

Physics 1301/1401A

Introductory Physics I

Course Information: Fall 2016

1. Course Description

An introductory calculus-based laboratory course in physics covering the foundational principles of kinematics, force and motion, energy, linear momentum, rotation, torque and angular momentum, gravitation, fluids.

0.5 course: 3 lecture hours per week, alternate weeks of 3 laboratory hours and 2 tutorial hours

Antirequisite(s): [Physics 1021](#), [1028A/B](#), 1301A/B/[1401A/B](#)*, [1501A/B](#), the former Physics 1020, 1024, 1026.

* Physics 1301A/B is an anti-requisite for Physics 1401A/B, and vice versa.

Prerequisite(s): Grade 12U Calculus and Vectors (MCV4U) or [Mathematics 0110A/B](#).

Note: The department recommends that students also take a concurrent course that includes Calculus. Physics 1301A/B, together with [Physics 1302A/B](#), is a suitable prerequisite for modules having an introductory physics requirement (including modules in the Faculty of Science, modules offered by the basic Medical Science departments, and professional schools having a physics requirement). Enrolment in the concurrent Physics 1401A/B, and the subsequent Physics 1402A/B, are restricted to students in the Faculty of Engineering.

Note: Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

2. Timetable

Physics **1301A/1401A** is divided into 3 lecture sections with details as shown below.

Physics 1301A Physics 1401A	Section 001 -	Section 007 Section 001	Section 008 Section 002
Lectures	Mon, Wed, Fri 1:30 pm–2:20 pm location WSC 55	Mon, Wed, Fri 9:30 am–10:20 am location NS 145	Mon, Wed, Fri 12:30 pm–13:20 pm location MC 110
Instructor:	Carol Jones	Andrea Soddu	Carol Jones (Course Coordinator)
e-mail:	cejones@uwo.ca , asoddu@uwo.ca introphys1@uwo.ca		
Office:	P&A 202	P&A 208	P&A 202
Webpage:	Selected online materials (lecture notes, tutorial material, access to interim grades, announcements, etc.) will be available from OWL http://owl.uwo.ca . Teaching assistant contact information, including office hour schedules, will be posted on OWL. Note that there are two different web-sites for this course. One will have all information for lectures and tutorials, the second will cover the lab component.		
Lab Director	Dr. Kanthi Kaluarachchi, Material Science Addition M 2203, e-mail kanthi@uwo.ca , phone 519-661-2111 extension 86446		

3. Course Materials

The following course materials can be purchased at the UWO Bookstore:

Textbook: *Essential University Physics, 3rd edition*, by Richard Wolfson (Pearson, 2016).
The textbook package for Physics 1301A/1401A contains an access code for Mastering Physics, the accompanying on-line learning resources.
ISBN: 9780321975973

MasteringPhysics.com, an online resource containing ebook and problems.
(The textbook package contains an access code for MasteringPhysics.com)

Lab Manual: *Physics Laboratory Manual 2016-2017 for Physics 1301/1401/1501/A*.
Be sure to buy the correct package, as it is not refundable. All three courses share the same manual.

Calculator: *Sharp EL-510RB Scientific Calculator*
This is the *only* calculator allowed in exams and tutorial quizzes.

NOTE: In addition, all online materials (lecture notes, tutorial material, access to interim grades, announcements, etc.) are available from the course OWL (Sakai) sites. To access this site, you will need to go to owl.uwo.ca and log on using your UWO username and password. One website will have all material for lectures and tutorials, and the other will cover the lab component of the course.

4. Course Content

The course content is outlined in the following tables. Note that this is a provisional list; the course outline and website will be updated as necessary (e.g., if sections are omitted).

Term 1		
Chapter	Sections	Topic
Appendix	A2	Short introduction to calculus: functions, derivatives, integrals
Appendix	A1	Short Introduction to vectors
1	all	Measurements and Units
2	all	Motion in 1D
3	all	Motion in 2D & 3D
4	all	Force & Motion I
5	all	Using Newton's Laws (Force & Motion II)
6	all	Work, Energy & Power
7	all	Conservation of Energy
8	all	Gravitation
9	all	Centre of Mass & Linear Momentum
10	all	Rotation
11	1-4	Torque & Angular Momentum
15	1-5	Fluids

5. Evaluation

Your final grade in this course will be derived according to:

MasteringPhysics.com (3 of out 5)	9%
In-tutorial assignments (2 out of 3)	6%
Midterm Exam I	30%
Laboratory	15%
Final Exam	40%

- There will be a **bonus** grade of 1% for students who register and complete the MasteringPhysics introduction quiz by the due date of **September 16, 2016**.

