

University Physics I

Physics 1007A

Course Instructor: Andrew Robinson  [Hear my name](#)

How to address me: Andrew

Gender Pronouns: (he/him/his) ([learn more](#))

Email: andrew.robinson@Carleton.ca

Note: If you have a question or would like to talk with me, you can send an email, or visit me during student hours (see below).

Phone: N/A

Student Hours: TBA

Office Location: Online

Class Location:

Class Times:

Prerequisites: See this outline.

Physics PHYS 1007 Laboratory, Summer 2024

Location: room 4160 HP

Lab Supervisor:

Dr. I.D. Ivanovic, igor@physics.carleton.ca

What are 'Student Hours'?

Student hours are dedicated times through the week for the course instructor and TAs to meet with YOU. Pop in to introduce yourself, ask questions about the course, or discuss content from the course.

Note: If these times don't work for you, email me and we can arrange an alternate time to meet.

Welcome to Physics 1007A!

This is the first part of a two-term physics course with an emphasis on essentials for scientists in other disciplines. This first part of the course covers the basic laws of physics, such as Motion, Force, Newton's Laws of Motion, Energy, Rotational Motion, Collisions, Fluids and Heat Transfer. Applications to other scientific disciplines and real-world examples will be used whenever possible.

The lectures will be held in Southam Theatre B, on Monday and Wednesday from 23.5 pm to 5.35 pm. As my voice is still recovering from a Covid infection two years ago, if I am unable to manage these long classes, then I may use some lecture recordings and cut the in-class

time down to manageable levels. The laboratory components of the course, and all other course elements will be in-person. This course is not suitable to take as an online student.

The course is specifically designed to teach Physics to anyone with a general science background, and knowledge of a modest amount of mathematics (algebra and trigonometry). We go through everything from first principles. No prior knowledge of physics is required.

Course level learning objectives:

1. – Mathematical skills including significant figures and trigonometry for vectors
2. – Analytical skills to determine which physical principles are applicable
3. – A sound knowledge base of basic physical principles
4. – Applications of physics in everyday applications, clinical settings and other scientific disciplines

Inclusive teaching statement:

I am committed to fostering an environment for learning that is inclusive for everyone regardless of gender identity, gender expression, sex, sexual orientation, race, ethnicity, ability, age, class, etc. Please email me if you have any comments or concerns.

Land Acknowledgement

We recognize the Algonquin peoples as the traditional custodians of the land in which the campus is located, and where the class is taught. We give respect to the host nation, the *Kitchissippi Omàmiwinini Anishinabeg* (Algonquin peoples of the big river, in the Algonquin language).

Community Guidelines

The following values are fundamental to academic integrity and are adapted from the International Center for Academic Integrity*. In our course, we will seek to behave with these values in mind:

	As students, we will...	As a teaching team, we will...
Honesty	<ul style="list-style-type: none"> • Honestly demonstrate our knowledge and abilities on assignments and exams • Communicate openly without using deception, including citing appropriate sources 	<ul style="list-style-type: none"> • Give you honest feedback on your demonstration of knowledge and abilities on assignments and exams • Communicate openly and honestly about the expectations and standards of the course through the syllabus, and with respect to assignments and exams
Responsibility	<ul style="list-style-type: none"> • Complete assignments on time and in full preparation for class • Show up to class on time, and be mentally/physically present • Participate fully and contribute to team learning and activities 	<ul style="list-style-type: none"> • Give you timely feedback on your assignments and exams • Show up to class on time, and be mentally & physically present • Create relevant assessments and class activities
Respect	<ul style="list-style-type: none"> • Speak openly with one another, while respecting diverse viewpoints and perspectives • Provide sufficient space for others to voice their ideas 	<ul style="list-style-type: none"> • Respect your perspectives even while we challenge you to think more deeply and critically • Help facilitate respectful exchange of ideas
Fairness	<ul style="list-style-type: none"> • Contribute fully and equally to collaborative work, so that we are not freeloading from others • Not seek unfair advantage over fellow students in the course 	<ul style="list-style-type: none"> • Create fair assignments and exams, and grade them in a fair, and timely manner • Treat all students equitably
Trust	<ul style="list-style-type: none"> • Not engage in personal affairs while on class time • Be open and transparent about what we are doing in class • Not distribute course materials to others without authorization 	<ul style="list-style-type: none"> • Be available to all students when we say we will be • Follow through on our promises • Not modify the expectations or standards without communicating with everyone in the course
Courage	<ul style="list-style-type: none"> • Say or do something when we see actions that undermine any of the above values • Accept a lower or failing grade or other consequences of upholding and protecting the above values 	<ul style="list-style-type: none"> • Say or do something when we see actions that undermine any of the above values • Accept the consequences (e.g., lower teaching evaluations) of upholding and protecting the above values

