Course No. PHYS 1020 GENERAL PHYSICS I Fall 2021

PHYS1020 is a non-calculus survey course in Physics covering topics in mechanics and thermodynamics, with illustrations drawn from the life sciences and physical sciences. This course, together with the sequel PHYS 1030, is recommended for students seeking either a single, comprehensive course in Physics or entry into health science programs. It may also be used for entry into the Honours Physics program ("B+" or better) or the Major Physics program ("B" or better).

INSTRUCTORS

Lectures

Werner Ens
A01 Online (Zoom) Lectures: MWF 8:30 – 9:20 am
Email: W.Ens@umanitoba.ca
Consultation times: Wednesday, Friday 9:30 – 10:30 am or by appointment (online)

Prem Basnet
A02 Online (Zoom) Lectures: MWF 11:30 am – 12:20 pm
Email: Prem.Basnet@umanitoba.ca
Consultation times: Monday, Wednesday, 10:15 – 11:15 am or by appointment

Jason Bland
A03 Online (Zoom) Lectures MW 2:30 – 3:45 pm
Email: jbland@learning.icmanitoba.ca
Consultation times: 11:30 am – 12:30 pm Monday, Wednesday or by appointment

Labs

Ruth Cameron
Email: ruth.cameron@umanitoba.ca

Andriy Yamchuk
Email: andriy.yamchuk@umanitoba.ca

And various TAs to present tutorials

REQUIRED TEXTBOOKS & MATERIALS

- *Physics*, 11th edition, by John D. Cutnell and Kenneth W. Johnson
- WileyPlus code (bundled with new textbook)
- Scientific Calculator
- Ruler and measuring tape (not required if you have lab exemption, available as course pack from U of M Bookstore)
- iClicker Reef
- PC/Laptop/mobile device for online lectures
- A reliable internet connection with sufficient bandwidth for online lectures
- Headset (preferred, but not compulsory)

EVALUATION

Three online term tests	36%
Laboratory	20%
WileyPlus online assignments	14%
Classroom Participation (iClicker Reeef)	5%
Online Final examination: **(to be scheduled)**	25%

The preliminary low-numerical-boundaries for the letter grades:

A+	90%
A	80%
B+	75%
B	70%
C+	65%
C	60%
D	50%
F	Below 50%

Note that the final numerical boundary for each letter grade may be adjusted depending on the total mark distribution of the class. But no student's final grade will be reduced due to the boundary adjustment.

A sufficient percentage of the total mark will be provided to the students before the Voluntary Withdrawal deadline. The final grades will be submitted to Aurora by the grade submission deadline and available on that website.

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TENTATIVE SCHEDULE (last update 23 Nov 2021)

Week	Day	Date	Tutorial	Lecture (A01, A02)	Lecture (A03)	Chapter	Topic	Term Test
1	W	Sept 8		1	1	1	Intro	
	F	10		2				
2	M	13	Tutorial 1	3	2	2	Kinematics in 1d	
	W	15		4	3			
	F	17		5				
3	M	20		6	4	3	Kinematics in 2d	
	W	22		7	5			
	F	24		8				
4	M	27		9	6	4	Newton's Laws	
	W	29		10	7			
	F	Oct 1		11				
5	M	4		12	8	5	Uniform Circular Motion	
	W	6		13	9			
	F	8		14				
6	M	11		Thanksgiving				
	W	13		15	10	6	Work and Energy	
	F	15		16				Term Test 1
7	M	18	Tutorial 2	17	11			Ch 1 - 5
	W	20		18	12	7	Impulse and Momentum	
	F	22		19				
8	M	25		20	13			
	W	27		21	14	8 (Sec 1 - 4)	Rotational Kinematics	
	F	29		22				
9	M	Nov 1		23	15	9 (Sec 1 - 4, 6)	Rotational Dynamics *(section 4 is presented to facilitate the introduction of the moment of interia and conservation of angular momentum, but the material is not explicitly required.)*	
	W	3		24	16			
	F	5		25		10 (Sec 1 - 4)	SHM	
10	M	8	Fall Break					
	W	10						
	F	12						
11	M	15		26	17	10 (sec 1 - 4)	SHM cont'd	
	W	17		27	18			
	Th	18						Term Test 2
	F	19		28		11 (excl Sec 11)	Fluids	Ch 6 - 9
12	M	22	Tutorial 3	29	19			
	W	24		30	20			
	F	26		31				
13	M	29		32	21	12 (sec 1 - 8) 13	Temperature, Heat, and Transfer of Heat *(Thermal stress is excluded. Transfer of heat (Ch 13) is mostly self-study, and may be used for the lab, but will not be examined)*	
	W	Dec 1		33	22			
	F	3		34				
14	M	6		35	23			
	W	8		36	24	14 (excl Sec 4)	Ideal Gas Law and Kinetic Theory	
	Th	9						Term Test 3
	F	10		37				Ch 10 - 12