Grades will be posted regularly on the class OWL (Sakai) site. Any errors, or appeals to your scores, must be reported to your instructor in writing within **two weeks** of their initial posting.

Important: In order to pass Physics 1302B/1402B, a student must obtain 1) a passing mark in the laboratory component and 2) a mark of 50% or greater in the final examination. Students failing the lab component of the course and/or the final exam will be assigned a final course mark of no more than 40%. The Department of Physics and Astronomy may adjust the final course marks in order to conform to Departmental policy.

6. Laboratories

Dr. Kanthi Kaluarachchi (M 2203 in the Material Science Addition) is in charge of the laboratory. Direct *all* laboratory questions to her (e-mail kanthi@uwo.ca or telephone to 519-661-2111 extension 86446), *not to your instructor*.

Information on the laboratory component of the course is posted on the lab website:

<https://owl.uwo.ca/> (<https://owl.uwo.ca/PHYSICS 1301 003A FW16> and <https://owl.uwo.ca/PHYSICS 1401 003A FW16>)

Laboratory Orientation Lecture

A laboratory orientation lecture will be posted on the lab website by the first week of September. You must visit the website and familiarize yourself with the contents of this lecture *before attending your first lab*.

Laboratory Schedules

Each Physics 1301/1401A lab section may be divided into three laboratory subsections A, B, C and D, depending on the size of each lab section. The laboratory timetables for these lab sub-sections are posted at the above lab website.

Laboratory subsection assignments will be posted on the lab website by last name. You must find your correct **lab section**, **lab subsection** and the correct **laboratory timetable** before attending the first lab. Please attend the correct lab class on the correct date as we do not give permission to attend lab classes outside your laboratory schedule.

If you have difficulty following the timetable scheduled for your lab sub-section, please contact the laboratory coordinator, Dr. Kanthi Kaluarachchi.

If you have taken the course previously and want to know if you have to repeat the labs, contact Dr. Kaluarachchi as soon as possible.

*In order to **pass** the course, a student **must** obtain a passing grade in the laboratory.*

7. Tutorials and Quizzes

The tutorials in this course are designed to provide additional practice at solving problems based on the lecture material. Tutorials alternate with the labs (one week you will have a lab, the next you will have a tutorial) and meet for 2 hours. The first 1:15 h is normally spent working through problems relevant to the lecture material with the guidance of a tutorial leader. Your tutorial subsection will be posted as a “grade” in OWL – click on *My Grades*.

During 3 of 4 tutorials, you will do an “in-tutorial” homework assignment. Two out of three will count toward the in-tutorial assignment grade. As a result of this policy, no makeups will be provided for these tests

For the tutorial you will be divided into the same subsection as your lab subsections. *You must write the tutorial test in the subsection you are assigned.* Failure to write in your proper section will result in a grade of 0% for that tutorial test. You may receive help from the TA or your fellow students for the “in-tutorial” assignment, but you must write your own assignments (see Plagiarism).

Additional quizzes will be assigned on MasteringPhysics, an online tutorial and homework management system from Pearson, the textbook publisher. There will be 5 online quizzes and the best 3 will contribute to this portion of your grade.

To use MasteringPhysics, you must register online at <http://masteringphysics.com> using a) the code included with your textbook, b) the course code XXXXXXXXXXXX, and c) your student ID.

9. Examinations: Midterm and Final

Exam times will be posted on the course OWL site when available. Students needing to make travel arrangements are advised to book a travel date after the end of the examination period.

No extra written material, and no PDAs, advanced calculators, computers, cell phones, music players, devices capable of connecting to the internet, etc., are permitted during exams.

Exams will consist of a combination of multiple-choice questions designed to test conceptual understanding of topics covered in class and numerical problems (which may consist of multiple parts) that test problem-solving abilities.

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Calculators

The **only** calculator that may be brought into an exam is the Sharp EL-510RB calculator, which is available from the UWO Bookstore. The **only** exception is any Sharp model EL-5xx (where xx is typically 00 or 10R). If you are in doubt about your calculator, show it to us **before** the examination date.

Accommodations for Religious Holidays

When course scheduling unavoidably conflicts with religious holidays that a) require an absence from the University or b) prohibit or require certain activities (i.e., activities that would make it impossible for the student to satisfy the academic requirements scheduled on the day(s) involved), no student will be penalized for absence because of religious reasons, and alternative means will be sought for satisfying the academic requirements involved. If a suitable arrangement cannot be worked out between the student and instructor involved, they should consult the appropriate department chair and, if necessary, the student's Dean.

It is the responsibility of such students to inform themselves concerning the material covered in classes from which they are absent and to take appropriate action.

