

Western University
London, Canada
Department of Physics and Astronomy

Physics 1401A – Physics for Engineering Students I

Fall 2023

INSTRUCTORS:

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Required Texts and Resources

- **Sears and Zemansky's University Physics**, 15th edition, H.D. Young, R.A. Freedman (Pearson). Available in e-text bundled with access to the Mastering Physics online platform. A print copy can be ordered from the publisher.
- Access to Mastering Physics from Pearson, where the assignments will be hosted; can be bought as a package with the e-version of the text.
- Lab Manual for Physics 1401A (Perusall).

Please note that the above listed resources can be purchased online through the Western Bookstore:

<https://bookstore.uwo.ca>

Antirequisite(s): Physics 1021, Physics 1101A/B, Physics 1201A/B, Physics 1501A/B, the former Physics 1028A/B, the former Physics 1301A/B.

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

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 if you are dropped from a course for failing to have the necessary prerequisites.

Course Syllabus

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.

Course Objectives

- Develop physics thinking skills and problem-solving approaches that are useful in other fields.
- Acquire an intuitive understanding of fundamental physics concepts with examples in linear and rotational motion, conservation of energy and momentum, and fluid mechanics.
- Build a foundation for success in Physics 1402 topics: waves, electricity and magnetism.
- Engage in critical analysis of a problem individually and through team effort, effectively communicating your approach to others through labs, group projects and in-class activities.

•Students are expected to use help resources available to them when problems arise. It is often better to tackle difficult material when problems with understanding occur. Putting off questions until exam time is an ill-advised study strategy. Students that work at a consistent pace throughout the term and make a consistent effort to understand material tend to achieve better results.

A list of suggested exercises will be provided; it is strongly recommended that you solve as many of them as possible.

Evaluation

Your final grade will be calculated as follows:

Midterm Exam	30 %
Final Exam	40 %
Homework Assignments	20 %
Lab Assignments	10 %

Midterm Exam

The Midterm Exam will take place [*], locations TBA.

Final Examination

The Final Examination will be cumulative. The date and time of the final exam will be announced by the Registrar's Office. Students seeking a make-up exam for any reason must secure approval from the appropriate Faculty Counseling Office.

Homework Assignments

There will be an assignment every other week administered through Mastering Physics. Details will be coming through the course Owl page.

Lab Assignments

The labs will take place during the scheduled lab hours. Details will be posted on OWL.

The Department of Physics and Astronomy may adjust the final course marks in order to conform to Departmental policy.

Please note that the course outline may be modified, including evaluation weights, in case the University will move the course online.

Academic Consideration for Student Absences

For work totaling 10% or more of the final course grade, you must provide valid medical or supporting documentation to the Academic Counselling Office of your Faculty of Registration as soon as possible. For further information, please consult the University's medical illness policy at

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration.pdf.

The Student Medical Certificate is available at

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf.

Absences from Final Examinations

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

Accommodation and Accessibility

Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

<https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>.

Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf.

Academic Policies

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy,

https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf,

the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at their official university address is attended to in a timely manner.

Use of Calculators: only scientific non-programmable calculators will be permitted for use during the midterm and final exams.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: <https://www.uwo.ca/sci/counselling/>.

Students who are in emotional/mental distress should refer to Mental Health@Western (<https://uwo.ca/health/>) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education at

http://academicsupport.uwo.ca/accessible_education/index.html

if you have any questions regarding accommodations.

Learning-skills counsellors at the Student Development Centre (<https://learning.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: <https://www.uwo.ca/se/digital/>.

Additional student-run support services are offered by the USC, <https://westernusc.ca/services/>.