The schedule of lectures is intended as a guideline. Some of the material may be presented on recorded lectures accessible on UMLearn, and the final scheduling of the term tests may change depending on the progress through the material.

Please see the UMLearn page for your lab section for the schedule of experiments.

ONLINE LECTURES (via Zoom)

Lectures will be presented in real time via zoom, and iclickers will be used for student response and evaluation. Class participation is worth 5% of the final grade. The lectures will be recorded and posted on UMLearn a day or two later, but iclicker credit will not be available off-line.

Some material may be presented in pre-recorded lectures, to leave more time during the real-time lectures for examples and iclicker polling.

Instructions for using iclicker will be posted on UMLearn and presented in the first lecture.

There is no possibility to make up iclicker marks, but marks from the best 30 lectures (20 for A03) will be used, so students can miss several lectures without penalty.

The tentative lecture schedule is shown on page 3.

LABS/TUTORIALS

All laboratory experiments will be done at home, using computer simulations, your smart phone and equipment you assemble yourself. Students must complete five pre-lab quizzes in UM learn before attempting the first experiment. The quizzes count towards the final grade.

The laboratory manual will be provided on UM Learn. Students are required to have a good-quality 30-cm ruler and 3-m or longer measuring tape. These items are available as a course pack from the U of M Bookstore, but you are free to supply your own.

Tutorials will be presented live by TAs to small groups in room 402 Allen. The questions to be covered will be posted on UM Learn in advance. See the UM Learn page for your lab section for very important instructions regarding attendance.

The schedule of tutorials is provided on page 3 of this document. Please visit your lab section on UM Learn for the schedule of experiments. The lab sections and slots are:

B01	Tuesday	8:30 – 11:25 am
B02	Tuesday	11:30 am – 2:20 pm
B03	Tuesday	2:30 – 5:25 pm
B04	Wednesday	11:30 am – 2:20 pm
B05	Wednesday	2:30 – 5:25 pm
B06	Thursday	8:30 – 11:25 am
B07	Thursday	11:30 am – 2:20 pm
B08	Thursday	2:30 – 5:25 pm
B09	Monday	2:30 – 5:25 pm

Students having previously taken PHYS1020 within the past two years MAY APPLY for an exemption from the lab component of the course in 2021, provided that their performance in the laboratory exceeded 80% mark. Please use the following URL to request for a lab exemption.

https://www.sci.umanitoba.ca/physics-astronomy/undergraduate-studies/lab-exemption-request/

Applications must be received by Sept. 21, 2021. Students who receive an exemption will have their previous laboratory mark credited directly towards the 2021 mark for PHYS 1070, as outlined above.

In order to pass the course, students are required to complete **at least four out of the five experiments** scheduled in the laboratory sessions. All five reports count towards your final grade. Email submissions are not accepted under any circumstance. Students will receive instruction and assistance in completing their experiments in the scheduled Zoom lab sessions.

