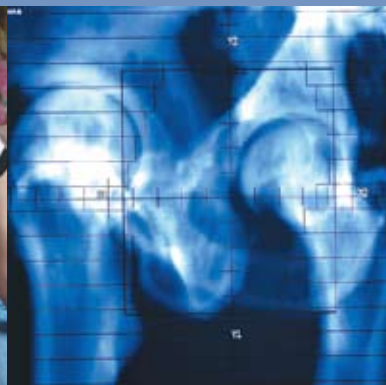
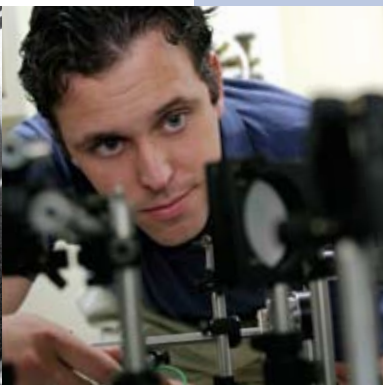




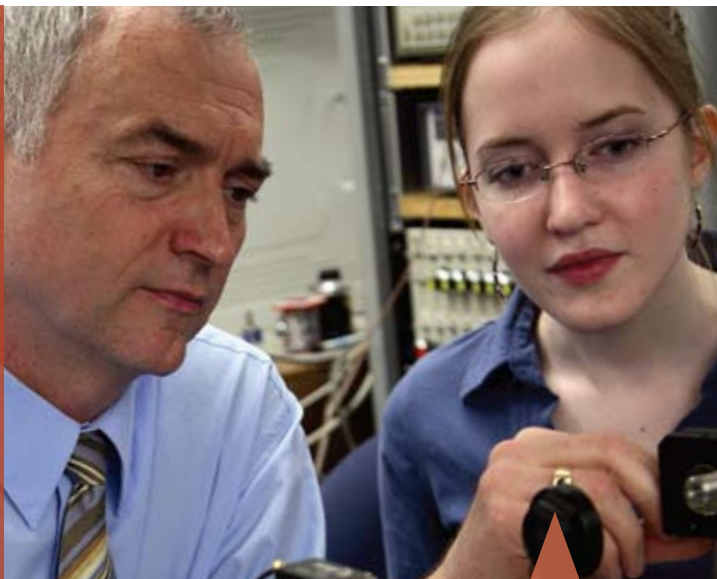
Medical Physics



Medical Physics

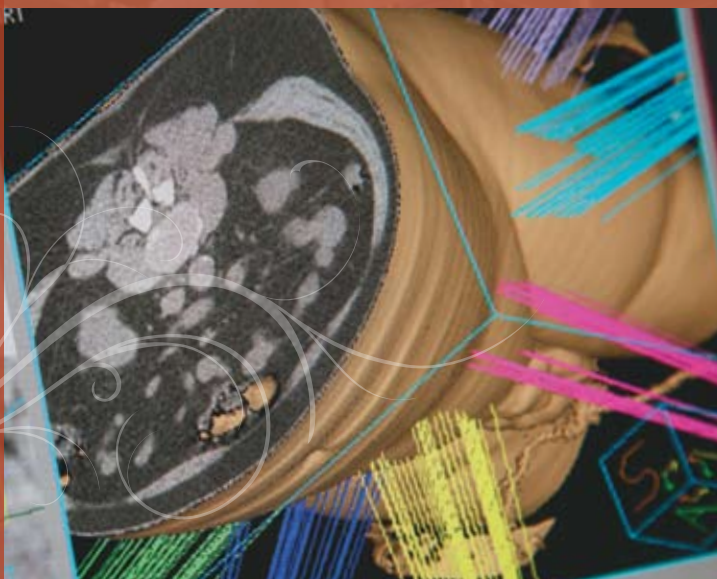
New honours BSc program

THE PROGRAM



"I am inspired by the experience of working closely with my professors. In the University's physics labs, we are investigating a process of cooling atoms. It is really fascinating!"

Elizabeth Yaworsky, second-year Outstanding Scholar in Physics, with Dr. Wladyslaw Kedzierski.



If you like physics and mathematics, but want a career in the rapidly expanding health sciences, then this honours BSc is for you. Medical Physics opens the way to exciting new possibilities for career opportunities in the applications of physics to the treatment of diseases, and other biological studies. An undergraduate degree in Medical Physics lays the foundation for an exciting and rewarding career in Medical Physics.

