

Physics 1201 – Introduction to Physics I Course Outline

1. Course Information

Course Information

Physics 1201 – Physics for the Sciences I (3 lecture hours, 3 laboratory hours): An introductory laboratory-based course in physics covering the foundational principles of kinematics, force and motion, energy, linear momentum, rotational motion, torque, equilibrium, angular momentum, geometric optics and optical instruments. Fundamental physics concepts are introduced with examples in physical, biological, and medical processes to develop students' problem-solving skills.

Note: This course, together with Physics 1202A/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 requiring a calculus-based laboratory course in physics).

Pre- or Co-requisites

12U Calculus and Vectors (MCV4U) or Mathematics 0110A/B.

Anti-requisites

Physics 1101A/B, Physics 1401A/B, Physics 1501A/B, the former Physics 1028A/B, or the former Physics 1301A/B.

Unless you have either the requisites for this course or written special permission from your Dean's Designate 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.

Lectures: 3 in person lecture hours per week

Note: You must attend the section you are registered in as Section 001 is Full and the classroom cannot hold more students than that.

Labs: 3 in person hours every two weeks.

2. Instructional Team

Instructors

Eugene Wong, PhD, FCCPM
Professor, Department of Physics and
Astronomy
Office Hours: see course OWL site
Email: phys1201@uwo.ca

Dr. Najeh Zarir
Professor, Department of Physics and
Astronomy
Office Hours: see course OWL site
Email: phys1201@uwo.ca

Contact Info	<ol style="list-style-type: none"> 1. Post technical, administrative or physics questions on the relevant forums on the course OWL site. 2. For confidential issues that can't be posted to the OWL forums, use JIRA ticket: https://help.sci.uwo.ca/serviceesk/customer/portal/8. 3. For other issues, please send email to phys1201@uwo.ca. Note: We will <i>not</i> respond to emails sent to our Western personal email addresses or emails from addresses other than your UWO email account (@uwo.ca).
Lab Instructor	Dr. Shailesh Nene, Department of Physics and Astronomy Material Science Addition (MSA), MSA-2203
Lab Contact	https://help.sci.uwo.ca/serviceesk/customer/portal/8
Teaching Assistants	In person and online Help Centres will be available to assist you with your homework assignments and preparation for quizzes and exams. Details will be announced on the course OWL site.

3. Course Syllabus, Schedule, Delivery Mode

The Online Western Learning (OWL) system at <http://owl.uwo.ca> will be the home base and launching platform for all learning components. Students are responsible for checking the course OWL site on a regular basis. This is the primary method by which information will be disseminated to all students in the class outside of in-person lectures. Log in using your UWO username and password, then find the PHYSICS 1201A 001 FW21 OWL site. Key buttons or tabs to explore:

- **Getting Started:** This starting point will provide an introduction to the course and some of the platforms being used.
- **Announcements:** important notices and reminders will be posted here. You can set your Preferences (menu beside your name in top banner) to send an email daily or for each posting.
- **Forums:** for getting help on Administrative and Technical issues and to post your physics-related questions.
- **Perusall:** Perusall is your e-book platform where you read and collectively discuss (asking and answering questions) regarding the course material with your peers via annotation assignments.
- **Mastering Physics:** Mastering Physics in the online platform for doing end of chapter assignments as well as quizzes.
- **Lab Schedule:** You have signed up for an in-person lab section. However, for each lab section, there are 4 subsections labelled A-D. In this Lab Schedule tab, you will find a) the subsection you belong to, and b) determine the week for your in-person lab. Lab Manuals, worksheets and other lab instructions will be hosted on Perusall (see above).
- **Gradebook:** Grades for all course evaluation components will be posted here. Grades from external sites (Mastering Physics, Gradescope, Perusall) will be imported about 2-3 times during the term.

Laboratories: 3 hour labs approximately every two weeks integrated with tutorials.

- There are a total of 4 labs during the Fall term. The first lab (measurements & uncertainties) will be an online lab and will be evaluated as a quiz on OWL.
- Direct all lab-related questions via <https://help.sci.uwo.ca/serviceesk/customer/portal/8>.