Laboratory reports are generally due five days after the end of the laboratory period, and must be submitted into an online assignment folder which can be found in UM Learn. Reports must be submitted as Excel files, and with required images in jpg or png format. Reports submitted up to 48 hours late will receive a 25% late penalty, after that time the assignment folder will close and no more submissions will be accepted. More details are posted on your UM Learn lab section.

TERM TESTS

Three term tests are tentatively scheduled, each worth 12%. These will be held using the UMLearn platform, and will consist of 10 multiple choice or numerical entry questions. The test must be completed in one hour, but there will be a 12-hour window in which to start the test.

No deferred term tests will be provided. If you miss the term test for a legitimate, documented reason, then the weight of the final exam will be increased accordingly. **Missed tests for any other reason count as zero!**

HOMEWORK

Perhaps the most important thing you will learn from this course is how to think logically and solve problems. This is an important skill that can be applied to any subsequent area of study. Solving problems yourself and discussing them with your instructor and your classmates is the best way to learn.

Homework problems from the textbook will be assigned via the WileyPLUS online learning and evaluation system. A list of recommended problems will also be posted on UMLearn. You should solve all these problems, attempting them as the material is discussed in class. Be cautioned that reading solutions prepared by someone else is no substitute for working them out yourself. Note that numerical answers for odd numbered questions and problems are given in the back of the textbook. If you have extra time, it is always advisable to work on additional problems from the textbook. Note also that previous years' tests and solutions are provided for your reference on UMLearn.

Additional aids to solving problems and understanding the important concepts are available in the Read, Study & Practice section of the WileyPLUS site. Here you can explore many helpful resources, including the Student Study Guide, Interactive Solutions, Interactive Learningware, Concept Simulations, and Problem Hints and Solutions.

Aceessing WileyPLUS

Instructions on how to register and use WileyPLUS will be given in class and on UMLearn. A registration code is required to access the WileyPLUS site, so **if you purchased your registration code with your textbook, make sure you don't lose it!** If you have a second-hand copy of the text, you will have to purchase your registration code separately; this can be done online by following the instructions at http://www.wiley.com/college/fdoc/.

No make-up will be provided for the WileyPlus assignments; you must complete them before the due date and time.

POLICY ON MEDICAL CIRCUMSTANCES

Students who are unable to meet a course requirement due to medical circumstances are currently not required to submit medical notes. However, students are required to contact their instructor or academic advisor by email to inform of the missed work and to make arrangements for extensions, deferrals, or make-up assignments. Please follow these guidelines if you are unable to meet an academic requirement for your courses.

- Contact your instructor for term work such as a class, quiz, midterm/test, assignment, lab;
- Contact an advisor in your faculty/college/school of registration for a missed final exam (scheduled in the final examination period);
- Inform your instructor/advisor as soon as possible do not delay. Note for final exams, students must contact within 48 hours of the date of the final exam; and
- Email your instructor/advisor from a U of M email address, and include your full name, student number, course number, and academic work that was missed.

STUDENT ACCESSIBILITY SERVICES

If you are a student with a disability, please contact SAS for academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g. mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation**.**

Student Accessibility Services
520 University Centre
204 474 7423
http://umanitoba.ca/student/saa/accessibility/
Student_accessibility@umanitoba.ca

SCHEDULE A

A Schedule A document is posted on the course website. This is a Policy and Resource Document with information on various University and Unit policies regarding academic integrity, student discipline, and respectful learning environment, for example, and on academic and student supports that are available, including a statement regarding mental health with referral information to the Student Counselling Centre and University Health Services.

GENERAL CLASS CONDUCT

We understand that these are unusual circumstances, and that there are some adjustments needed when working virtually. At the same time, we do want to remind students that College policies, such as the Classroom Behaviour and Non-Academic Misconduct policy, still apply, as do basic expectations around how students will engage with each other, and with the College. ***This means that when participating in classes, online meetings, etc., students are expected to behave professionally, and follow the same basic norms as they would in person, such as being clothed, not being impaired, and participating respectfully***. Essentially, ***if you wouldn't do it in an in-person class, don't do it in virtual setting***. It is expected that all students be attentive during all lectures. Disruptive behaviours will not be tolerated or permitted under any circumstances.

