



# THE UNIVERSITY OF WINNIPEG

For more information visit [www.uwinnipeg.ca](http://www.uwinnipeg.ca) or contact a student recruitment officer at [welcome@uwinnipeg.ca](mailto:welcome@uwinnipeg.ca) or 204.786.9844. In any case where The University of Winnipeg Course Calendar and this fact sheet differ, the current Calendar takes precedence.

## Medical Physics 2012 - 2013

Clinical Medical and Health Physics is an exciting and expanding field of physics which applies our fundamental knowledge of physics to the prevention, diagnosis and treatment of a variety of human conditions. Ultrasound, Magnetic Resonance, Computed Tomography, Nuclear Medicine, X-rays, Radiation Therapy, are all branches of medical physics where continued research is being conducted by a very large group of dedicated researchers consisting of highly qualified physicists, engineers and radiologists. Most medical physicists work in hospital diagnostic imaging departments, cancer treatment facilities, or hospital-based research establishments, while others work in universities, government, and industry.

Many Canadian medical physicists are members of the Canadian College of Physicists in Medicine (CCPM), which was established in 1979 to recognize proven competence in physics as applied to medicine. Candidates with suitable educational background and experience become members of the college by passing written examinations. CCPM certification is becoming widely accepted in Canada and other countries and is often required at senior levels in medical physics. Currently, the recommended training for medical physicists is at the graduate level. This undergraduate degree, which results in a 4-year B.Sc. (honors), will prepare students for entry into such a program, such as the 2 year M.Sc. program at the University of Manitoba through the Division of Medical Physics at CancerCare Manitoba.

### SAMPLE COURSES

**Human Anatomy and Physiology:** This course deals with the biological study of the human organism; microscopic and gross anatomy; cellular and general physiology, and human genetics.

**Foundations of Physics I:** This calculus-based course provides students with a working knowledge of the basic concepts underlying modern physics.

**Medical Imaging:** This course is an introduction to medical imaging techniques, such as ultrasound, x-rays, CT scans, MRIs, and PET scans.

**Medical Physics and Physiological Measurement:** This course will introduce the core subject areas of Medical Physics, in particular the physics of physiology and of radiology.

### SAMPLE CAREERS

There are approximately 400 medical physicists working in Canada: 75% work in hospitals and hospital-based research establishments, 7% work for government, 8% for industry, and an additional 10% are university faculty who are not hospital-based. The number of medical physics positions has generally increased by about 5-10% per year.

Some examples of specific work include:

- Clinical service: The responsibilities of a clinical medical physicist lie predominantly in the areas of radiotherapy and diagnostic imaging.
- Radiation safety: Canadian regulations recognize medical physicists who are certified by the Canadian College of Physicists in Medicine as Radiation Safety Officers for medical radioisotope facilities.
- Research and Development: Canadian radiotherapy physicists play a central role in such areas as the design and construction of radiotherapy treatment equipment, the use of heat and lasers in cancer treatment, the theory of radiation absorption and dose calculation and in radiobiology.
- Teaching: Many medical physicists teach in graduate and undergraduate medical physics and physics programs.

## **SAMPLE FIRST YEAR**

*NOTE: This sample first year is representative of the courses you may take. For many of our programs, you may choose another set of courses and still be well on your way to a degree. Also, for most programs you do not have to take 30 credit hours (five full courses) in your first year.*

BIOL-1112/6: Human Anatomy and Physiology  
STAT-1501/3: Elementary Biological Statistics I  
MATH-1101/6: Introduction to Calculus  
PHYS-1101/6: Foundations of Physics I  
RHET-1105/3: Academic Writing  
6 credit hours Humanities

## **HOW TO APPLY – Domestic Student**

Apply online at [uwinnipeg.ca](http://uwinnipeg.ca) or pick up an Application for Admission from your high school counsellor's office or the Admissions Office at The University of Winnipeg. To meet Scholarship deadline submit your application and \$80 application fee.

## **HOW TO APPLY – International Student**

Apply online at [uwinnipeg.ca/index/intl-apply](http://uwinnipeg.ca/index/intl-apply) and submit all official documents by mail. To meet Scholarship deadline submit application, fee, and documents by March 1st. International application fee is \$100, which includes a one-time courier fee.

## **CONTACT US**

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