

Physics 1003A Fall 2020 Course Outline

Introductory Physics and Thermodynamics

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).

Introduction

Physics 1003 is an overview of mechanics and discusses topics in mechanics, oscillations, waves, and thermodynamics, with an emphasis on applications of physics in various engineering and computing applications. The course is calculus-based. This year the course will be delivered online with asynchronous recorded lecture material, and synchronous lab and tutorial components delivered by video links.

Instructor

Dr. Andrew Robinson (andrew.robinson@carleton.ca)

Laboratory Supervisor

Dr. Benjamin Freestone (benjamin.freestone@carleton.ca)

Covid-19 Statement

We recognize that this is not a normal semester. Nobody participating in the course expected this or knows how the situation will unfold in the coming months. We have prepared an online course using best educational practices, and with experience gathered during the summer teaching sessions. We can promise you an engaging and fulfilling educational experience. We recognize that teaching by remote, with many of you not even on campus, is different from the usual experience, and we want to assure you that you have our full support, and you should contact us to discuss any issues you may be having.

We intend to take a flexible approach to deadlines, and if you need an extension on handing in a piece of work or assignment, you should ask. You do not need to give us a reason. You will not be asked to provide any medical documentation. If you want to talk to someone, please do approach us. Even if we cannot help directly, we will be able to direct you to someone who can help.

Lecture Modules and Units

The traditional lectures have been broken up into Modules, which cover a particular topic, and subdivided into short (10-15 minute) video Units. You are expected to review these units yourself at your own time, and at your own pace. You should expect to complete one module per week. This is known as asynchronous delivery. Each module has short checkpoint quizzes for practice, and a module quiz to demonstrate mastery of the module topic.

The lecture units are available by streaming video from the Carleton media server, or from narrated PowerPoint files, which can be downloaded. If you have poor internet connections, you should find it easier to download the PowerPoint presentations and replay them on your home computer system.

Synchronous Office Hours

The times which are formally scheduled by the university for “lectures” will be used as my “Office Hours”. We will do video conferencing at these times using the Big Blue Button conferencing software which is built into CuLearn. This is similar to Zoom, but has much better security built in. These sessions will be recorded for later replay. These sessions are intended to be a question and answer session. I will not be preparing formal lecture material, but of course, I will discuss any material from the modules.

Tutorials and Laboratory Sessions

These sessions are held at the same time every week, and alternate between laboratory experiments and tutorial sessions. The tutorial sessions have a written test as part of the session. Please refer to the class schedule and the laboratory schedules for more details. There is a separate CuLearn site for the Laboratory/Tutorial sessions.

Written Assignment

I will set a fairly short written assignment question on Fridays, which will cover material in the module from that week. These will be submitted online on Mondays by 2359h. The question will be graded out of 5 marks, with an emphasis on explanation, and correct methods, rather than the correct answer. This is to give you practice in setting out a long answer to a question.

Checkpoint Quizzes

These will cover several units within each module and are there for practice. They may be taken as many times as you like to achieve mastery of the topics covered. If you score at least 20% in an attempt, then that will count towards a participation score for the final grade.

Module Quizzes

Each module has a final quiz. You only get one attempt at this. The best 9 scores out of 11 module quizzes are used to calculate the overall grade.

Final Exam

Will be online and will have multiple questions. Some solutions will be uploaded for grading, others will be graded by the CuLearn quiz system.

Grade Breakdown

Module Quizzes (best 9 out of 11)	15%
Checkpoint Quizzes (Participation in 80%)	5%
Written Assignments (Best 8 of 10)	10%
Tutorial Tests (Best 4 of 5)	20%
Laboratory (All 5 Labs)	35%
Final Exam	15%