PLAGIARISM AND CHEATING

(University of Manitoba Undergraduate Calendar, Section 8.1)

To plagiarize is to take ideas or words of another person and pass them off as one's own. In short, it is stealing something intangible rather than an object. Obviously it is not necessary to state the source of well-known or easily verifiable facts, but students are expected to acknowledge the sources of ideas and expressions they use in their written work, whether quoted directly or paraphrased. This applies to diagrams, statistical tables and the like, as well as to written material, and materials or information from Internet sources. To provide adequate documentation is not only an indication of academic honesty but also a courtesy which enables the reader to consult these sources with ease. Failure to do so constitutes plagiarism. It will also be considered plagiarism and/or cheating if a student submits a term paper written in whole or in part by someone other than him/herself, or copies the answer or answers of another student in any test, examination, or take-home assignment.

Plagiarism or any other form of cheating in examinations or term tests (e.g., crib notes) is subject to serious academic penalty (e.g. suspension or expulsion from the faculty or university). A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty.

EXAMINATIONS:

Personations

(University of Manitoba Undergraduate Calendar, Section 5.2.9)

A student who arranges for another individual to undertake or write any nature of examination for and on his/her behalf, as well as the individual who undertakes or writes the examination, will be subject to discipline under the university's Student Discipline Bylaw, which could lead to suspension or expulsion from the university. In addition, the Canadian Criminal Code treats the personation of a candidate at a competitive or qualifying examination held at a university as an offence punishable by summary conviction. Section 362 of the Code provides:

Personation at Examination

362. Everyone who falsely, with intent to gain advantage for him/herself or some other person, personates a candidate at a competitive or qualifying examination held under the authority of law or in connection with a university, college or school or who knowingly avails him/herself of the results of such personation is guilty of an offence punishable on summary conviction. 1953 - 54, c.51, s.347.

Both the personator and the individual who avails him/herself of the personation could be found guilty. Summary conviction could result in a fine being levied or up to two years of imprisonment.

FACULTY OF SCIENCE STATEMENT ON ACADEMIC DISHONESTY

The Faculty of Science and The University of Manitoba regard acts of academic dishonesty in quizzes, tests, examinations, laboratory reports or assignments as serious offences and may assess a variety of penalties depending on the nature of the offence.

Acts of academic dishonesty include, but are not limited to bringing unauthorized materials into a test or exam, copying from another individual, using answers provided by tutors, plagiarism, and examination personation.

Note: Written or electronic resources other than the UM Learn website are explicitly listed as unauthorized materials, and must not be present during tests or examinations.

Penalties that may apply, as provided for under the University of Manitoba's Student Discipline Bylaw, range from a grade of zero for the assignment or examination, failure in the course, to expulsion from the University. The Student Discipline Bylaw may be accessed at:

http://umanitoba.ca/admin/governance/governing_documents/students/868.htm

Suggested minimum penalties assessed by the Faculty of Science for acts of academic dishonesty are available on the Faculty of Science webpage:

http://umanitoba.ca/faculties/science/resources/Discipline__Penalties_Table_Jul09.pdf

All Faculty members (and their teaching assistants) have been instructed to be vigilant and report all incidents of academic dishonesty to the Head of the Department.

IMPORTANT NOTE FROM THE DEAN OF SCIENCE ON COURSE CREDIT

It is your responsibility to ensure that you are entitled to be registered in this course. This means that you have:

- the appropriate prerequisites, as noted in the calendar description, or have permission from the instructor to waive these prerequisites;
- not previously taken, or are concurrently registered in, this course and another that has been identified as "not to be held with" in the course description. For example, BIOL 1000 cannot be held for credit with BIOL 1020.

The registration system may have allowed you to register in this course, but it is your responsibility to check. If you are not entitled to be in this course, you will be withdrawn, or the course may not be used in your degree program. There will be no fee adjustment. This is not appealable. Please be sure to read the course description for this and every course in which you are registered