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## PHYS 2P02

Instructor: [T. Harroun](#)

### Fall 2025

#### - About this course

What [Brock calendar entry](#) says:

- » In this class, we will be learning about modern medical imaging techniques, such as X-rays, mammography, computed tomography, positron emission tomography, magnetic resonance imaging, and ultrasound.
- » We will also learn about the fundamentals of health physics, by looking at the biological effects of ionizing radiation.

What do I need to bring into the course?

- » One 4U/M Physics, or Brock PHYS 1P21/1P92 or 1P22/1P92.

#### Learning Materials

- » All necessary text will be provided in Brightspace.
- » Each in-person lecture will have a lesson in Brightspace attached to it that will contain the lecture notes, learning outcomes, links to the reading online, or book chapters in PDF format.

#### Lectures and tutorials (Fall 2025)

- » Please check your schedule on [my.brocku.ca](#) for class locations.
- » Lectures are Wednesdays and Fridays, 12:30-14:00
- » The lecture schedule can be found below in the section on class topics.
- » Tutorial classes are Wednesdays 08:00-09:00
- » Tutorial sessions are optional, but are there to help you with homework, exam preparation, and other questions you may have.

#### Homework

- » All homework is managed through Brightspace. Please check there for open dates and due dates.
- » There will be 11 assignments during the term, basically one per week.

#### Quizzes

- » For most lectures, there are a series of "Test Your Understanding" quizzes, administered on Brightspace
- » These are open to complete for a long period of time, and have unlimited attempts. They are graded, but not worth too much. Think of them as bonus points based on the lectures and readings.

#### Exams and tests

- » There is one midterm (in-class), and the final exam (during finals period).
- » Short sample tests will be provided prior to each.
- » The dates of the midterm and final can be found in the Topics section below.

**- Schedule of topics**

## Course schedule, Fall 2025

<b>Date</b>	<b>Lecture</b>	<b>Lesson</b>
Sept 3	1	<b>Introduction</b>
Sept 5	2	<b>1 Atomic theory</b>
Sept 10	3	
Sept 12	4	
Sept 17	5	<b>2 X-rays</b>
Sept 19	6	
Sept 24	7	
Sept 26	8	
Oct 1	9	
Oct 3	10	
Oct 8		<b>Midterm</b>
Oct 10	11	<b>3 Nuclear Medicine</b>
<b>Oct 14</b>		<b>Reading Week</b>
<b>Oct 16</b>		<b>Reading Week</b>
Oct 22	12	
Oct 24	13	<b>4 Radiation Biology</b>
Oct 29	14	
Oct 31	15	<b>5 Nuclear Imaging</b>
Nov 5	16	
Nov 7	17	
Nov 12	18	<b>6 Magnetic Resonance Imaging</b>

Nov 14	19	
Nov 19	20	
Nov 26	21	
Nov 28	22	<b>7 Ultrasound</b>
Dec 3	23	

### – Grading and the grading scheme

Your grades can be monitored on Brightspace.

<b>Assessment</b>	<b>Worth</b>
Content Quizzes	5%
Assignments	45%
Midterm exam	22%
Final exam	28%
<b>Total</b>	<b>100%</b>

### – Academic Integrity

Academic misconduct is a serious offence. The principle of academic integrity, particularly of doing one's own work, documenting properly (including use of quotation marks, appropriate paraphrasing and referencing/citation), collaborating appropriately, and avoiding misrepresentation, is a core principle in university study. Students should consult the [Academic Integrity Policy](#), and the [Academic Regulations and University Policies](#) entry in the Undergraduate Calendar to view a fuller description of prohibited actions, and the procedures and penalties. Information on what constitutes academic integrity is available at Brock University Academic Integrity Website.

A helpful website explains Brock's [Academic Integrity Policy](#). Please consult it, as all students are expected to know and abide by its provisions.

Courses may use [turnitin.com](#), a phrase-matching software, to verify originality of your submitted lab reports and written assignments. If you object to uploading your assignments to [turnitin.com](#) for any reason, please notify the instructor to discuss alternative submissions.

Be aware that it is the policy of the Department of Physics that any academic misconduct including (but not limited to) possessing, using or accessing unauthorized material in any form (including online) during final exams or assessments will *automatically* result in zero grade for the exam. Since most courses require a minimum passing grade on the final exam to complete the course, this will likely lead to a failure in the course.