Class Schedule

Week Beginning	Comments	Tutorials & Labs	Topics	Textbook
7th Sept	7th Labour Day 9th 1st Day of Classes		Module 1: Basic Skills	Idema Chapter 1
14th Sept		T1 Errors and partial differentials. Hand in exercise.	Module 1: Basic Skills	
21st Sept		L1: Reaction Time	Module 2: Force	Idema Chapter 2, HRW Chapters 5 & 6
28th Sept		T2 Modules 1 and 2. Basic Skills and Force	Module 3: Energy	Idema Chapter 3, HRW Chapter 7
5th Oct		L2 Motion on Inclines	Module 4: Collisions	Idema Chapter 4, HRW Chapter 9
12th Oct	Thanksgiving Holiday Monday	No lab or tutorial	Module 5: Rotational Motion	Idema Chapter 5, HRW Chapters 4.5 and 10
19th Oct		T3 Modules 3, 4 and 5. Energy, collisions, and rotational motion	Module 6: Planar Motion	Idema Chapter 6 and 7
26th Oct	Break Week	No classes, lab or tutorial		
2nd Nov		L3 Collisions	Module 7: Fluids	HRW Chapter 14
9th Nov		T4 Modules 6 and 7 Planar Motion and Fluids	Module 8: Oscillations	HRW Chapter 15
16th Nov		L4: Springs	Module 9: Waves	HRW Chapters 16 & 17
23rd Nov		T5 Modules 8 and 9. Oscillations and Waves	Module 10: Heat	HRW Chapters 18 & 19
30th Nov		L5: Ideal Gases	Module 11: Estimation	Idema Chapter 1
7th Dec	Friday 11th Last day - follows Monday schedule; exams start 12th	Revision Tutorial on 7th. No classes scheduled for 11th!		

University Policies

Grade Definition:

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

Standing in a course is determined by the course instructor subject to the approval of the Faculty Dean. This means that grades submitted by the instructor may be subject to revision. No grades are final until they have been approved by the Dean.

Academic Regulations, Accommodations, Plagiarism, Etc.:

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:

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

Academic Integrity

The University Senate defines plagiarism as "presenting, whether intentionally or not, the ideas, expression of ideas or work of others as one's own." This can include:

- reproducing or paraphrasing portions of someone else's published or unpublished material, regardless of the source, and presenting these as one's own without proper citation or reference to the original source;
- submitting a take-home examination, essay, laboratory report or other assignment written, in whole or in part, by someone else;
- using ideas or direct, verbatim quotations, or paraphrased material, concepts, or ideas without appropriate acknowledgment in any academic assignment;

- using another's data or research findings;
- failing to acknowledge sources through the use of proper citations when using another's works and/or failing to use quotation marks;
- handing in "substantially the same piece of work for academic credit more than once without prior written permission of the course instructor in which the submission occurs."

Plagiarism is a serious offence that cannot be resolved directly by the course's instructor. The Associate Dean of the Faculty conducts a rigorous investigation, including an interview with the student, when an instructor suspects a piece of work has been plagiarized. Penalties are not trivial. They can include a final grade of "F" for the course.

Course Copyright

Classroom teaching and learning activities, including lectures, discussions, presentations, etc., by both instructors and students, are copyright protected and remain the intellectual property of their respective author(s). All course materials, including PowerPoint presentations, outlines, and other materials, are also protected by copyright and remain the intellectual property of their respective author(s).

Students registered in the course may take notes and make copies of course materials for their own educational use only. Students are not permitted to reproduce or distribute lecture notes and course materials publicly for commercial or non-commercial purposes without express written consent from the copyright holder(s).

Academic Accommodations

Text from <https://students.carleton.ca/course-outline/>

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.

Pregnancy Obligation:

Please contact your instructor 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, visit the Equity Services website

<https://carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf>

Religious Obligation:

Please contact your instructor 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, visit the Equity Services website

<https://carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf>

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

<https://carleton.ca/pmc>

- The deadlines for contacting the Paul Menton Centre regarding accommodation for final exams for the Fall exam period is **November 13, 2020** and for the Winter exam period is **March 12, 2021**.

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>

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 your instructor 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 policy at

<https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf>

Assistance for Students:

Career Services: <https://carleton.ca/career/>

Academic Advising: <https://carleton.ca/academicadvising/>

Co-operative Education: <https://carleton.ca/co-op/>

Centre for Student Academic Support: <https://carleton.ca/csas/>

Writing Services: <https://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/>

Freedom of Information and Protection of Privacy:

Carleton University is committed to protecting the privacy of those who study or work here (currently and formerly). To that end, Carleton's Privacy Office seeks to encourage the implementation of the privacy provisions of Ontario's *Freedom of Information and Protection of Privacy Act* (FIPPA) within the university.

In accordance with FIPPA, please ensure all email communication with staff/faculty is via your Carleton email account. To get your Carleton email you will need to activate your MyCarletonOne account through Carleton Central. Once you have activated your MyCarletonOne account, log into the MyCarleton Portal.

Important Dates:

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

<https://carleton.ca/registrar/registration/dates-and-deadlines/>