the Biomedical Engineering Department. The requirement for completion is that the student must be supervised by a clinical engineer in the hospital, carry out clinically-oriented project work, submit a technical report summarizing the major work done by the student, and present the work to the Biomedical Engineering staff in the hospital with the
presence of an academic supervisor (see Supervisor Selection below). A site visit by the academic supervisor is encouraged during the internship.

2. **Industry internship or co-op placement**
   This is similar to the hospital internship except that the sponsoring organization has to be a registered corporation doing research and/or development work in biomedical engineering. The student must be supervised by a professional engineer practicing in biomedical engineering or related fields. The student must also directly involve in research and/or development of biomedical engineering products. Sales or marketing in biomedical engineering is not acceptable. Because this type of internship is similar to a summer work term, the Program Director can provide only limited assistance in identifying appropriate positions for students – students interested in this option should plan to seek out appropriate placements themselves. The UBC Engineering Coop office will support students registered in the co-op program. The conditions of engagement, whether salaried or non-salaried, are to be arranged directly between the sponsoring organization and the student, subject to final approval by the academic supervisor (see Supervisor Selection below). The requirement for completion includes a technical report summarizing the major work done by the student, and a presentation of the work to the Biomedical Engineering staff in the sponsoring organization. A site visit by the academic supervisor is encouraged during the internship (if the sponsor requires the academic supervisor to sign a non-disclosure agreement, please advise both the academic advisor and course coordinator in advance).

   Co-op deadline for can be found [here](#).

3. **Supervised research project**
   The student is required to solicit a prospective supervisor who is willing to provide supervision of the research project which can be completed over a four-month period. We encourage students to reach out directly to potential supervisors with whom they would like to work, although we also invite faculty members in the spring (typically February) to post any opportunities they might have available. If the faculty member does not meet the requirements for the academic supervisor (please see below), they may serve as site supervisor and an appropriate academic supervisor must be identified. The research topic must be related to biomedical engineering research. An oral presentation arranged by the supervisor is required. A technical report submitted by the student will be marked by the supervisor. Note that research project opportunities may or may not offer a stipend – this is at the discretion of the proposed supervisor and will depend on resources available at the time.

**ACADEMIC SUPERVISOR SELECTION**

In addition to the project supervisor at the placement site (for off-site positions), the student is required to solicit an academic supervisor. The supervisor must be either a joint, regular, or associate member of the Biomedical Engineering Program (list of approved supervisors). Academic supervisors must hold a PhD in Engineering. The responsibilities of the academic supervisor are to:

- Approve the proposed placement (i.e., certify that the proposed project has sufficient technical and professional content); this approval may be granted either in writing or by the academic
supervisor forwarding an electronic copy of the proposal memo (see below) to the program assistant (students@bme.ubc.ca); this should be done as early as possible – preferably in advance of the placement

- If possible, visit the student during the placement to discuss progress
- Be available to the student throughout the placement for technical advice
- If possible, attend the student’s final oral presentation
- Receive and mark the student’s technical report

It is the responsibility of the student to solicit an appropriate supervisor prior to beginning the work term (ideally as early as possible) and notify the program assistant by email of this selection to confirm that the academic supervisor is acceptable.

**END-OF-TERM PRESENTATIONS**

In addition to presenting a technical report and making an oral presentation, at least one poster presentation is required. Several opportunities for making such a presentation are available each year; students should discuss with the course coordinator (Dr. Karen Cheung) and their academic supervisor which presentation opportunity (ies) is (are) most suitable for them:

- September: Welcome event for new BME students – this helps incoming students understand the types of work students in the MEng program do for their graduating project
- September (possibly late August): The Annual Clinical Engineering Technical Meeting – students are invited to present their work to clinical engineers from around BC
- Conferences – if your poster is suitable for presentation at a conference, you are welcome to propose such a venue.

If your project supervisor is concerned about confidentiality issues, please discuss the situation with the course coordinator. You will still be required to create a poster, but it will typically be presented only to people within the sponsoring organization.

