

PHYA11H3 Syllabus – Fall 2019

Physics I for the Life Sciences

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Office Hours: To be announced & by appointment

Required text: *Physics for Scientists and Engineers, 4th Edition by Knight.*

General course calendar description:

The course covers the main concepts of classical physics and its applications to macroscopic systems. The main themes are kinematics, dynamics, oscillations, and waves. It provides basic knowledge of these topics with emphasis on its applications in the life sciences.

Prerequisites:

Grade 12 Advanced Functions (MHF4U) and Grade 12 Calculus and Vectors (MCV4U)

Corequisite:

MATA29H3 or MATA30H3 or MATA31H3

Exclusions:

PHYA10H3, PHY131H, PHY135Y, PHY151H

Course organization:

3 hours of lecture & 3 hours of practical every week.

Course Evaluation:

Participation (clickers):	5%
Practicals:	10%
Formal lab reports:	10%
Online assignments:	10%
Test 1:	15%
Test 2:	15%
Final Exam:	35%

Lectures:

There will be two lectures each week in AA112:

Wednesdays 3 PM – 5 PM & Fridays 2 PM – 3 PM.

Lecture slides will be posted to Quercus.

Out of respect for other students in the class, please avoid distracting others, e.g., ensure phones are turned to silent, do not play games or videos, etc.

Tentative lecture schedule:

This schedule may change during the term.

Week & dates	Topic	Textbook chapter(s)
Week 1 (Sept. 02)	Course Intro & 1D Kinematics	Chapter 1 & 2
Week 2 (Sept. 09)	Kinematics in 2D	Chapter 3 & 4
Week 3 (Sept. 16)	Forces & Dynamics I	Chapter 5 & 6
Week 4 (Sept. 23)	Forces & Dynamics II	Chapter 7 & 8
Week 5 (Sept. 30)	Kinetic Energy & Work	Chapter 9
Week 6 (Oct. 07)	Potential Energy	Chapter 10
Oct. 14 – 18	Reading week (no classes)	
Week 7 (Oct. 21)	Momentum	Chapter 11
Week 8 (Oct. 28)	Rotation	Chapter 12
Week 9 (Nov. 04)	Fluids	Chapter 14
Week 10 (Nov. 11)	Oscillations	Chapter 15
Week 11 (Nov. 18)	Waves	Chapter 16
Week 12 (Nov. 25)	Superposition of waves	Chapter 17

Questions & Email Policy

Use the discussion board on Quercus to ask questions about the course. Often, you will not be the only student with this question – it may already have a discussion and answer posted. Other students may respond to new posts/questions on the discussion board quicker than TAs or I will. By posting questions there, you will help other students with the same question.

If there are questions that are not appropriate for this forum, send email to me using your official utoronto.ca email address – other addresses are likely to be filtered out automatically.

My email policy is to respond within two business days. You should consult your TA for their email policy; however, they are also balancing many obligations and should not be expected to reply to emails immediately. Please plan accordingly.

Please include PHYA11 in the email subject and provide your full name and student number in your message.

Course Components

Participation (5%)

Lecture participation will be graded through the use of iClickers. These devices can be purchased at the U of T Bookstore. To receive marks for the clicker participation during a lecture, you must participate in at least 75% of the questions. The total clicker participation grade for the course will omit up to two lecture absences throughout the term.

Clickers will be used starting from the lecture on September 18th. You must register your clicker before this lecture by using the iClicker registration link on the course Quercus webpage.

Please note that using another student's iClicker during class is an academic integrity offense. This is not a clever way to help absent friends' participation grade. It risks serious penalties for both students.

Practicals (10%)

Weekly practical sessions will involve a mix of problem solving and activities, performed in groups of 3 or 4 students. Practical work is collaborative; each group will receive one grade. Attendance is mandatory and you must attend your assigned practical session throughout the term.

You do not have to purchase a lab book for this course. They will be provided for you. These lab books should never leave the room. All work for the practicals will be done during the practical sessions – except for the formal lab reports.