Learning Materials

Textbook:

Physics, Fifth Edition, Alan Giambattista, McGraw Ryerson Ltd., ISBN: 9781260570052

Can be bought at <https://www.bkstr.com/carletonstore>

The textbook is quite expensive, and if you can find a second-hand one, do so. We are not using the publisher's website, so you do not need any online codes. Earlier editions of the textbook can also be found online at much lower cost, and you are welcome to use this option.

Assessment in this Course

Research about learning strongly suggests that the most important factor in learning is doing the work of reading, writing, recalling, practicing, synthesizing, and analyzing. Learning happens best when people actively engage material on a consistent basis, and that is why we have high standards in this course. We are confident that, with appropriate effort, you **all** can meet those standards.

We also try to reduce unintentional bias in grading by, for example and when possible, grading assignments one question at a time (grading all of question 1 before grading any of question 2), grading anonymously, and using rubrics.

Grade Breakdown

Component	Grade Value
Online Quizzes (Best 5 of 6)	20%
Written Assignments (Best 4 of 5)	25%
LABORATORY (Best 4 out of 5)	30%
Final Exam	25%

Course Organisation

The lecture material is delivered in person, with lectures on Mondays and Wednesdays. The lecture notes will be posted in advance, and the lectures will be recorded. These links are posted on Brightspace. In addition, I will hold frequent student hours on Zoom at times to be determined (I will ask in class about your schedules). These will be times when I will briefly review the most essential concepts from the week's material, go over some worked problems on the Zoom whiteboard, and answer your questions. These sessions are not mandatory but are designed to allow you to interact with me and discuss problems. If you cannot attend Student Hours at the regular times, then you can email me with queries, and if necessary, we can set up individual Zoom sessions at mutually convenient times.

I am available to discuss any issues with work, mental and physical health and other factors which might impact your performance on the course. We recognise that in an intensive course such as this, we need to accommodate outside events, and we will gladly do so on request. Please do not worry about asking for deadline extensions to academic work. These will come up, and we will help.

Laboratory

The laboratory is divided into two sections, which meet at different times of the week. Please consult the Laboratory Policy document, and the Laboratory Brightspace website for more details. The laboratory is situated in the Herzberg Building (HP 4160). For all questions regarding the laboratory, please contact the lab supervisor, Dr. Ivanovic.

Section	Lab time	Supervisor
A1	Tue. 1305-1555	Dr. I.D. Ivanovic
A2	Thu. 0835-1125	Dr. I.D. Ivanovic

Weekly Online Quizzes

There are 6 weekly online quizzes in the course. The quizzes will be multiple choice and completed on Brightspace. You will have three attempts. Questions are randomized from a question bank pool, so they will be different in each attempt. Quizzes are always due on Mondays at 2359h, except for the Victoria Day public holiday, when it is due on the Tuesday.

Weekly Written Assignments

In weeks 1 to 5 there will be a weekly assignment to upload. The questions are asked in a Brightspace Quiz, where you enter the numerical answer. In addition, you create a PDF file of your solution, and upload this at the provided link. Each question is worth five marks. One mark is for the numerical answer, and the other four are for the quality of your written solution. Written assignments are always due on Thursdays at 2359.