**EVALUATION**

As the fulfillment of this course depends on what type of arrangement is made, the evaluation criteria are subject to discussion between the student’s on-site supervisor and their academic supervisor. In general, a proposal memo describing the learning objectives and project work should be submitted to the academic supervisor for approval before or during the first week of engagement. A site visit will, if possible, be conducted by the academic supervisor to discuss the student’s work, progress, and performance. A completion memo signed by the site supervisor certifying that the report describes work done by the student must accompany the project report to be submitted to the academic supervisor. The site supervisor may recommend a grade for the student. However, the final mark will be assigned by the academic supervisor and sent to students@bme.ubc.ca in the completion memo.
In addition to the formal report and presentation, students will be asked to prepare a poster as described above, a two-page technical brief (intended to be handed out at the poster presentation), and a short (~200 word) description of the project (together with a suitable photo) for use on the BME program web page. The program assistant (students@bme.ubc.ca) will provide you with a checklist that you should complete prior to finishing this course.

Course grading will be done primarily by the academic supervisor. Nominally, weighting will be as follows (subject to adjustment to suit particular circumstances):

- Technical Report – 70%
- Oral Presentation – 15%
- Poster – 10%
- Technical Brief – 5%
- Web Summary – required, but not marked

REPORT AND POSTER GUIDELINES

Technical Report: The contents of the technical report should be negotiated between the site supervisor, student and academic supervisor. There is no formal length or formatting requirements for this report. The report should be a meaningful document, in the sense that the site supervisor wishes this report to be written. From an academic point of view, the report should describe one or more of the key engineering tasks the student undertook during their placement.

A typical report would consist of at least four main sections: an introduction describing the motivation and background for the problem, in method section describing what was done, a results section describing what was found, and a discussion, conclusions and recommendations section. There should be appropriate references to the literature, as necessary.

Students should submit their report to their site supervisor and academic supervisor at or shortly after the end of their placement. The precise deadline may be negotiated with the two supervisors.

Poster Presentation: The primary purpose of preparing a poster is to gain experience in this mode of professional communication. In addition, it allows you to share your work with your fellow biomedical engineering students.

The program will cover the costs of printing your poster if you submit a print-ready PDF file to the program assistant (students@bme.ubc.ca) sufficiently far in advance of a particular event (normally one week). Please check with the administrator about deadlines for particular events.

The recommended size for these posters is 60 x 90 cm (either vertical or horizontal orientation is acceptable – please consult with your site supervisor as to their preference). These posters will not be laminated. If you or your supervisor would prefer to have the poster laminated, you will be responsible for making those arrangements yourself.

At the UBC SBME Welcome event and the SBME Symposium, you will be expected to be at your poster during your assigned session, but free to visit the other posters during the other sessions. During your session, you will be invited to make a brief presentation of your work (approximately 5 min) to the course
coordinator and any other faculty present. We strongly encourage you to invite your site supervisor and academic supervisor to this session.

**Web Summary:** Please provide a short (~200 word) description of the project (together with a suitable photo) for use on the BME program web page. This should be submitted directly to the program assistant at your earliest convenience.
3.5 PHD ROTATION PROGRAM

The PhD rotation program consists of three two-month laboratory rotations, allowing students a chance to work with different potential supervisors. By the end of the third rotation, students will finalize their thesis supervisor.

3.5.1 Program Requirements

Students who take part in the rotation program are required to complete 25 credits of coursework as approved by the Graduate Advisor. Information on course requirements can be found here.

3.5.2 Rotations

Students must identify (and confirm agreement of) three supervisors for each rotation period. At the end of each lab rotation, rotation students and their rotation supervisor are required to fill out and turn in a PhD Rotation Report to students@bme.ubc.ca within a week of the end of their rotation.

Rotation 1: October 1 – November 30
Report Due: December 7

Rotation 2: January 1 – February 28
Report Due: March 7

Rotation 3: March 1 – April 30.
Report Due: May 7

3.5.3 Finalizing Thesis Supervisor

By the end of their third rotation, students must finalize the commitment of a research supervisor in order to continue to their PhD.
3.6 ENGINEERS IN SCRUBS

UBC’s Engineers in Scrubs (EiS) program was founded in 2011 by Dr. Antony Hodgson, and was designed to train graduate students to be leaders in medical innovation with a design process that emphasizes impactful outcomes and collaboration with clinical stakeholders. The first of its kind in Canada, the Engineers in Scrubs program teaches biomedical engineers to navigate the interfaces between engineering research, medical research, clinical practice, and product development. Through the program, students receive a significant portion of their training in hospitals and other clinical environments. This unique opportunity enables observation and interaction with health care providers across a broad clinical spectrum. Students learn to identify and prioritize important clinical needs that have potential engineering solutions. EiS students develop a keen eye for innovation opportunities, and graduates become drivers of the medical technology development process. An excellent example is Arbutus Medical, a medical device company with global impact, which was founded by EiS alumni. Please see other examples in the Featured Projects section.