A student who, for either of the situations outlined in paragraph one above (a or b), is unable to write examinations and term tests on a Sabbath or Holy Day shall give notice of this fact in writing to his or her Dean as early as possible, but not later than November 15 for mid-year examinations and March 1 for final examinations, i.e., approximately two weeks after the posting of the mid-year and final examination

schedule, respectively. In the case of midterm tests, such notification is to be given in writing to the instructor within 48 hours of the announcement of the date of the midterm test. If a Special Examination is offered as an alternative means to satisfy the academic requirements, the instructor(s) in the case of midterm tests and the dean in the case of final examinations will arrange for special examination(s) to be written at another time. In the case of final examinations, the accommodation must occur no later than one month after the end of the examination period involved. It is mandatory that students seeking accommodations under this policy give notification before the deadlines in order for Faculty to accommodate these requests.

For purposes of these policies, the University has approved a list of dates that are recognized religious holidays that require members of those religions to be absent from the University; this list is updated annually and is available at Departmental, Deans' and Faculty advising offices.

10. Make-up Policy

- a) *Lab Marks.* Grading policies for the laboratory are given in the *Notes to Students* in your lab manual package. In general, no opportunity is given to make up missed labs.
- b) *Tutorial Quizzes.* We anticipate that 5 quizzes will be given over the course of the fall term. Your best 3 tutorial quizzes will count towards this portion of your grade. Note that this schedule allows you to miss approximately 2 tutorials due to illness without penalty. *If you miss more than 2 quizzes* and want to be excused, you must provide documentation for each absence to the Associate Dean, Faculty of Science, who will determine if relief is warranted. No make-up quizzes will be given.
- d) *Midterm Examinations.* The Department will provide one make-up test that may be written only with the permission of the Associate Dean, Faculty of Science.
- e) *Final Examination.* In accordance with Senate Policy, a Special Examination will be held within thirty days of the regular final examination for students who are unable to write the regular examination for medical or other documented reasons. Requests for such a Special Examination must be made to the Associate Dean, Faculty of Science.

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Dean's office as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a "Recommendation of Special Examination" form must be obtained from the Dean's Office immediately. For further information please see:

<http://westerncalendar.uwo.ca/2016/pg132.html>

A student requiring academic accommodation due to illness should use the Student Medical Certificate when visiting an off-campus medical facility or request a Record's Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found here:

http://www.uwo.ca/univsec/academic_policies/index.html

11. Class Website

All course information such as the most recent version of this document, lecture schedules, exam information, lecture notes, marks, etc. is available on the secure OWL (Sakai) site. To access this site, you will need to go to:

<http://owl.uwo.ca>

and log on using your UWO *username* and *password*. If you need information about setting up and using your account (or forwarding your mail from uwo.ca to other mail services), information can be found at the ITS website (<http://www.uwo.ca/its/>). Some aspects of these websites require Adobe Acrobat Reader (5.0 or higher), which is available for free.

12. Scholastic Offenses

Cheating

University policy states that cheating is a scholastic offence. The commission of a scholastic offence is attended by academic penalty, which may include expulsion from the program. If you are caught cheating, there will be no second warning. Cheating includes having available any electronic devices other than a watch and the Sharp calculator discussed previously above during a test or exam. You may not have a cell phone accessible during exams, even to use as a calculator or watch. Complete information on the University policy on academic offenses can be found at:

http://www.westerncalendar.uwo.ca/2016/print_pg113.html

Plagiarism

Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence (see Scholastic Offence Policy in the Western Academic Calendar).

13. Classroom Conduct

Disruptive behaviour will not be tolerated in class (or the course OWL chat room). Please respect the rights of your classmates to benefit from the lecture by limiting your conversations to those essential to the class. Students who persist in loud or rude behavior will be asked to leave.

14. Help

Students who are in emotional or mental distress should refer to Mental Health@Western <http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help.

15. Complaints and Suggestions

If you have a concern about something, please let us know. We rely on your feedback. Please contact initially the person most directly concerned; this will usually be your instructor. If that is not satisfactory, or if there is something more general bothering you, talk it over with the Physics & Astronomy Department Chair or the Associate Chair of Undergraduate Affairs (for contact information see <http://www.physics.uwo.ca>).

16. Contacting Us

The simplest way to contact us outside of lectures is via your UWO e-mail account. Please allow 2–3 working days for a response. *We will not **respond** to e-mails from addresses that do not end in "@uwo.ca".*

17. Accessibility Statement

Please contact the course instructor if you require material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111, extension 82147 for any specific question(s) regarding an accommodation.

All of physics is either impossible or trivial. It is impossible until you understand it, and then it becomes trivial.

Ernest Rutherford, 1871 to 1937