



Physics Department

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PHYS 1P96 - Physics for Scientists and Engineers II

Course outline

– Instructor

- » [T. Harroun](#)
- » Labs: [Ivana Komljenovic-Metcalf](#)
- » Teaching Assistants: Connor Wilson, Collin Tower

– About this course

What [Brock calendar entry](#) says:

Kinematics, Newton's laws and forces; momentum and collisions; torque and circular motion; work and energy; oscillations, waves and sound.

What do I need to bring into the course?

This calculus-based course is designed for students in the physical and engineering sciences and or future teachers at the I/S levels. A non-graphing scientific calculator is required for in-person quizzes. Access to a computer and the internet may be required for homework. **Prerequisite:** PHYS 1P95 , or PHYS 1P91 in combination with one of MATH 1P01, MATH 1P05, or MATH 1P07, or permission of the instructor.

Textbook

- [Open Stax University Physics, Vol. 1.](#)
- [Open Stax University Physics, Vol. 2.](#)
- [Open Stax University Physics, Vol. 3.](#)

Course fees

\$35 for Mobius for homework + \$10 Lab fee

– Days and times

Lectures:

Location: WH324
 M, T, Th, F 15:00-16:00

Weekly quizzes in-class each Friday!

Lab times:

Location: H300
 Please check your schedule on Brightspace.

Help Desk:

Location: B209
 W, Th 12:00-13:00

Office hours:

Location: B201
 M, Th 1300-1400
 Or email me at tharroun@brocku.ca

– Topics to be covered

Course schedule of topics

Week	MWTh Lecture Dates	Chapters covered	Topics
Week 1	Jan 5, 6, 8	Vol. 1, Ch. 14	Fluids
Week 2	Jan 12, 13, 15	Vol. 2, Ch. 1	Temperature and Heat
Week 3	Jan 19, 20, 22	Vol. 2, Ch. 2	The Kinetic Theory of Gasses
Week 4	Jan 26,27,29	Vol. 2, Ch. 3	The First Law of Thermodynamics
Week 5	Feb 2, 3, 5	Vol, 2, Ch. 4	The Second Law of Thermodynamics
Week 6	Feb 9, 10, 12	Vol. 2, Chs. 5 and 6	Electric Charges and Fields, Gauss's Law
	Feb 16-20	READING WEEK	
Week 7	Feb 23, 24, 26	Vol. 2, Chs. 6 and 7	Gauss's Law, Electric Potential
Week 8	Mar 2, 3, 5	Vol. 2, Chs. 8, 9, and 10	Capacitance, Current, Resistance, DC Circuits
Week 9	Mar 9, 10, 12	Vol. 2, Chs. 11 and 12	Magnetic Forces and Fields
Week 10	Mar 16, 17, 19	Vol. 2, Ch. 13	Electromagnetic Induction
Week 11	Mar 23, 24, 26	Vol. 2 Ch. 16 Vol. 3, Ch. 1 and 2	The Nature of Light and Optics
Week 12	Mar 30, 31 Apr 2	Vol.3, Chs. 3 and 4	Interference and Diffraction

Quiz dates and topics

Quiz	Friday Quiz and Homework Due Date	Topics Covered
Week 0	Jan 9	Concept Inventory Quiz Mobius Introduction Homework (Full marks for completing.)
Week 1	Jan 16	Vol. 1, Ch. 14
Week 2	Jan 23	Vol. 2, Ch. 1
Week 3	Jan 30	Vol. 2, Ch. 2
Week 4	Feb 6	Vol. 2, Ch. 3

Week 5	Feb 13	Vol, 2, Ch. 4
Week 6	Feb 27	Vol. 2, Chs. 5 and 6
	READING WEEK	
Week 7	Mar 6	Vol. 2, Chs. 6 and 7
Week 8	Mar 13	Vol. 2, Chs. 8, 9, and 10
Week 9	Mar 20	Vol. 2, Chs. 11 and 12
Week 10	Mar 27	Vol. 2, Ch. 13
Week 11	Apr 6 (MONDAY MAKE UP FOR GOOD FRIDAY)	Vol. 2 Ch. 16 Vol. 3, Ch. 1 and 2
Week 12	Apr 10 (HOMEWORK DUE BUT NO QUIZ)	Vol.3, Chs. 3 and 4

– Grading and the grading scheme

Component	Weight	Comments
Homework	20%	Problem sets to be completed on the Möbius platform.
Quizzes	30%	In-class quiz, every Friday from 3-4 pm. Please bring a non-graphing calculator.
Final Exam	25%	Minimum passing grade is 50%. Please bring a non-graphing calculator.
Laboratories	25%	Completing all labs, and submitting written lab reports are required to complete the lab component of the course.

Final passing grade is 50%. If you fail to obtain at least 50% on the final exam, you do not obtain a credit in the course (regardless of your calculated final grade). The Registrar's Office will enter your final grade as the lower of your calculated final grade or 45F. In this case, to attain a credit for the course, you would need to repeat the course.