3.6.1 Program Structure

EiS students follow a slightly modified curriculum. They take a number of the regular BME graduate courses, but also take the following courses in partial satisfaction of the BME core course requirements:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMEG 500</td>
<td>Orientation to the Clinical Environment</td>
<td>1.0</td>
<td>1</td>
</tr>
<tr>
<td>BMEG 501</td>
<td>Interdisciplinary Team Project in Medical Innovation</td>
<td>3.0</td>
<td>1-2</td>
</tr>
</tbody>
</table>

*BMEG 590 was part of the EiS curriculum prior to 2019W. Beginning September 2019W it is no longer offered.
4. POLICIES AND PROCEDURES

4.1 LEAVE OF ABSENCE

Leave is granted when a student is best advised for personal, health or other reasons to have time completely away from his/her academic responsibilities. Leave, not including parental leave or leave to pursue concurrent programs, for masters or doctoral students is limited to one year. A leave will normally begin on the first day of a term, for a period of four, eight or twelve months. Students granted leave-of-absence or parental leave retain the full value of any University graduate fellowship or other award whose terms and conditions are established by the Faculty of Graduate Studies. Awards will be suspended at the onset of the leave, and reinstated at the termination of the leave period, provided the student returns to full-time study at that time. Other awards will be paid according to the conditions established by the donor or granting agency. Leaves of absence must be approved by the student’s home graduate program. Requests for leaves for medical reasons must be accompanied by a doctor’s note recommending the leave.

It is understood that students with on-leave status will not undertake any academic or research work, or use any of the University's facilities during the period of leave. Students must inform the University immediately upon return.

The time spent on-leave is not counted as part of the allowed time to completion for the degree. On-leave students continue to be registered and must pay a reduced fee for the leave period.

To request a leave, email students@bme.ubc.ca with your request. Include the duration, reason, and documentation if applicable.

4.1.1 Types of Leave

Personal
Students may request leave for personal reasons for a maximum of three terms. The reasons need not be stated for leave to be granted.

Parental
A graduate student who is bearing a child or who has primary responsibility for the care of an infant or young child is eligible for parental leave. A request for parental leave should be made through the student’s graduate program for a minimum leave of four months to a maximum of 12 months.

Medical
For a leave of absence for medical reasons, the request must include a medical note. Exemptions from submission of a medical note will be approved on a case-by-case basis.

For more information, please visit https://www.grad.ubc.ca/current-students/managing-your-program/leave-absence

Note that NSERC and CIHR have policies which allow grantees to obtain paid parental leave (for students who have a biological child or adopt), and are the primary caregivers, to a maximum of 4 or 6 months (respectively). http://www.nserc-crsng.gc.ca/_doc/Professors-Professeurs/grantamendment_eng.pdf
4.2 EXTENSION

There is a five-year time limit for the completion of a master’s program and a six-year time limit for the completion of a doctoral program. Please visit the G+PS website for detailed guidelines - https://www.grad.ubc.ca/current-students/managing-your-program/program-extensions

4.3 TRANSFERS

Students wanting to transfer programs should send an email to students@bme.ubc.ca with their request. A transfer must be approved by their graduate supervisor, the department, and Faculty of Applied Science/Graduate and Postdoctoral Studies.

4.3.1 Between MASc and MEng

Students must send an official request to the program office with the requested date of transfer (must be the first day of term – September, January, or May)

The department will request confirmation from your supervisor that she/he is in support of transferring credits to the new program. Transferable credits will be assessed at time of transfer request.

Note that only courses with a minimum of B standing (74% at UBC) will be considered for transfer.