### **FMS Penalties for Academic Misconduct**

The following are penalties usually imposed in academic misconduct cases in FMS. Please be aware that the Associate Dean, Undergraduate Programs, may assign different penalties than those listed here, depending on the details of individual cases. When the offense involves misconduct on a final exam, the penalties are steeper.

#### **Course work, including mid-term tests**

First academic integrity offence: Zero grade on assignment, additional penalty of 100% of the weight of the assignment to be subtracted from the final grade, mandatory completion of the AZLS Academic Integrity workshop

Second academic integrity offence: Zero grade on assignment, zero grade in course OR 4-month suspension

Third or additional academic integrity offence: Zero grade in course, 1-year suspension, permanent removal from major program.

#### **Final exams:**

First academic integrity offence: Zero grade in course.

Second academic integrity offence: Zero grade in course, 4-month suspension

Third or additional academic integrity offence: Zero grade in course, 1-year suspension, permanent removal from major program.

### **– Academic Policies**

#### **Intellectual Property Notice**

All slides, presentations, handouts, tests, exams, and other course materials created by the instructor in this course are the intellectual property of the instructor. A student who publicly posts or sells an instructor's work, without the instructor's express consent, may be charged with misconduct under Brock's Academic Integrity Policy and/or Code of Conduct, and may also face adverse legal consequences for infringement of intellectual property rights.

#### **Accommodations**

The University is committed to fostering an inclusive and supportive environment for all students and will adhere to the Human Rights principles that ensure respect for dignity, individualized accommodation, inclusion and full participation. The University provides a wide range of resources to assist students, as follows:

- a. If you require academic accommodation because of a disability or an ongoing health or mental health condition, please contact Student Accessibility Services at [askSAS@brocku.ca](mailto:askSAS@brocku.ca) or 905 688 5550 ext. 3240.
- b. **Medical Self-Declaration Forms** (brief absence up to 72 hours)

In the case of a short-term medical circumstance, if a student wishes to seek an academic consideration, please use the [Medical Self-Declaration Form](#). The request is to be made in good faith by the student requesting the academic consideration due to a short-term condition that impacts their academic activities (e.g., participation in academic classes, delay in assignments, etc.). The period of this short-term medical condition for academic consideration must fall within a 72-hour (3 day) period. The form

must be submitted to the instructor either during your brief absence or if you are too unwell, within 24 hours of the end of your 3 day brief absence.

#### **Medical Verification Form (extended duration)**

In cases where a student requests academic consideration due to a medical circumstance that exceeds 72 hours (three days) and will impact their academic activities (e.g., participation in academic classes, delay in assignments, etc.), or in the case of a final exam deferral, the [medical verification form](#) must be signed by the student and the health professional as per process set out in the [Faculty Handbook III:9.4.1](#).

- c. If you are experiencing mental health concerns, contact the Student Wellness and Accessibility Centre. [Good2Talk](#) is a service specifically for post-secondary students, available 24/7, 365 days a year, and provides anonymous assistance. Follow the above link or call 1-866-925-5454. For information on wellness, coping and resiliency, visit: [Brock University \(Mental Health\)](#).
- d. If you require academic accommodation on religious grounds, you should make a formal, written request to your instructor(s) for alternative dates and/or means of satisfying requirements. Such requests should be made during the first two weeks of any given academic term, or as soon as possible after a need for accommodation is known to exist.
- e. If you have been affected by sexual violence, the Human Rights & Equity Office offers support, information, reasonable accommodations, and resources through the Sexual Violence Support & Education Coordinator. For information on sexual violence, visit [Brock's Sexual Assault and Harassment Policy](#) or contact the Sexual Violence Support & Response Coordinator at [humanrights@brocku.ca](mailto:humanrights@brocku.ca) or 905 688 5550 ext. 4387.
- f. If you have experienced discrimination or harassment on any of the above grounds, including racial, gender or other forms of discrimination, contact the Human Rights and Equity Office at [humanrights@brocku.ca](mailto:humanrights@brocku.ca).

For a full description of academic policies in the Faculty of Mathematics and Science, consult [brocku.ca/mathematics-science/](http://brocku.ca/mathematics-science/)