



# CHBE GRADUATE PROGRAMS

The Department of Chemical and Biological Engineering (CHBE) offers programs leading to the Master of Engineering (M.Eng.), Master of Science (M.Sc.), Master of Applied Science (M.A.Sc.) and Doctor of Philosophy (Ph.D.) degrees in a number of areas of specialization within chemical and biological engineering.

Faculty and students within CHBE conduct field-defining research that is providing solutions to many of the World's most pressing challenges - advanced fuel cell batteries and photovoltaics that provide clean energy while reducing use of gasoline and other fossil fuels, green technologies and whole processes to convert renewable natural resources into the vast array of products, chemicals and materials used by society now and in the future. Solutions to the above challenges are inextricably linked to our understanding of complex chemical and biological systems.

## MASTER OF APPLIED SCIENCE (M.A.SC. AND M.SC.)

Duration: 24 months

# Students accepted per year: 20 - 30 students

Funding: Minimum \$22,000/year plus TA'ships

The M.A.Sc./M.Sc. programs are intended for students who are interested in pursuing advanced studies and research at the postgraduate level. The M.A.Sc./ M.Sc. degree requires the completion of a thesis and course work. Students with a background in engineering will receive a Master of Applied Science (M.A.Sc.) degree whereas students without an engineering background will receive a Master of Science (M.Sc.) degree.

An M.A.Sc./M.Sc. is expected to take about 24 months. Students are required to complete 18 credits of course work which includes 6 credits of fundamental courses and a thesis. An examining committee of three, including the supervisor, a co-reader, and the committee chair, conduct a public examination. M.A.Sc./M.Sc. degree candidates registered as full-time students are required to spend at least one winter session at the University. M.A.Sc./M.Sc. candidates may also register as part-time students. In either case the program must be completed within 5 years of initial registration.

### Admission Requirements\*:

Applicants to the M.A.Sc. program must have completed a four-year Bachelor's degree in Chemical or Biological Engineering or a closely related field. Applicants to the M.Sc. program must have a four-year Bachelor's degree in another engineering, science or related field. It is preferred that M.A.Sc. applicants have a GPA in the first-class range and show some demonstrated aptitude for research.

### Application Deadlines for M.A.Sc and M.Sc:

Start Date	Application Deadline Domestic	Application Deadline International	Reference Deadline
September	February 1	February 1	March 1
January	August 1	August 1	September 1
May	December 1	December 1	January 1

## DOCTORAL (PH.D.)

Duration: 48 months

# Students accepted per year: 15 - 25 students

Funding: Minimum \$25,000/year plus TA'ships

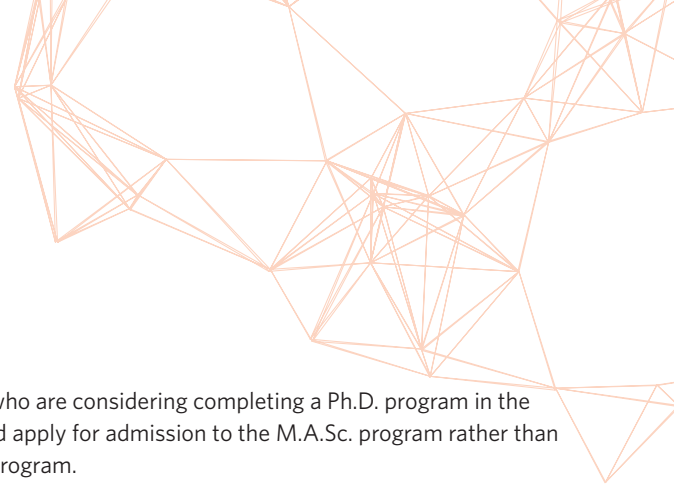
The Ph.D. program is designed to develop the candidate's ability for independent research. Applicants to the program must have a high scholastic standing and demonstrate an aptitude for research to be admitted to the Ph.D. program.

Substantial completion of the Ph.D. requirements is expected within three years for students with a Master's degree, and within 4 years for those students who have transferred from the M.A.Sc. program. The University requires that the Ph.D. program be completed within 6 years of initial registration.

Students may be eligible to transfer from a Master's program to the Doctoral program if they have completed one year of studies with 9 credits at the 500-level or above and of first class standing.