4.3.2 MASc to PhD

Normally, Students who wish to transfer from a Master’s program to a PhD program must have

- Completed one year of study in the Master’s program
- Completion of minimum 18 credits for MASc coursework
  - Of this coursework
    - Minimum 80% average in 12 credits
    - at least 9 of these credits must be at the 500 level or above
    - at least 9 credits must be at 80% or above
    - No seminars can be used towards this requirement
  - successful completion of a PhD Comprehensive Exam
  - the student must also show clear evidence of research ability.

Normally transfer directly into a PhD program should be accomplished after the first year of study. Will not be permitted after the completion of the second year in a Master’s program. Transfers may not be retroactive. The transfer must be clearly justified by the student’s supervisor in a memorandum to Graduate Studies recommending the transfer.

If a student transfers from a Master’s program to a PhD program without completing the Master’s degree, the commencement of the PhD program will be from the date of first registration in the Master’s program.

Further information on transferring to a PhD program is available on the Graduate and Postdoctoral Studies website.
4.3.3 PhD to MASc/MEng

Transfers from PhD to a Master’s program should not be for academic reasons, but rather must be justified on the appropriateness of a student’s personal or professional goals.

4.3.4 Between Departments

Students requesting a transfer to or from another department should discuss it with their supervisor and review the G+PS policies at https://www.grad.ubc.ca/current-students/managing-your-program/transfer-another-degree-program.
5. AWARDS & FUNDING

The School of Biomedical Engineering at the University of British Columbia provides a variety of financial support and awards including scholarships to graduate students.

5.1 FINANCIAL AID

5.1.1 Graduate Research Assistantships (GRAs)

For students without scholarships or external funding, minimum stipends are provided to graduate students by their supervisors, subject to satisfactory annual performance and progress and availability of research funds. Beyond the nominal timeframe, student stipends are determined by the supervisor(s).

<table>
<thead>
<tr>
<th>Program</th>
<th>Nominal Start</th>
<th>Program Effective January 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>MASc</td>
<td>2 years</td>
<td>$21,000/year</td>
</tr>
<tr>
<td>PhD</td>
<td>4 years</td>
<td>$23,000/year</td>
</tr>
</tbody>
</table>

5.1.2 Graduate Teaching Assistantships (GTAs)

Research Graduate students may apply for Teaching Assistantships with the agreement of their supervisors. TA position remuneration typically ranges from $1,000 to $3,600 per year.

5.1.3 Graduate Academic Assistant (GAAs)

Supervisors may pay students for additional work they do which is not related to their individual graduate study project.

5.2 AWARDS

The School of Biomedical Engineering awards deserving students with the prestigious 4-Year Doctoral Fellowship (4YF) and GSI awards. Students are also encouraged to apply for UBC scholarships (www.grad.ubc.ca/awards).

5.2.1 Internal Awards & Scholarships

<table>
<thead>
<tr>
<th>Scholarship</th>
<th>Amount</th>
<th>Qualifications</th>
</tr>
</thead>
</table>
| 4 Year Doctoral Fellowship (4YF) [www.grad.ubc.ca/awards] | $18,200 plus full tuition for maximum of 4 years Supervisors provide a top up of $5,800 | • Incoming students are considered once during the first 12 months of their PhD program  
• Students transferring from MASC to PhD are considered within first year following their transfer  
• Nomination from supervisor required |

Updated August 2019
<table>
<thead>
<tr>
<th>Graduate Student Initiative (GSI) (first year)</th>
<th>Varied</th>
<th>Incoming PhD students, and students who have transferred into the PhD program from MASc program. The research supervisor must be SBME core faculty, joint appointed, or Associate member.</th>
</tr>
</thead>
</table>
| SBME Travel Award  
[www.bme.ubc.ca/graduate/tuition-funding](http://www.bme.ubc.ca/graduate/tuition-funding) | Max $1,500 per trainee per year | • Research graduate students (MASc/PhD) supervised by a full, joint, or associate School of Biomedical Engineering Faculty member can apply for travel support to attend national and international conferences  
• Limit one submission per trainee in each academic year  
• Applications must be submitted 4 weeks in advance of conference date.  
• Student must be presenting a paper, poster, or oral presentation at the conference. |
| SBME Knowledge Mobilization  
[www.bme.ubc.ca/graduate/tuition-funding](http://www.bme.ubc.ca/graduate/tuition-funding) | Max $2,000 per trainee per year | • MASc/PhD candidates in Biomedical Engineering supervised by full, joint, or associate SBME Faculty Member  
• Limit one submission per trainee in each academic year |

