PhD in Biomedical Engineering
FACULTY OF MEDICINE | DEPARTMENT OF PHARMACOLOGY

Overview and specifics

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>3-535-1-0</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEVEL</td>
<td>Graduate</td>
</tr>
<tr>
<td>TYPE</td>
<td>Philosophiae Doctor [Ph. D.]</td>
</tr>
<tr>
<td>CREDITS</td>
<td>90 credits</td>
</tr>
<tr>
<td>PROGRAM TYPE</td>
<td>Dissertation or thesis track</td>
</tr>
</tbody>
</table>

Admission in fall, winter and summer
Day course
Offered at the Montréal
Full-time
Offered jointly with Polytechnique Montréal

Resource persons

PROGRAM INFORMATION

Alain Vinet
alain.vinet@umontreal.ca

Description

Objectives
The goal of this program is to let students develop a high level of knowledge, intellectual discipline, scientific curiosity, and creativity in both cutting-edge professional activities and scientific research. The program helps students deepen their knowledge and push the boundaries of a specific topic, understand and evaluate scientific literature, and master rigorous reasoning and experimental methods. Research is mainly done in the fields of electrocardiology, biomedical imaging and instrumentation, biomechanics, biomaterials, modelling and biomedical simulation.

Comments
Also see the provisions for direct entry to the PhD programs in the Faculty of Medicine : Accès direct aux programmes de Ph.D. de la Faculté de médecine.

Regulations

Studies in this program are governed by the educational regulations of the Faculty of Graduate and Postdoctoral Studies, the provisions for direct entry to the PhD programs in the Faculty of Medicine, and the following provisions:

1. Admission requirements
To be admitted as a regular student in the PhD [Biomedical Engineering] program, candidates must:

- Meet the general admission requirements [section XI] of the “Règlement pédagogique de la Faculté des études supérieures et postdoctorales” (educational regulations of the Faculty of Graduate and Postdoctoral Studies).
- Demonstrate good knowledge of French and English (learn more).
- Obtain the support of a professor who agrees to supervise their work.

1.1 Admission requirements – transfer to PhD from MSc
- Have an MSc [Biomedical Engineering] or an MSc in a relevant discipline, or a degree or education that is deemed equivalent.
- Have obtained a grade-point average at the graduate level of at least 3.3 out of 4.3.

1.2 Admission requirements – direct entry to PhD from BSc
Hold a bachelor's degree in science, applied science or engineering that is relevant to the desired area of specialization or a degree in medicine (MD), veterinary medicine (DVM) or dental medicine (DMD).

The dean cannot guarantee that all eligible candidates will be accepted into the program.

Application deadlines
Before submitting an application, check the application periods for the chosen session.

Fall
- Fall 2019: From January 1st, 2018 to July 1st, 2019
- Fall 2020: From January 1st, 2019 to February 1st, 2020

Winter
- Winter 2020: From May 1st, 2018 to September 1st, 2019

Summer
- Summer 2019: From September 1st, 2017 to February 1st, 2019
- Summer 2020: From September 1st, 2018 to February 1st, 2020

Program structure (3-535-1-0)
The doctorate program consists of 90 credits.

Students must take an additional 12 complementary credits in engineering or biomedical sciences if they are directly entering the PhD program or if they have not done any graduate studies in biomedical engineering.

Also, the academic or research supervisor may require the student to take a course in basic science in biology or medicine [such as physiology, biochemistry, anatomy, cell biology or pathology] if deemed necessary because of the student's previous education. This course must be submitted to the graduate student affairs coordinator of the biomedical engineering program for approval. If the required course is at the undergraduate level, it will be considered as a non-program course.

It is recommended that students take the following two courses:
- MMD 6100 Skills for Health Researchers
- MMD 6005 Health Research and Ethics

Legend: CR: Credit, SC: Schedule, D: Day, E: Evening

SEGMENT 70

All credits in this doctorate program are mandatory. Out of the 90 credits, 87 are for research and a thesis.

Block 70A

<table>
<thead>
<tr>
<th>COURSE</th>
<th>TITLE</th>
<th>CRSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBM 6125</td>
<td>Foundations of Biomedical Engineering</td>
<td>1</td>
</tr>
<tr>
<td>GBM 7904</td>
<td>PhD Seminar in Biomedical Engineering</td>
<td>1</td>
</tr>
</tbody>
</table>

Mandatory – 3 credits

Course ING 6900 at the start of the program unless already taken.

Block 70B Research and thesis

<table>
<thead>
<tr>
<th>COURSE</th>
<th>TITLE</th>
<th>CRSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBM 7000</td>
<td>PhD Comprehensive Examination</td>
<td>0</td>
</tr>
<tr>
<td>GBM 7025</td>
<td>Thesis</td>
<td>87</td>
</tr>
</tbody>
</table>

Mandatory – 87 credits

Programs to explore
Applicants interested in this program also applied to the following programs:

<table>
<thead>
<tr>
<th>PROGRAMS</th>
<th>TYPE</th>
<th>CREDITS</th>
<th>NUMBER</th>
<th>PERIOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>Doctorate</td>
<td>90 credits</td>
<td>3-235-1-0</td>
<td>Jour</td>
</tr>
</tbody>
</table>
Research expertise at a glance

- Discover our professors’ different areas of research expertise: http://www.igb.umontreal.ca/theme-recherche/index.html
- Consult our list of research centres and chairs: http://www.igb.umontreal.ca/centre-recherche/index.html

En savoir plus: http://www.igb.umontreal.ca/igb/enbref.html

Professors
Consult the list of the department’s faculty members and their specializations: http://www.igb.umontreal.ca/bottins/index.html

Directory of theses and dissertations
Visit Papyrus, Université de Montréal’s institutional repository, to search for research projects by our faculty and researchers as well as theses and dissertations by our students: https://papyrus.bib.umontreal.ca/xmlui/?locale-attribute=en

Research news
Read the latest research news from UdeM: http://nouvelles.umontreal.ca/en/