Course Schedule

Week	Date	Lecture	Topic	Textbook Sections	Lab	Written Assignments
	6th May	1	What is Physics? Skills & Motion in One Dimension	2.1-2.5	Reaction Time	
	8th May	2	Motion in Two Dimensions	3.1, 3.2, 3.3, 3.4, 3.5		
3	13th May	3	Newton's Laws of Motion	4.1, 4.2, 4.3, 4.4, 4.5	Density	WA 1 due 16 th May
	15th May	4	Force	4.6, 4.7, 4.8		
4	20th May	Victoria Day	No lecture		No labs	WA 2 due 23 rd May
	22nd May	5	Work and Energy	6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8		
5	27th May	6	Linear Momentum and Collisions	7.1, 7.2, 7.3, 7.4, 8.1, 8.2, 8.3	Atwood's Machine	WA 3 due 30 th May
	29th May	7	Rotational Motion	Chapter 5.1, 5.2, 8		
6	3rd June	8	Oscillations	Chapter 10	Spring Constant	WA 4 due 6 th June
	5th June	9	Waves and Sound	Chapter 11		
7	10th June	10	Static Fluids	Chapter 9	Simple Pendulum	WA 5 due 13 th June
	12th June	11	Flowing Fluids	Chapter 9		
8	17th June	12	Heat and Thermodynamics	13.1, 13.2, 13.3, 14.1, 14.2, 14.3		

Final Exams

The final exam will take place **online** during the final exam period and the date will be set in due course. The date is not in my control, and we need to wait for the Exam Services office to set it. Please do not make travel arrangements until we know when the final exam will be held. I normally set an exam to be a two-hour test, taken anytime within a 24 hour period.

Looking for help preparing for exams? Student Academic Success Services (SASS) at Carleton offers course-targeted study groups and supports and the Science Student Success Centre (SSSC) provides help with study skills.

Use of Artificial Intelligence (AI) Systems in the Course

Students are **not** allowed to use advanced automated tools (artificial intelligence or machine learning tools such as ChatGPT or Dall-E 2) on any assignments in this course. Each student is expected to complete each assignment without substantive assistance from others, including automated tools. We are attempting to develop and reinforce your own reasoning, analytical and thinking skills when applied to physics problems. Everything should be your own work. Use of AI systems will count as plagiarism and will be subject to the university regulations on academic integrity (see page 10).

Note About Physical & Mental Health

If you are feeling unwell, please do not attend class or labs in person. We will run make-up labs at the end of the session if you miss them. Lectures will be recorded, so you can view them online. We can also be flexible about quiz and assignment deadlines.

If you are struggling, please do not hesitate to reach out. I am happy to listen, and/or direct you to resources that might help. In terms of class, if you need extra help or missed a lesson, please do not worry. Email me and we will set a time to meet. I'll work with you, I promise. Remember that Carleton also offers an array of mental health and well-being resources, which can be found [here](#).

University Policies

The Academic Calendar

Important dates in the academic year are in the [university calendar](#).

Grades

In accordance with the Carleton University Undergraduate Calendar Regulations, the letter grades assigned in this course will have the following percentage equivalents:

A+ = 90-100 B+ = 77-79 C+ = 67-69 D+ = 57-59

A = 85-89 B = 73-76 C = 63-66 D = 53-56

A- = 80-84 B- = 70-72 C- = 60-62 D- = 50-52

F = <50

WDN = Withdrawn from the course

ABS = Student absent from final exam

DEF = Deferred

FND = (Failed, no Deferred) = student could not pass even with 100% on final exam

Academic Accommodations, Regulations, Plagiarism, Etc.

Carleton University is committed to providing access to the educational experience in order to promote academic accessibility for all individuals.

Academic accommodation refers to educational practices, systems and support mechanisms designed to accommodate diversity and difference. The purpose of accommodation is to enable students to perform the essential requirements of their academic programs. At no time does academic accommodation undermine or compromise the learning objectives that are established by the academic authorities of the University.

More information can be found at: <https://students.carleton.ca/course-outline/>

University rules regarding registration, withdrawal, appealing marks, and most anything else you might need to know can be found on the university's website, here:

<https://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/>

Academic Accommodations for Students with Disabilities

If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. For more details, visit the [Paul Menton Centre website](#).

Addressing Human Rights Concerns

The University and all members of the University community share responsibility for ensuring that the University's educational, work and living environments are free from discrimination and harassment. Should you have concerns about harassment or discrimination relating to your age, ancestry, citizenship, colour, creed (religion), disability, ethnic origin, family status, gender expression, gender identity, marital status, place of origin, race, sex (including pregnancy), or sexual orientation, please contact the [Department of Equity and Inclusive Communities](#) at equity@carleton.ca.

Religious Obligations

Please contact me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, please review the [Student Guide to Academic Accommodation \(PDF, 2.1 MB\)](#).