### 5.2.2 External Awards & Scholarships

<table>
<thead>
<tr>
<th>Scholarship</th>
<th>Award</th>
<th>Top-Ups</th>
</tr>
</thead>
<tbody>
<tr>
<td>CGS-M (for Master’s)</td>
<td>$17,500 for 12 months</td>
<td>$7875</td>
</tr>
<tr>
<td>PGS-D (for PhDs)</td>
<td>$21,000 a year (for two or three years)</td>
<td>$7250</td>
</tr>
<tr>
<td>CGS-D (for PhDs)</td>
<td>$35,000 a year (for two or three years)</td>
<td>No top-up required</td>
</tr>
<tr>
<td>Vanier</td>
<td>$50,000 per year for three years</td>
<td>No top-up required</td>
</tr>
</tbody>
</table>

For more information about awards visit:

[https://www.grad.ubc.ca/scholarships-awards-funding/award-opportunities](https://www.grad.ubc.ca/scholarships-awards-funding/award-opportunities)

[https://www.bme.ubc.ca/graduate/tuition-funding/](https://www.bme.ubc.ca/graduate/tuition-funding/)
6. RESOURCES

6.1 CONTACTS

6.1.1 Departmental Contacts

<table>
<thead>
<tr>
<th>Academic</th>
<th>SBME Director</th>
<th>Dr. Peter Zandstra</th>
<th><a href="mailto:peter.zandstra@ubc.ca">peter.zandstra@ubc.ca</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>SBME Graduate Program Director</td>
<td>Dr. Karen Cheung</td>
<td><a href="mailto:kcheung+bmegrad@ece.ubc.ca">kcheung+bmegrad@ece.ubc.ca</a></td>
<td></td>
</tr>
<tr>
<td>Graduate Program Advisor</td>
<td>Dr. Roger Tam</td>
<td><a href="mailto:roger.tam@ubc.ca">roger.tam@ubc.ca</a></td>
<td></td>
</tr>
<tr>
<td>Engineers in Scrubs (EiS) Coordinator</td>
<td>Dr. Roger Tam</td>
<td><a href="mailto:roger.tam@ubc.ca">roger.tam@ubc.ca</a></td>
<td></td>
</tr>
<tr>
<td>SBME Academic Program Manager</td>
<td>Tegan Stusiak</td>
<td><a href="mailto:tegan.stusiak@ubc.ca">tegan.stusiak@ubc.ca</a></td>
<td></td>
</tr>
<tr>
<td>SBME Academic Program Assistant</td>
<td>Michelle Lee</td>
<td><a href="mailto:students@bme.ubc.ca">students@bme.ubc.ca</a></td>
<td></td>
</tr>
<tr>
<td>→ First point of contact for all enquiries.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will forward appropriate queries to the</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>academic program manager or program director</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Awards</td>
<td>Michelle Lee</td>
<td><a href="mailto:awards@bme.ubc.ca">awards@bme.ubc.ca</a></td>
<td></td>
</tr>
<tr>
<td>→ Any questions relating to graduate awards</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td>Sabrina Ho</td>
<td><a href="mailto:sabrina.ho@ubc.ca">sabrina.ho@ubc.ca</a></td>
<td></td>
</tr>
<tr>
<td>Human Resources</td>
<td>Caroline Barnhart</td>
<td><a href="mailto:sbme.hr@ubc.ca">sbme.hr@ubc.ca</a></td>
<td></td>
</tr>
</tbody>
</table>

6.1.2 Student Services

**SBME Student Services**
604 822 0367
students@bme.ubc.ca
251-2222 Health Sciences Mall

**Centre for Student Involvement & Careers**
604 822 4011
csic.support@ubc.ca
Brock Hall (Room 1036), 1874 East Mall

**Centre for Accessibility**
604 822 5844
accessibility@ubc.ca
Brock Hall (Room 1203), 1874 East Mall

*Updated August 2019*
Equity & Inclusion
604 822 6353
info@equity.ubc.ca
Brock Hall (Room 2306), 1874 East Mall

6.1.3 Health & Wellness

Student Health Services
604 822 7011
student.health@ubc.ca
UBC Hospital, Koerner Pavillion (Room M334), 2211 Wesbrook Mall

