

BIOMEDICAL ENGINEERING

Close the gap between engineering and medicine. Develop cutting-edge technologies that use engineering to solve health-related problems. This program combines biomedical content with engineering concepts and hands-on learning, letting you model complex biomedical systems, interpret biomedical experimental results, and study the latest technologies in healthcare.

In first year, you'll develop a strong foundation in engineering concepts and design to prepare you for focusing on three main areas: biomedical signals, biomechanics, and biomedical devices. In upper years, you can choose from a variety of electives in areas like biocompatibility and ultrasound in medicine. Top it all off with hands-on labs, two years of work experience, and a fourth year design project, and by the time you graduate, you'll be ready to create the next generation of implants, therapeutics, imaging devices, and sports equipment!

uwaterloo.ca/biomedical-engineering

99.3%

of Biomedical Engineering students found co-op jobs in 2021

YOUR FIRST YEAR

FIRST TERM

- › Introduction to Biomedical Design
- › Digital Computation
- › Physics 1 (Statics)
- › Fundamental Engineering Math 1
- › Communications in Biomedical Engineering (Visual/Written and Oral)

SECOND TERM

- › Matrices and Linear Systems
- › Data Structures and Algorithms
- › Human Factors in the Design of Biomedical and Health Systems
- › Chemistry Principles
- › Numerical and Applied Calculus
- › 1 Complementary Study Elective*

* Indicates the possibility of taking an elective course. For detailed information on available courses and requirements, please see the undergraduate studies academic calendar at ugradcalendar.uwaterloo.ca/page/eng-biomedical-engineering.



Waterloo offers the

WORLD'S LARGEST CO-OP PROGRAM



CO-OP AT WATERLOO = REAL WORLD EXPERIENCE

You'll have an unrivalled opportunity to gain paid work experience before you even graduate. We'll help you navigate job applications, résumés, and interviews; you'll have the added benefit of trying out different roles and/or industries to find the one that fits you while building your work experience and reinforcing your in-class learning out in the real world. It all adds up to a competitive advantage after graduation.

Biomedical Engineering students are part of the Stream 8X sequence.

STREAM 8X STUDY AND CO-OP SEQUENCE

YEAR	TERM	STREAM 8X
1	Fall	Study (1A)
	Winter	Study (1B)
	Spring	Work
2	Fall	Study (2A)
	Winter	Work
	Spring	Study (2B)
3	Fall	Work
	Winter	Study (3A)
	Spring	Work
4	Fall	Study (3B)
	Winter	Work
	Spring	Work
5	Fall	Study (4A)
	Winter	Study (4B)

Fall term: September to December
Winter term: January to April
Spring term: May to August

BEYOND THE CLASSROOM

As a Waterloo Engineer, it's easy to get in on the action. You can join the Engineering Society, make a difference with Engineers Without Borders, or apply your studies with a student design team. If you have any questions about student life or want to shadow a current student for a day, our Engineering Ambassadors can help!

uwaterloo.ca/engineering-student-ambassadors

OUT IN THE WORLD

Biomedical engineers are at the forefront of the healthcare industry and work collaboratively with medical professionals. They're doing everything from developing new materials for prosthetics to designing assistive technologies that support rehabilitation to using artificial intelligence to diagnose health conditions.

EXPLORE YOUR INTERESTS

Our program lets you specialize based on your interests:

BIOMEDICAL SIGNALS

- > Medical imaging
- > Biosignals
- > Neuroscience
- > Diagnostics

BIOMECHANICS

- > Biofluid mechanics
- > Tissue mechanics
- > Musculoskeletal biomechanics
- > Sports/rehabilitation engineering

BIOMEDICAL DEVICES

- > Assistive devices
- > Implants, prostheses, and orthoses
- > Biomechatronics
- > Design for elderly
- > Biomedical technologies
- > Therapeutics

EMPLOYMENT OPPORTUNITIES

- > Biomedical data analyst
- > Medical device product designer
- > Imaging technology researcher
- > Clinical application developer
- > Sports equipment designer

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FACULTY OF ENGINEERING

enginfo@uwaterloo.ca | uwaterloo.ca/engineering

200 UNIVERSITY AVE. W., WATERLOO, ON, CANADA N2L 3G1

uwaterloo.ca/future-students