**Admission Requirements\*** for Students with a Previous Course and Thesis-based Master's Degree:

- A recognized course and thesis-based Master's degree which includes graduate level courses and a written thesis
- References must include a detailed letter from the thesis supervisor



- North American degree holders must have an overall average of B+ (76% at UBC) in a Master's degree program
- Non-North American degree holders must review the academic entrance requirements for students from your country at the Faculty of Graduate and Postdoctoral Studies.

**Admission Requirements\*** for Students with an Undergraduate Degree or Course-based Master's Degree (Direct Entry Ph.D):

- Typical M.A.Sc. requirements
- A first class standing in a Bachelor's degree and evidence of prior research ability. First class standing is indicated for each nation by UBC G+PS guidelines (80% minimum or equivalent for Canadian institutions). It is understood that such a grade-average is a minimum requirement and depending on the overall applicant profile, higher grades can be expected.
- Hard evidence of research experience and ability, by way of previous research internships, for example. Ideally, applicants should be a co-author on a manuscript or paper accepted in a high visibility, rigorously peer reviewed academic venue, such as an internationally recognized journal, or, in certain disciplines (especially computer and software engineering), top tier conferences.

Prospective supervisors of direct entry students must submit a maximum one-page explanation of why the student is deemed sufficiently prepared to be directly admitted to the Ph.D. program.

**Application Deadlines for Ph.D:**

Start Date	Application Deadline Domestic	Application Deadline International	Reference Deadline
September	February 1	February 1	March 1
January	August 1	August 1	September 1
May	December 1	December 1	January 1

**MASTER OF ENGINEERING (M.ENG.)**

Duration: 12 - 20 months

# Students accepted per year: 20 - 40 students

Funding: None provided. May qualify for TA'ships

The Master of Engineering program is designed for students who want to pursue their chemical and biological engineering education beyond the undergraduate level but are looking for an alternative to a thesis-based research program. The M.Eng. is now considered a minimum qualification for graduation in Europe and the content provided here exceeds those expectations.

The M.Eng. program requires students to complete 30 credits of course work with the option of completing a supervised project. Students complete 12 credits of fundamental courses and, to complete their program, choose:

- 18 credits of courses
- OR
- 12 credits of courses and a 6 credit M.Eng. report

Beyond the 12 credits of fundamental courses, students are permitted to select course credits in their areas of interest.

Applicants who are considering completing a Ph.D. program in the future should apply for admission to the M.A.Sc. program rather than the M.Eng. program.

After completing one term, an M.Eng. candidate can choose to conduct an engineering project and write a report in the candidate's area of interest, in lieu of 6 credits of conventional course work. Students will receive guidance from their project supervisor in developing the research topic.

Unlike a research degree, there is no expectation that this report will be published. Confidential work can form part of a project and although this does not need to be published, the faculty supervisor and faculty examiner must be able to review it.

**Admission Requirements\*:**

Applicants to the M.Eng. program must have a four-year Bachelor's degree in Chemical or Biological Engineering or a closely related field. Admission to the M.Eng. program is conducted by the Department through the CHBE M.Eng. Program Advisor. M.Eng. applicants do not require a supervisor in order to apply.

**Application Deadlines for M.Eng:**

Start Date	Application Deadline Domestic	Application Deadline International	Reference Deadline
September	May 1	April 1	June 1 (domestic) May 1 (international)

Decisions are typically made in May. MEng applications are not accepted for January start dates.

**\*ADMISSION REQUIREMENTS FOR ALL GRADUATE PROGRAMS**

Applicants should ensure that all necessary documents are included in their graduate program applications:

- Official transcripts from each post-secondary institution (PDF version) - Note: current transcripts from degrees that are in progress at the time of application can be accepted.
- Curriculum Vitae (CV)
- UBC-specified Statement of Purpose
- English proficiency exam (if required)
- Scanned copy of Permanent Resident card or Canadian Citizenship card (if applicable)
- Three confidential reference reports. At least one of the references should detail academic achievements and how the applicant would perform in a graduate level degree program. The online application form will ask for the contact information for the referees. Referees will be invited by email and will respond by email. Applicants can check the status of submission through their online application account.