Counselling Services
604 822 3811
Brock Hall (Room 1040), 1874 East Mall
https://students.ubc.ca/health/counselling-services

Wellness Centre
604 822 8450
wellness.centre@ubc.ca
Life Building (Room 1400), 6138 Student Union

AMS Sexual Assault Support Centre
604 827 5180
sasc@ams.ubc.ca
AMS Student Nest (Room 3127), 6133 University Blvd

Sexual Violence Prevention and Response (SVPRO)
604 822 3811
gethelp@svpro.ubc.ca
Orchard Commons (Room 4071), 6363 Agronomy Road

EmpowerMe
1 844 741 6389 (toll free)
Vancouver Crisis Line | 1 800 784 2433
Campus Security | 604 822 2222

AMS Safewalk
604 822 5355
safewalk@ams.ubc.ca
AMS Student Nest (Room 3107C), 6133 University Boulevard
6.1.4 Other Important Contacts

Biomedical Engineering Graduate Association (BMEGA): bmega@bme.ubc.ca

Faculty of Graduate Studies: http://www.grad.ubc.ca/contact

Financial services: https://students.ubc.ca/enrolment/finances
https://students.ubc.ca/enrolment/finances/funding-studies/financial-distress

Awards/Scholarships: http://www.grad.ubc.ca/current-students/scholarships-awards-funding

UBC Ombudsperson: http://ombudsoffice.ubc.ca/

TA Union: CUPE Local 2278 https://cupe2278.ca

General UBC Student Services:
- Ask Me @ UBC: https://www.askme.ubc.ca/form/s/
- Student Service Centre: www.students.ubc.ca/ssc
- Student Services (current students): www.students.ubc.ca

IT Help Desk: www.it.ubc.ca/helpdesk Phone: 604.822.2008
7. SOCIAL OPPORTUNITIES

7.1 SBME GRADUATE STUDENT ASSOCIATION (BMEGA)

BMEGA is a student organization representing all the graduate students in the School of Biomedical Engineering. Their mission is to enrich the experience of the SBME graduate students by organizing academic and professional development opportunities, social and sporting events, and to maintain a meaningful relationship with the School of Biomedical Engineering, Faculty of Applied Science & Medicine, Graduate Student Society (GSS) and external communities, for the benefit of all involved.

https://bmega.sites.olt.ubc.ca/

7.2 UBC GRADUATE STUDENT SOCIETY

UBC’s almost 9,000 graduate students are members of the UBC Graduate Student Society (GSS). Along with tuition fees, an additional fee is collected from graduate students and transferred to the GSS to fund activities. For more information, visit http://gss.ubc.ca/

The Graduate Student Centre (#225-6371 Crescent Road, 822-3203): The Grad Centre provides social facilities to graduate students. See http://gss.ubc.ca/main/

7.3 INTERNATIONAL STUDENT DEVELOPMENT

UBC International House – 1783 West Mall, Vancouver A hub for international students to access advising and support, and international learning opportunities, as well as a meeting place for Canadian and international students. https://students.ubc.ca/international-student-guide

