



PHYSICS

- 1 PHYSICS
- 2 MEDICAL PHYSICS
- 3 PHYSICS AND HIGH TECHNOLOGY



University
of Windsor

The study of physics allows us to understand how the universe works—from the fundamental forces of nature to their effects on matter and the environment around us.

This knowledge enables the development of future technologies and provides a deeper insight into nature. The reasoning, mathematical, experimental and computer skills acquired while earning a physics degree empower our graduates to pursue careers far outside the traditional boundaries of physics—or even

science—including medicine, dentistry, business and law. Typically, physics students enjoy scientific experiments, computation and mathematics, as well as solving complex problems and developing new, innovative ideas.

All physics streams are flexible enough to cover the requirements for admission into professional schools in Canada and the United States.

1 PHYSICS

Our Honours Physics program is designed to prepare you for leadership positions in both academic and industrial research and to meet the competitive employment needs of the Canadian high-technology industry. We offer small class sizes and award-winning faculty. Honours Physics may be taken with or without a thesis option, and a co-op option is also available.

You will participate in a wide array of fundamental physics courses, many with hands-on laboratory components, as well as classes covering advanced mathematics, chemistry, and computer programming. Choosing options carefully allows for such minors as Computer Science, Mathematics or Business. We also offer multidisciplinary Honours BSc degrees in Chemistry and Physics and combined double majors such as Physics and Computer Science or Physics and Mathematics.

To see a sample first-year schedule, visit the online Guide to Registration website (www.uwindsor.ca/courseselection), click on the "Science Programs" link on the left, and select the specific program(s) in which you are interested.

CAREER PATHS

Recent graduates have entered such diverse careers such nuclear safety analyst, optical engineer, technical editor, quantitative finance analyst, high school teacher, medical physicist, actuary and research scientist, both in Canada and abroad.

Graduates have gone immediately to positions at the Large Hadron Collider (CERN) in Geneva, Switzerland and NASA's Jet Propulsion Laboratory in Pasadena, California.

Other careers include:

- Industrial and academic R&D
- Government and clinical laboratories
- Graduate studies (MSc or PhD) in physics/astronomy
- Professional schools such as medicine, dentistry, pharmacy, and medical physics
- Computer programming/software development
- Financial services
- Entrepreneur, business
- Education (with additional studies)
- Law (with additional studies)

2 MEDICAL PHYSICS

While the study of physics allows us to understand how the universe works, medical physics emphasizes the application of physics ideas and technology to the diagnosis and treatment of diseases in the human body, particularly cancer.

Medical physics students are thoroughly prepared with the same courses and skills in scientific experiments, computation, and mathematics as other physics students, but, in addition, they specialize in the core areas of medical imaging (MRI, ultrasound, CT, nuclear medicine) and radiotherapy (the treatment of cancer with external beam radiation or implanted, radioactive sources). Laboratory classes are taught in part at the Windsor Regional Cancer Centre and in the Baker Laboratory for Medical Physics Education.

Our Honours Medical Physics program is designed to prepare you for graduate studies in medical physics, which will eventually lead to a career as a certified medical physicist. Graduates of the program have also gone on to medical school and other careers in physics.

The Honours Medical Physics stream fits naturally into our internationally renowned physics department. We collaborate closely with such local health-care institutions as the Windsor Regional Cancer Centre, the Henry Ford Hospital, and the University of Windsor Institute for Diagnostic Imaging Research to deliver a practical, highly up-to-date, and relevant curriculum.

The program of study is carefully crafted to retain all of the physics and mathematics contained in a traditional physics degree (allowing

maximum career flexibility), while, at the same time, introducing new content in biology, biochemistry, and specialized areas of medical physics, including radiological physics, medical imaging, and radiobiology. Both thesis and co-op options are offered.

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CAREER PATHS

Career opportunities are available immediately upon graduation. However, students may wish to acquire full professional certification as a medical physicist by completing a CAMPEP-accredited graduate program available at several universities across Canada. The final step in the qualification process is the completion of a CAMPEP-accredited residency to be eligible for Board certification with either the Canadian College of Medical Physicists (CCPM) or the American Board of Radiology (ABR).