Survivors of Sexual Violence

As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and where survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: <https://carleton.ca/sexual-violence-support/>

Academic Consideration Policy

If you encounter extenuating circumstances that temporarily hinder your capacity to fulfill in-class academic requirements for a period that is five days or less, you can request academic consideration. Please contact me first, to discuss the situation. The policy guidelines can be found here:

[Academic Consideration Policy: Information for Students - Registrar's Office \(carleton.ca\)](#)

For Pregnancy

Please contact me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, please review the [Student Guide to Academic Accommodation \(PDF, 2.1 MB\)](#).

Accommodation for Student Activities

Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, see the [Senate Policy on Accommodation for Student Activities \(PDF, 25KB\)](#).

Academic Integrity

Academic misconduct undermines the values of honesty, trust, respect, fairness, and responsibility that we expect in this class. Carleton University provides supports such as academic integrity workshops to ensure, as far as possible, that all students understand the norms and standards of academic integrity that we expect you to uphold. Your teaching team has a responsibility to ensure that their application of the Academic Integrity Policy upholds the university's collective commitments to fairness, equity, and integrity. (Adapted from Carleton University's Academic Integrity Policy, 2021).

Examples of actions that do not adhere to Carleton's Academic Integrity Policy include:

- Plagiarism
- Accessing unauthorized sites for assignments or tests
- Unauthorized collaboration on assignment and exams
- Using Artificial Intelligence (AI) systems such as ChatGPT to generate answers.

Sanctions for not abiding by Carleton's Academic Integrity Policy

A student who has not adhered to Carleton's Academic Integrity Policy may be subject to one of several sanctions:

1. If you take full responsibility for your actions, and it is the first time you have violated the policy, you will receive zero on the assessment. If you are found to have violated the policy but do not take responsibility, an additional grade deduction will be applied (e.g. an A- will become a B+)
2. Subsequent violations of the policy may result in more severe sanctions such as failing the course, suspension from all studies and/or expulsion.

Process of an Academic Misconduct Investigation

Step 1: The instructor believes misconduct has occurred and submits documentation to the Dean of the Faculty of Science.

Step 2: The Dean reviews documentation and can proceed with or dismiss the allegation.

Step 3: If sufficient evidence, the student receives an allegation statement by email. Ombuds services is copied on the email.

Step 4: The student provides a written response to the evidence provided.

Step 5: Either party may request a meeting between student, dean, and the ombudsperson.

Step 6: Dean informs the student of the decision.

Appeal: Student has the right to appeal the decision.

Additional details about this process can be found on the [Faculty of Science Academic Integrity website](#). Students are expected to familiarize themselves with and follow the [Carleton University Student Academic Integrity Policy](#). The Policy is strictly enforced and is binding on all students.

Plagiarism

Plagiarism is passing off someone else's work as your own and is a serious academic offence. For the details of what constitutes plagiarism, refer [the Faculty of Science Academic Integrity website](#). To further understand Academic Integrity, consider attending the [Learning and Support Academic Integrity Workshop](#).

What are the Penalties for Plagiarism?

A student found to have plagiarized an assignment may be subject to one of several penalties including: expulsion; suspension from all studies at Carleton; suspension from full-time studies; and/or a reprimand; a refusal of permission to continue or to register in a specific degree program; academic probation; award of an FNS, Fail, or an ABS.

What are the Procedures?

3. All allegations of plagiarism are reported to the Dean of Faculty of Science. Documentation is prepared by instructors and/or departmental chairs.
4. The Dean writes to the student and the University Ombudsperson about the alleged plagiarism.
5. The Dean reviews the allegation. If it is not resolved at this level, then it is referred to a tribunal appointed by the Senate.

Students are expected to familiarize themselves with and follow the Carleton University [Student Academic Integrity Policy](#). The Policy is strictly enforced and is binding on all students.

Assistance for Students

Academic and Career Development Services: <http://carleton.ca/career>

Writing Services: <http://www.carleton.ca/csas/writing-services/>

Peer Assisted Study Sessions (PASS): <https://carleton.ca/csas/group-support/pass/>

Math Tutorial Centre: <https://carleton.ca/math/math-tutorial-centre/>

Science Student Success Centre: <https://sssc.carleton.ca/>