7.4 PROFESSIONAL ASSOCIATIONS

Engineers and Geoscientists of British Columbia https://www.egbc.ca/

BMES https://www.bmes.org/
APPENDIX A – TYPICAL PROGRAM PROGRESS PATHS

A-1. PHD

<table>
<thead>
<tr>
<th>Procedural Form</th>
<th>Prepared by</th>
<th>Submitted By</th>
<th>Submitted To</th>
<th>Checked By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Supervisory Agreement</td>
<td>Student</td>
<td>Student</td>
<td></td>
<td>SBME Student Services</td>
</tr>
<tr>
<td>Course Requirements Proposal</td>
<td>Student</td>
<td>Student</td>
<td></td>
<td>SBME Student Services</td>
</tr>
<tr>
<td>Committee Selection Form</td>
<td>Student</td>
<td>Student</td>
<td></td>
<td>SBME Student Services/Grad Advisor</td>
</tr>
<tr>
<td>Annual Progress Reports</td>
<td>Student/Supervisor</td>
<td>Student/Supervisor</td>
<td></td>
<td>Grad Advisor</td>
</tr>
<tr>
<td>Comprehensive Examination Approval</td>
<td>SBME Student Services</td>
<td>Examination Committee</td>
<td></td>
<td>Grad Advisor</td>
</tr>
<tr>
<td>Course Requirements Completion</td>
<td>Student</td>
<td>Student</td>
<td></td>
<td>SBME Student Services/Grad Advisor</td>
</tr>
<tr>
<td>Procedural Form</td>
<td>Prepared by</td>
<td>Submitted By</td>
<td>Submitted To</td>
<td>Checked By</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>----------------------------</td>
<td>----------------</td>
<td>-----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Recommendation for Advancement to Candidacy</td>
<td>SBME Student Services</td>
<td>Examination Committee</td>
<td></td>
<td>Grad Advisor</td>
</tr>
<tr>
<td>Departmental PhD Examination Form</td>
<td>SBME Student Services</td>
<td>Examination Committee</td>
<td></td>
<td>Grad Advisor</td>
</tr>
<tr>
<td>Selection of the university and external examiners on the External Examiner form</td>
<td>Student/Supervisor</td>
<td>Student/Supervisor</td>
<td>Faculty of G+PS</td>
<td>Faculty of G+PS</td>
</tr>
</tbody>
</table>
### A-2. MASC

#### Year 1
- **Admission**
- **Supervisory Committee Selected**
- **First Supervisory Committee Meeting**
- **Annual Progress Report**

#### ...Final Year (Expected)
- **Annual Supervisory Committee Meeting**
- **MASC Thesis Examination**
- **Submission of Thesis**

<table>
<thead>
<tr>
<th>Procedural Form</th>
<th>Prepared by</th>
<th>Submitted by</th>
<th>Submitted To</th>
<th>Checked By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Supervisory Agreement</td>
<td>Student</td>
<td>Student</td>
<td></td>
<td>SBME Student Services</td>
</tr>
<tr>
<td>Course Requirements Proposal</td>
<td>Student</td>
<td>Student</td>
<td></td>
<td>SBME Student Services/Grad Advisor</td>
</tr>
<tr>
<td>Committee Selection Form</td>
<td>Student</td>
<td>Student</td>
<td></td>
<td>SBME Student Services</td>
</tr>
<tr>
<td>Annual Progress Report</td>
<td>Student/Supervisor</td>
<td>Student/Supervisor</td>
<td><a href="mailto:students@bme.ubc.ca">students@bme.ubc.ca</a></td>
<td>Grad Advisor</td>
</tr>
<tr>
<td>Course Requirements Completion</td>
<td>Student</td>
<td>Student</td>
<td></td>
<td>SBME Student Services/Grad Advisor</td>
</tr>
<tr>
<td>MASC Thesis Examination Record</td>
<td>SBME Student Services</td>
<td>Examining Committee</td>
<td></td>
<td>Grad Advisor</td>
</tr>
</tbody>
</table>
### A-3. MEng

#### Winter Term 1
- **Admission**
- **Courses**
- **Start Internship Search**

#### Winter Term 2
- **Courses**
- **Secure Internship Prior to May**

#### Summer Term
- **Internship**
- **Annual Progress Report**
- **BMEG 597 Grade**

#### Winter Term
- **Poster Presentation at MEng Orientation**
- **Graduation**

<table>
<thead>
<tr>
<th>Procedural Form</th>
<th>Prepared by</th>
<th>Submitted by</th>
<th>Submitted To</th>
<th>Checked By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Requirements Proposal</td>
<td>Student</td>
<td>Student</td>
<td></td>
<td>SBME Student Services</td>
</tr>
<tr>
<td>Internship Memo</td>
<td>Student/Academic Supervisor</td>
<td>Academic Supervisor</td>
<td>SBME Student Services <a href="mailto:students@bme.ubc.ca">students@bme.ubc.ca</a></td>
<td>SBME Student Services</td>
</tr>
<tr>
<td>Internship Completion</td>
<td>Student/Supervisor</td>
<td>Academic Supervisor</td>
<td><a href="mailto:students@bme.ubc.ca">students@bme.ubc.ca</a></td>
<td>SBME Student Services</td>
</tr>
<tr>
<td>Course Requirements Completion</td>
<td>Student</td>
<td>Student</td>
<td></td>
<td>SBME Student Services</td>
</tr>
</tbody>
</table>