Our graduates have been accepted to accredited programs at Wayne State University, McGill University, the University of Calgary, Western University, as well as the University of Toronto and the University of Ottawa. This preparation may lead to a career as a licensed medical physicist (hospital or clinic).

Other careers include:

- Industrial/research medical physicist (medical technology company)
- Government and clinical laboratories
- Graduate studies (MSc or PhD) in physics/astronomy

- Professional schools such as medicine, dentistry, pharmacy, and medical physics
- Computer programming/software development
- Financial services
- Entrepreneur, business
- Education (with additional studies)
- Law (with additional studies)

3 PHYSICS AND HIGH TECHNOLOGY

Physics and High Technology is designed for students interested in applying their training in physics to the high-tech needs of society or for students fascinated by science and technology who are not necessarily interested in pursuing a career as a scientist.

Physics and High Technology opens the way to exciting career opportunities by enriching the physics curriculum with courses in business and computer science to make our graduates especially attractive to high-tech industries specializing in such areas as electronics, optics, and computers.

The development of strong communication skills allows careers in technical journalism, law, technical sales, and government.

The Honours Physics and High Technology stream fits naturally into our internationally renowned Physics Department. Students in this stream take many of the traditional courses in physics and supplement these with courses in engineering, computer science, business and mathematics. It is designed to prepare students for leadership positions in both industry and academia.

The Physics and High Technology stream may be taken with or without a thesis option. A co-op option is also available to add real-world work experience.

Program flexibility allows for Minors in Computer Science, Mathematics and Business as well as double majors that allow you to focus on your interests and strengths.

To see a sample first-year schedule, visit the online Guide to Registration website (www.uwindsor.ca/courseselection), click on the "Science Programs" link on the left, and select the specific program(s) in which you are interested.

CAREER PATHS

Recent graduates have developed careers such as nuclear safety analyst, optical engineer, technical editor, quantitative finance analyst, high school teacher, medical physicist, actuary and research scientist, both in Canada and abroad.

Other careers include:

- Industrial and academic R&D
- Government and clinical laboratories
- Technical journalism
- Technical sales and service
- Governmental policy consulting, politics
- Computer programming/software development
- Financial services
- Entrepreneur, business
- Education (with additional studies)
- Law (with additional studies)

ADMISSION REQUIREMENTS

All physics programs have a mean admission average of 89% and a minimum admission average of 75% + 70% second science/math. ENG4U, MHF4U and SPH4U are required. MCV4U is strongly recommended and SCH4U is recommended.

EXPERIENTIAL LEARNING

Our undergraduates gain valuable research/work experience by getting involved in Physics research as early as their first year. Students have experiential learning opportunities through co-op placements in Windsor and across Canada and US, the university's Outstanding

Scholars program, thesis courses for credit, summer placements and volunteer activities.

Our students work with experts in such diverse fields as: acoustic microscopy and materials characterization; nanoscale electronics; quantum control and quantum computing; atomic, molecular and optical physics; biophysics and medical physics, including magnetic resonance imaging.

STUDENT SUPPORT

Our close-knit, collegial student body organizes and leads our Physics Club, where students get together to promote interest in physics, help each other through their studies and socialize outside of the classroom setting. Our Science Resource Centre provides free tutoring for first-year courses.

FINANCIAL AID

For entrance and in-course award opportunities, please visit our Award Search at my.uwindsor.ca. Click on the Financial Matters heading and then Search for Awards in the sidebar.

In addition to entrance awards, the **Outstanding Scholars Program** attracts top high school students entering any first-year honours undergraduate program at the University of Windsor.

Approximately 100 high-achieving, first-year students will be offered status as an Outstanding Scholars Candidate in Year 1 of their studies. The goal of this program is to challenge and stimulate students by providing them with the unique opportunity of holding an undergraduate academic appointment in their second year of studies and beyond where students will work closely with faculty on academic research projects.

For more information, please visit: uwindsor.ca/outstandingscholars

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