The Program

The new Medical Physics stream at the University of Windsor fits naturally into our established co-op honours program of Physics and High Technology. The program of study is carefully crafted to retain all of the physics and mathematics contained in a traditional physics degree, while at the same time introducing new content in biology, biochemistry, and senior-level courses in specialized areas of medical physics. Students have unique opportunities to gain clinical and research experience in the university laboratories and local hospitals. It is a natural first step before entering a CAMPEP-accredited graduate program to become a professionally qualified Medical Physicist. (CAMPEP is the Commission on Accreditation of Medical Physics Educational Programs.)

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Opportunities

The Demand

The number of career positions in Medical Physics is expanding at the rate of about 7% per year across North America for two important reasons. First, our aging population will bring a steadily increasing demand for medical treatments for the foreseeable future, especially in the area of radiation treatments for cancer (oncology). Second, the specialized skills of a Medical Physicist are required to exploit fully the sophisticated techniques that are becoming available for medical diagnosis and therapy. In hospitals they will both design and operate the coming generation of radiation treatment machines that offer new hope through three-dimensional adaptive radiotherapy. Radiation treatment of cancer is just one example, but there are many others involving advanced techniques for imaging, MRI (Magnetic Resonance Imaging), ultrasound, bioelectrical investigations of the brain and heart (electroencephalography and electrocardiography), biomagnetic investigations of the brain (magnetic source scanning), medical uses of infrared irradiation (thermography), heat for cancer treatment (hyperthermia), and lasers for surgery (laser surgery).

It is estimated that there are roughly 5,000 medical physicists practicing in North America today, with about one tenth that number in Canada. More than 1,700 hospitals use radionuclides, and there are over 2,000 high energy radiation therapy machines in use for cancer treatment. There are over 1,200 magnetic resonance imagers in use for diagnostic imaging. We have every reason to expect the demand for medical physicists to continue growing for the foreseeable future. The new undergraduate program in Medical Physics at the University of Windsor now opens these possibilities to students from the Windsor region and elsewhere across Canada and the United States.

Career Tracks

Career opportunities are available immediately upon graduation. However, students are encouraged to acquire full professional certification as a Medical Physicist by completing a CAMPEP accredited Masters program available at several universities across Canada. The final step in the qualification process is the completion of a CAMPEP accredited residency in order to be eligible for Board certification with either the Canadian College of Medical Physicists (CCPM) or the American Board of Radiology (ABR). There is then a wide variety of rewarding and well-paid career options in the health sciences in hospitals and in related high technology industries. Students are also qualified to go on to graduate studies in all other areas of physics, or to pursue further studies in engineering, law, medicine, education, business, or computer applications.



Student David Tessier with Medical Physicist, Jeff Richer, at the Windsor Regional Cancer Centre.



Fall

Year 1

64-140 Physics
62-120 Algebra
62-140 Calculus
59-140 Chemistry
55-141 Cell Biology

Year 2

64-220 EM fields & photons
64-250 Mechanics
Option 2
62-215 Vector calc.
59-230 Organic Chem.

Year 3

64-323 EM waves
59-240 Thermo
64-350 Mechanics I
64-370 Intro. Medical Physics
62-360 Special functions

Year 4

Co-op work term
(oral and written reports required)

Winter

64-141 Physics
64-151 Theoret. Meth.
62-141 Calculus
59-141 Chemistry
Option 1

64-222 Optics
64-320 EM theory
59-261 Biochem
62-216 Diff. eqns.
62-318 Complex var.

Co-op work term
(oral and written reports required)

64-311 Atomic & Mol. Spec
64-460 Condensed Matter
64-431 Stat. Mech.
64-473 Health physics
88-217 Computers I *

Summer

Optional work term

Co-op work term
(oral and written reports required)

64-310 Quantum phys.
60-106 C programming
(or 60-140)
64-484 Lasers
Option 3
Option 4

64-450 Quant. Mech.
64-496 Tech. Comm. Skills
64-470 or 471 Medical physics
Option 5
Option 6

Entrance requirements:

75% average of all science and math courses (excluding data management). Grade 12 "U" English 1 and Advanced Functions. Calculus and Vectors is strongly recommended. Physics, Chemistry and Biology are recommended.

www.uwindsor.ca/physics

Visit Us

We look forward to meeting you!

For further information contact

E-mail: physics@uwindsor.ca,
Net: <http://www.uwindsor.ca/physics>.

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