– Late Submission Policy

Homework

- » No late submissions will be accepted without an official academic exception (such as a [self-medical declaration form](#) or other exception from [Student Accessibility Services](#).)

Quizzes

- » If you will miss a quiz, you must inform the instructor in advance of the quiz date to schedule a make-up quiz.

Labs

Lateness	Maximum Possible grade
less than 24 h	70%
less than 48 h	40%
less than 72 h	10%

– Brock Physics Lab Credit Policy

PHYS Lab Credit Policy does not apply to this course

– Expectations and responsibilities

Here is a summary of our expectations of you, which are your responsibilities. You are expected to:

- » attend each scheduled lecture and laboratory session;
- » do your work honestly and maintain **academic integrity**.
- » complete each quizz and exam, using only the materials that have been authorized for use, such as a non-graphics calculator and writing instruments.
- » attend labs having **prepared in advance** by reading relevant parts of the lab manual, and having completed any prelab problems.

And most important of all, you must take responsibility for your own learning. The lectures are there to guide you and assist you, but only you can actually do the hard work of learning the course material. To get the most out of the course, work on it a little bit every day. Daily work is key for placing your learning in long-term memory, where it will be readily available to help you to advance your knowledge in second year and beyond - and acing the final exam, of course. Cramming on the night before may place the material in your short-term memory and you might even do fine on a weekly test, where the amount of new material is relatively small, but this approach will fail miserably on the final exam.

Your instructor will provide weekly textbook chapter references; read through those sections. The best way is to read them twice: once before the lectures, just to orient yourself in the material, to identify those parts that seem like they might need extra time and attention. Make a note of the questions that arise in your mind. The lecture should answer some of them, and if it does not, raise your hand and ask! It is likely that many others have the same question. After the lecture, read the textbook again, with a pen and paper in hand, repeating all derivations on your own, trying every solved example before looking at the solution, then solving every follow-up questions at the end of the section.

Use your time effectively. Study smart, instead of hard. Ask questions in class. Your instructor will be available during the office hours in MC E220, sending an email first is a good way to check availability. There is also a Physics Help Desk, with TAs available to help out. Find out where and when it is held, and come often. It is better to come three times with one or two questions than once with a list

accumulated over the past several weeks, when things get too desperate. Asking questions is a sign of active learning, make sure to do that!

– Weekly Homework

Homework assignments are to be submitted on the Möbius platform. Link to each homework assignment will be posted on the Brightspace page.

Useful resource to review physics and math concepts:

» [PPLATO](#) also contains useful review links.

– 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 "[Academic Misconduct](#)" section in the Undergraduate Calendar to view a fuller description of prohibited actions, and the procedures and penalties. The University takes academic misconduct extremely seriously and will follow its strict procedures to the letter in all cases.

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

Unless otherwise specified, the Department of Physics follows the following minimum penalty guidelines for cases of academic misconduct in the Faculty of Mathematics and Science (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. Also note that cheating on exams carries significantly higher penalties.

First offence:

Zero grade on the 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 offence:

Zero grade on assignment, additional penalty of 100% of the weight of the assignment to be subtracted from the final grade, 4-month suspension

Third or additional offence:

Zero grade in the course, 1-year suspension, permanent removal from major program.

FMS Penalties for Misconduct in Final Exams

First Offense:

Zero grade in the course.

Second Offense:

Zero grade in the course, 4 month suspension.

Third Offense:

Zero grade in the course, 1 year suspension, permanent removal from major program

Fourth Offense:

Permanent Suspension, debarment.

- FMS 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.

Use of Generative AI (GenAI)

In the age of GenAI (e.g., ChatGPT), our expectation of you remains the same as it ever was: original academic work, following the instructions of the assignment determined by the instructor for this course for requirements, expectations, and parameters for completion and submission of your work for grading. Therefore, the use of GenAI tools and GenAI-generated content is not allowed (unless explicitly requested/instructed) as a resource or source for answers and discussion in submitted work. Unauthorized use of GenAI will be treated as an academic misconduct.

You probably won't find much use of GenAI in this course anyway, even when writing something like a lab report. Why? GenAI doesn't know what you did in the lab. GenAI may know a lot about the overall idea you were studying, but not how you demonstrated it. In your lab reports, your answers and discussion need to relate to what you did and the data you took.

Important dates

Please be aware of all the important dates, such as the first/last days of classes, snow days and reading week, as well as the deadline for withdrawal without academic penalty. For the current academic term, this information can be found [here](#).

Relationship between attendance and grades

Unless the instructor announces otherwise, students are expected to attend all lectures, discussion groups, seminars, laboratory periods and examinations of the courses in which they are registered and must submit all assignments in order to pass this course.

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 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 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.

For a full description of academic policies in the Faculty of Mathematics and Science, consult brocku.ca/mathematics-science/