There will be two formal lab reports, worth 5% of your grade each. These will be submitted by your lab group. Details on expectations will be discussed and posted to Quercus.

Absences forfeit the grade for that week. In addition, your overall practicals grade will be penalized by the cube of the number of absences. For example, two absences result in a penalty of $2^3 = 8\%$ (overall practical grade). If you are more than 20 minutes late, you will be counted as absent and incur the cube of absences penalty. You can receive credit for group work if you arrive before that work has begun at your TA's discretion.

Online Assignments (10%)

This course uses MasteringPhysics (MP). This online component of the textbook can be accessed through the course Quercus page. MP will involve graded assignments, but also offers support material to help your understanding of the material.

Tests (15% each)

Two tests will be scheduled during the term. They will cover content from the lectures, practicals, and assigned sections of the textbook. Both tests are cumulative and will consist of multiple choice and detailed calculation questions.

You will be permitted to bring a non-programmable calculator and a single 8.5" by 11" sheet of paper with hand-written notes on both sides (no photocopies) for the tests.

Exam (35%)

The exam will be scheduled during the exam period: **December 06 – 21**. It will be 3 hours long. The format will include multiple choice and detailed calculation questions. The exam will cover the lectures, practicals, and assigned sections of the textbook. The exam is cumulative – it will cover content from the entire course.

You will be permitted to bring a non-programmable calculator and a single 8.5" by 11" sheet of paper with hand-written notes on both sides (no photocopies) for the tests.

Absences

There are no make-up options for practicals, formal reports, or the tests. In the event of legitimate medical absences, please provide official documentation from UTSC Health Services or a medical professional to the instructor. This form can be accessed [here](#). If it affects the practical attendance, please provide this documentation to your TA.

If you have a legitimate medical absence from a practical, that week will not contribute to your overall practical grade. In the case of an appropriately documented absence from the first test, the weight of that test will be added to the second test. In the case of a documented absence from the second test, the weight will be transferred to the final exam.

Resources

In addition to the instructor, TA, and WileyPlus, the following resources are available:

Facilitated Study Group

FSGs are organized by the Centre for Teaching and Learning.

Information can be found here: <https://www.utsc.utoronto.ca/ctl/facilitated-study-groups-fsg>

“Facilitated Study Groups (FSGs) are weekly collaborative learning sessions for students who want to improve their understanding of challenging content in selected courses at UTSC.”

Physics Study Centre

The PSC offers (free) tutoring for first-year physics students in the SW503 student space.

Information and tutoring schedule: <https://www.myepsa.ca/tutoring/physics-centre/>

Writing Centre

The Writing Centre is a resource for all UTSC students. They offer support for any stage in the writing process and for all fields of study. You can make appointments or drop-in during designated hours for writing help.

Writing skills *are* important for science students! Formal lab reports will be a significant part of your science degree. There are high expectations for writing quality.

Website: <https://utsc.utoronto.ca/twc/>

UTSC Library

The library is a valuable resource, e.g., to consult physics books beyond your textbook, clarify how to properly cite references, or find reference material to improve the introduction to your formal lab report.

Website: <https://utsc.library.utoronto.ca>

Relevant U of T Policies

Academic Integrity

The University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences.

Details: <http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>

Potential offences in papers and assignments include using someone else's ideas or words without appropriate acknowledgement, submitting your own work in more than one course without the permission of the instructor, making up sources or facts, obtaining or providing unauthorized assistance on any assignment.

On tests and exams cheating includes using or possessing unauthorized aids, looking at someone else's answers during an exam or test, misrepresenting your identity, or falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

Recordings

Recording or photographing any aspect of a university course - lecture, tutorial, seminar, lab, etc. – without prior approval of all involved and with written approval from the instructor is not permitted. In the case of private use by students with disabilities, the instructor's consent will not be unreasonably withheld.

Accessibility

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the *AccessAbility* Services as soon as possible.

AccessAbility Services staff (located in Room SW302, Science Wing) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations 416-287-7560 or email ability@utsc.utoronto.ca. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.