

## Course Outline

# Physics 1401a: “Physics for Engineering Students I”

## Fall 2024

### 1. Course Information

Physics 1401a (Fall 2024)

#### List of Prerequisites:

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’s Designate (Department/Program Counsellors and Science Academic Advisors) 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.

### 2. Instructor Information

Instructors	Email	Office	Phone	Office Hours
Prof. Bogdan Tudose	btudose@uwo.ca		x88777	By appointment
Prof. Blaine Chronik	bchronik@uwo.ca		x86455	By appointment

Students must use their Western ([@uwo.ca](mailto:@uwo.ca)) email addresses when contacting their instructors.

### 3. Course Syllabus, Schedule, Delivery Mode

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.

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

Note: Registration is restricted to students in the Faculty of Engineering.

### **Learning 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 and in-class activities.

In person lectures, tutorials, and labs are the primary delivery mode for the course content. The OWL site will host course materials.

### **Relevant Key Sessional Dates:**

Classes begin:	September 5, 2024
Fall Reading Week:	October 12 – 20
Last day of classes:	December 6, 2024
Exam period:	December 9 – 22, 2024

## **4. Course Materials**

### **Textbook:**

Sears and Zemansky's University Physics, 15<sup>th</sup> edition, H.D. Young, R.A. Freedman (Pearson). Available in e-text bundled with access to Mastering Physics online platform. A print copy can be ordered from the publisher if desired.

### **On-line Material:**

Mastering Physics, from Pearson. Assignments will be accessed and completed via this platform. Mastering Physics may be purchased as a package with the electronic version of the text.

### **Lab Manual:**

Lab manual for Physics 1401A, available via Perusall.

### **OWL:**

All course material will be posted to OWL: <https://westernu.brightspace.com/>

Students are responsible for checking the course OWL site (<https://westernu.brightspace.com/>) regularly for news and updates. This is the primary method by which information will be disseminated to all students in the class.

If students need assistance with the course OWL site, they can seek support on the [OWL Brightspace Help](#) page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

### **Technical Requirements**

There are no particular technical requirements for this course beyond access to a computer to enable access to the OWL site, Mastering Physics, and Perusall.

## 5. Methods of Evaluation

### Grading Scheme

The overall course grade will be calculated as listed below:

Assignments (4)	20%
Laboratories (4)	10%
Midterm Exam	30%
Final Exam	40%

Please note: The Department of Physics and Astronomy may, in exceptional cases, adjust the final course marks in order to conform to Departmental policy.

### Assignments:

There will be online assignments on alternating weeks administered through Mastering Physics. There will be 5 online assignments in total, and the best 4 out of the 5 will be used for the course grade. A complete weekly schedule is available on the OWL site.

### Laboratories:

Labs will take place during the scheduled lab hours. The detailed lab schedule will be posted on OWL. A minimum overall grade of 75% in the lab portion of the course is required in order to pass the course. If a student receives an overall laboratory grade of less than 75%, they will be assigned a maximum grade of 45% for the course.

### Midterm Exam:

### Final Exam:

Date: TBA (final exam schedule will be posted by the Registrar's Office when available)  
The final examination will be cumulative.

### General information about missed coursework

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs* posted on the Academic Calendar:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/academic\\_consideration\\_Sep24.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf),

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult [Accessible Education](#).

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage:

[https://registrar.uwo.ca/academics/academic\\_considerations/](https://registrar.uwo.ca/academics/academic_considerations/)

All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline. All Academic Consideration requests for this course must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request

**without supporting documentation** in this course. However, the following assessments are excluded from this, and therefore always require formal supporting documentation:

- Examinations scheduled during official examination periods (Defined by policy)
- Practical laboratory and performance tests (Defined by policy)

Midterm (Designated by the instructor as the one assessment that always requires documentation when requesting Academic Consideration).

When a student *mistakenly* submits their one allowed Academic Consideration request **without supporting documentation** for the assessments listed above or those in the **Coursework with Assessment Flexibility** section below, the request cannot be recalled and reapplied. This privilege is forfeited.

### **Evaluation Scheme for Missed Assessments**

Students who miss the midterm without receiving academic consideration will be assigned a grade of zero for the midterm.

Students who miss the midterm and have received academic consideration will be required to write the make-up midterm. If the make-up midterm is missed and the student has received academic consideration, the weight of the midterm exam will be transferred to the final exam. If the make-up midterm is missed and the student does not receive academic consideration, they will be assigned a grade of zero for the midterm.

Students who miss more than one of the 4 scheduled laboratory assessments without receiving academic consideration will be assigned a maximum grade of 45% for the course.

When a student misses the Final Exam and their Academic Consideration has been granted, they will be allowed to write the Special Examination (the name given by the University to a makeup Final Exam). See the Academic Calendar for details (under [Special Examinations](#)), especially for those who miss multiple final exams within one examination period.

### **Coursework with Assessment Flexibility**

By policy, instructors may deny Academic Consideration requests for the following assessments with built-in flexibility:

#### **Flexible Completion**

**Assignments.** This course has 5 online assignments, and the 4 assignments with the highest marks are counted towards your final grade. Should extenuating circumstances arise, students do not need to request Academic Consideration for the first missed assignment. Academic consideration requests will be denied for the first missed assignment. Academic Consideration requests may be granted when students miss more than 1 assignment, and these additional (2<sup>nd</sup>, 3<sup>rd</sup>...) missed assignments will be reweighted to the final exam.

#### **Deadline with a No-Late-Penalty Period**

**Assignments.** Students are expected to submit each of the assignments by the deadline listed. Should extenuating circumstances arise, students do not need to request Academic Consideration and they are permitted to submit their assignment up to 48 hours past the deadline without a late penalty. Should students submit their assessment beyond 48 past the deadline, that assignment will be graded a zero. Academic Consideration requests may be granted only for extenuating circumstances that started before the deadline and lasted longer than the No-Late-Penalty Period (48 hours).

## 6. Additional Statements

### Religious Accommodation

When conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early as possible but not later than two weeks prior to the writing or the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays:

<https://www.edi.uwo.ca>.

### 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](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf).

### Academic Policies

The website for Registrar Services is <https://www.registrar.uwo.ca/>.

In accordance with policy,

[https://www.uwo.ca/univsec/pdf/policies\\_procedures/section1/mapp113.pdf](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.

### Electronic Devices

Cell phones are not permitted during the midterm and final exams. Simple scientific calculators (with no internet connectivity and no graphing capability) are permitted during exams. In the event that a student's calculator is considered by the instructor to be unsuitable, a replacement calculator will be provided for the exam in question.

**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:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_undergrad.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf).

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

### Support Services

Please visit the Science & Basic Medical Sciences Academic Advising 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](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](mailto: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](http://academicsupport.uwo.ca/accessible_education/index.html)

if you have any questions regarding accommodations.

Learning-skills counsellors at Learning Development and Success (<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/>.

This course is supported by the Science Student Donation Fund. If you are a student registered in the Faculty of Science or Schulich School of Medicine and Dentistry, you pay the Science Student Donation Fee. This fee contributes to the Science Student Donation Fund, which is administered by the Science Students' Council (SSC). One or more grants from the Fund have allowed for the purchase of equipment integral to teaching this course. You may opt out of the Fee by the end of September of each academic year by completing the online form linked from the Faculty of Science's Academic Advising site. For further information on the process of awarding grants from the Fund or how these grants have benefitted undergraduate education in this course, consult the Chair of the Department or email the Science Students' Council at [ssc@uwo.ca](mailto:ssc@uwo.ca).