

# University Physics I

## Physics 1007A (Lec)

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

**How to address me:** Andrew

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

**Email:** [andrew.robinson@Carleton.ca](mailto: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:** Tues, Thurs, Fri 1100-1200

### 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.*

**Office Location:** Online

**Class Location:** Azrieli Theatre Room: 302

**Class Times:** Monday and Wednesday, 1805-1930

**Prerequisites:** See this outline.

### Physics PHYS 1007 Laboratory, Summer 2023

Location: room 4160 HP

Lab Supervisor:

Dr. I.D. Ivanovic, [igor@physics.carleton.ca](mailto:igor@physics.carleton.ca)

## 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.

Due to my voice being affected by long-covid, I am unable to lecture for three hours continuously twice per week. We will therefore conduct the class with some in person teaching (1805 -1930 on Monday and Wednesday), and then use some pre-recorded lecture material from the online version of the class in 2022. I will be holding more "office hours"

than usual to compensate for this. The laboratory components of the course, and all other course elements will be in-person.

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

<sup>2</sup> This class statement of values is adapted from Tricia Bertram Gallant, Ph.D.

## Learning Materials

### Textbook:

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

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

### Technology Checklist:

- An internet-enabled computer (laptop/desktop)
- Zoom software installed on computer (can also install on phone as backup!)
- Access to reliable internet
- Webcam (optional)
- Microphone

*If you do not have access to all of these, please let me know, so that we can find work arounds.*

## 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, 1805-1930 and some material asynchronously, using short lecture video recordings. These links are posted on Brightspace. In addition, I will hold student hours on Tuesdays, Thursdays, and Fridays from 1100-1200. 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 these 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.

## 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.

## 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)

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

## Weekly Assignments

In weeks 3-7 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.

## Course Schedule

We ek	Date	Lecture	Topic	Textbook Sections	Lab	Written Assignments
1	4th May	No lectures	Physics Skills Video	Chapter 1	No labs	
2	8th May	1	What is Physics? Motion in One Dimension	2.1-2.5	Reaction Time	
	10th May	2	Motion in Two Dimensions	3.1, 3.2, 3.3, 3.4, 3.5		
3	15th May	3	Newton's Laws of Motion	4.1, 4.2, 4.3, 4.4, 4.5	Density	WA 2 due
	17th May	4	Force	4.6, 4.7, 4.8		
4	22nd May	<b>Victoria Day</b>	<b>No lecture</b>		<b>No labs</b>	WA 3 due
	24th May	5	Work and Energy	6.1, 6.2, 6.3, 6.4,6.5, 6.6, 6.7, 6.8		
5	29th May	6	Linear Momentum and Collisions	7.1, 7.2, 7.3, 7.4,8.1, 8.2, 8.3	Atwood's Machine	WA 4 due
	31st May	7	Rotational Motion	Chapter 5.1, 5.2, 8		
6	5th June	8	Static Fluids	Chapter 9	Spring Constant	WA 5 due
	7th June	9	Flowing Fluids	Chapter 9		
7	12th June	10	Oscillations	Chapter 10	Simple Pendulum	WA6 due
	14th June	11	Waves and Sound	Chapter 11		
8	19th June	12	Heat and Thermodynamics	13.1,13.2,13.3,14.1		
	21st June	13	Heat Transfer & Revision	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.

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.

## 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.

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.

## Children & video sessions

You are welcome to have children with you during video sessions as I fully understand that childcare situations may be complicated for many of us at this time. Do your best to participate and engage, but also please get in touch with me if you have any questions or concerns.

## University Policies

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](mailto: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](mailto: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/>

## **Accommodations for Missed Work**

Carleton has put into place a protocol for students to apply for accommodations using a self-declaration form in the event of missed work. The form can be found at: <https://carleton.ca/registrar/wp-content/uploads/self-declaration.pdf>

## 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 the passing off of 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: <https://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/>

## Important Dates for 2022/2023 academic year:

<https://calendar.carleton.ca/academicyear/>