

Physics 1102B - Introduction to Physics II

Winter 2024, v. 01/07/2024

Lectures:

Labs:

All the lab rooms are in the Materials Science Addition Second floor
(see Appendix I for details)

Prerequisites: One of Physics 1101A/B, Physics 1201A/B, Physics 1401A/B, Physics 1501A/B, the former Physics 1028A/B, or Physics 1301A/B.

Antirequisite(s): Physics 1202A/B, Physics 1402A/B, Physics 1502A/B, the former Physics 1029A/B, the former Physics 1302A/B.

Instructor: Professor Lyudmila Goncharova

Office hours: by appointment lgonchar@uwo.ca;

Course website: OWL site for this course: <https://owl.uwo.ca/portal>

Required Textbooks and Resources:

1. College Physics, by Hugh D. Young, Philip W. Adams and Raymond Joseph Chastain
2. Mastering Physics with Pearson eText - ISBN 9780135180334 (See Pearson link on OWL)
3. Lab manuals (currently hosted on Perusall, see link on OWL)

Other support material will be uploaded to the course website.

Course Syllabus

Description An introductory algebra-based course in physics covering the foundation principles of oscillations and waves, fluids, electricity, and magnetism. Fundamental physics concepts are introduced with examples from biological applications.

Expectations By the end of the course, students should be able to understand the concepts and be able to solve problems related to the topics covered in the course: fluid mechanics, electrostatics, circuits, magnetism, oscillations and waves.

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.

Evaluation

Your final grade will be calculated as follows:

Three tests	27 %
Laboratory reports	10%
Homework Assignments	24 %

Final exam

39 %

Three in-class tests: There will be three one-hour long tests (9% each)

Formular sheets and a non-programmable pocket calculator are permitted during the exams but NO cell phones, or any other electronic devices are allowed.

Laboratory reports

This course is listed as a lab-component course, and in order to pass the course, *a student **must** obtain a passing grade (i.e., at least 50%) for the laboratory component.*

- Students are required to complete **all 4 labs**, and the final lab mark will be the average of the 4 marks. An incomplete or failed lab will be recorded as a zero and included in your lab average score. One lab may be missed with appropriate documentation (see Academic Considerations and Academic Policies below), and then the final lab mark will be the average of the 3 marks.
- **Pre-lab quiz on OWL:** for each lab, read the manual and complete the corresponding pre-lab quiz on OWL *before* proceeding to the lab session. You need a quiz score of $\geq 75\%$ but have unlimited attempts. Failure to meet this requirement will lead to zero on the lab, irrespective of the mark you receive for your submitted lab worksheets.
- **Lab worksheets:** The lab worksheets should be completed and scanned (or photographed) for submission via the Gradescope link on OWL. Worksheets should be submitted before the end of your lab session; if necessary, you have until the end of the following Sunday as indicated on GradeScope, but late submissions beyond Sunday will NOT be accepted. The labs are pass/fail; a portion of each lab will be selected for grading, and a grade of $\geq 5/10$ is needed to pass along with $\geq 75\%$ on the corresponding pre-lab quiz.

Homework Assignment There will be four homework assignments (HWA) according to the schedule in Appendix II (page 6) administered through MasteringPhysics. Details will be provided through the course OWL page. I will count only the best three assignment grades out of four.

Final exam (3 hours) 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.

Student Absences

If you are unable to meet a course requirement due to illness or other serious circumstances, please follow the procedures below.

Assessments worth less than 10% of the overall course grade:

If you miss one of the in-class tests, you can submit it in Assignment mode on OWL electronically.
Max: 7.0% per test, by Friday, 11:55pm.

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).

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 other electronic devices than a watch and a calculator during a test or exam. You may not have a cell phone accessible, even to use it as a calculator or watch. Complete information on the University policy on academic offenses can be found at

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

Plagiarism

Students must write their lab reports, tests and final exam 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).

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

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

Support Services

The simplest way to contact us outside of lectures is via your UWO e-mail account. Please allow 3–5 working days for a response. We will not **read or respond** to emails from addresses that do not end in “@uwo.ca” and they may be treated by the Western University servers as spam.

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.

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

This course is supported by the **Science Student Donation Fund**. If you are a BSc or BMSc 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 Counselling 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.

Decolonization Statement

Western sits on the traditional territories of the Anishinaabek, Haudenosaunee, Lūnaapéewak and Chonnocton Peoples. The legacy of colonization and colonialism is felt globally and is imprinted in our educational system. Western is taking some initial steps toward recognizing it. Textbooks can be biased toward a particular cultural narrative. Physics textbooks are no exception. I will take an effort to include some additional context to address this issue.

Appendix I

Lab schedule (Mon 2:30-5:30pm MSA*2220, 2230, 2240 and 2250)

Currently your lab section is scheduled for experiments on

January 29,

February 12,

March 4

March 18.

These days may be subject to a change due to changes in the overall first year physics laboratory **schedule**.

*MSA: Material Science Addition

Appendix II Tentative course schedule

Jan. 8-12	Introduction; Chapter 13 (Fluid Mechanics)	
Jan. 15-19	M: 13.4; W: 13.5-13.7. <i>Homework Assignment (HWA) 1 opens Fri. Jan. 19 at 11:55am, due Monday Jan 22 at 11:55pm</i>	
Jan. 22-26	Chapter 17 (Electric Charge and Field); Chapter 18 (Potential and Capacitance)	
Jan. 29-Feb. 2	Chapter 19 (I, R and DC circuits)	Test I (Fri)
Feb. 5-9	Chapter 19 (I, R and DC circuits)	
	<i>HWA2 opens Fri. Feb. 9 at 11:55am, due Monday Feb 12 at 11:55pm</i>	
Feb. 12-16	Chapter 20 (magnetic field and magnetic forces), Chapter 21 (Induction)	
Feb. 19-23	Spring reading week	
Feb. 26-Mar. 1	Chapter 21 (Induction, R-L, L-C circuits)	Test II (Fri)
Mar. 4-8	Chapter 11 (Elasticity and periodic motion)	
	<i>HWA3 opens Fri. Mar. 8 at 11:55am, due Monday Mar 11 at 11:55pm</i>	
Mar. 11-15	Chapter 12 (Waves)	
Mar. 18-22	Chapter 22 (AC circuits)	Test III (Fri)
Mar. 25-27 (March 29, Good Friday, no classes)		
	<i>HWA4 opens Thur. Mar. 28 at 11:55am, due Tues April 2 at 11:55pm</i>	
April 1-5	Chapter 23 (Electromagnetic waves)	
April 8	Last day of classes, Review session before the Final exam	