- Labs are located [*]. For more information about the labs, see also https://physics.uwo.ca/undergraduate/current_students/first_year_laboratory.html.
- Each lab section is further divided into subsections (A, B, C and D). On the OWL “Lab Schedule”, you will find your lab schedule and section assignments. You must attend your assigned subsection room.
- The complete lab manual and the lab worksheets are available for reading and downloading respectively from the **Perusall** platform.
- **Lab worksheets:** download the lab worksheet for each lab from Perusall. These can be completed electronically, or alternatively printed, completed, and scanned (or photographed), for submission via the Gradescope link on OWL.
- **Pre-lab quizzes:** for each in-person experiment lab, read the manual and complete the corresponding pre-lab quiz *before* proceeding to the lab session. The link to the pre-lab quiz is from the Perusall site. You need a quiz score of $\geq 75\%$ but have unlimited attempts. Failure to meet this requirement will lead to zero on the particular lab, irrespective of your mark you receive for the lab worksheet.
- The first **Measurements & Uncertainties Lab (Lab 01)** is an exception – after reading the lab and working through the exercises, complete the online quiz; no worksheets need to be submitted. You need a quiz score of $\geq 75\%$ to pass. You have **3** attempts for completing the quiz with no time limit.

Contingency plan

Although the intent is for this course to be delivered in person, should any university-declared emergency require some or all of the course to be delivered online, either synchronously or asynchronously, the course will adapt accordingly. The grading scheme will **not** change. Any assessments affected will be conducted online as determined by the course instructor.

Table of topics covered with approximate timeline:

	Day 1 Introduction	September 8, 2023
Kinematics	Motion along a straight line	Weeks 1-2
	Motion in a plane	
Dynamics	Newton's Laws of Motion	Weeks 3-4
	Application of Newton's Laws	
Energy	Work and Conservation of Energy	Week 5
Momentum	Conservation of Momentum	Weeks 6-7
Rotational motion	Rotational Motion: Conservation of Energy and Angular Momentum; Equilibrium	Weeks 8-10
Optics	Geometric Optics	Week 10-12
	Optical Instruments	

4. Course Materials

Textbook: The course textbook is hosted on **Perusall** with assigned reading/comment posts. It is a selection of chapters from two Pearson Physics textbooks by Young & Adams and Young & Freedman.

Clickers: iClicker will be used for classroom response system. *To receive grades, you must use your Western email address to sign up for an account.* There will be at least one in class Clicker session per week.

Students are responsible for checking the course OWL site (<http://owl.uwo.ca>) on a regular basis for **Announcements**. This is the primary method by which information will be disseminated to all students in the class.

All course material will be posted to OWL: <http://owl.uwo.ca>. If students need assistance with the course OWL site, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

5. Methods of Evaluation

The overall course grade will be calculated as listed below:

Assignments (online)	6%	Best 4 out of 6 end of chapter problem assignments on Mastering Physics
	6%	Best 4 out of 6 textbook reading & discussion post assignments on Perusall
	5%	2 Group Projects (with lab partners)
Quizzes (online)	6%	2 total on Mastering Physics (one before and one after the midterm, no makeup quizzes)
Labs (in person)	10%	4 total; see below for more details
iClicker	2%	A minimum of 4 classroom clicker participation required (count participation, not correctness)
Midterm Test (in person)	25%	[*] (closed book)
Final Exam (in person)	40%	To be scheduled (closed book)

Below is a list of topics covered on each quiz, exam, and assignment along with their due dates.

	Date	Topics
Quiz #1	Timed. Available online Oct 13-15.	Assignments 1 and 2
Midterm	[*]	Kinematics, Dynamics and Energy
Quiz #2	Timed. Available online Dec 1-3.	Assignments 4 and 5
Final Exam	TBD	Cumulative
Assign 1	Sept 26 (Mastering Phys & Perusall)	1D and 2D Kinematics
Assign 2	Oct 10 (Mastering Phys & Perusall)	Newton's Laws
Assign 3	Oct 17 (Mastering Phys & Perusall)	Energy
Assign 4	Nov 7 (Mastering Phys & Perusall)	Momentum
Assign 5	Nov 28 (Mastering Phys & Perusall)	Rotational Motion
Assign 6	Dec 8 (Mastering Phys & Perusall)	Optics

Note: The Department of Physics and Astronomy may, in exceptional cases, adjust the final course marks in order to conform to Departmental policy. Students with grades ending in 9 (ie. 49, 59, 69, 79, 89, 99) will keep this mark and not receive a free mark as that will be unfair to the rest of the class.

6. 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:

Mastering Physics and Perusall Assignments: We take the best 4 assignment grades out of 6. Therefore, there is no penalty if you completely missed two assignments. You will receive part marks for partially completed assignments. Start the assignments well ahead of the deadlines – they are assigned at least two weeks before they are due. Deadlines will not be extended. If you missed an entire assignment by the due date, we still encourage you to complete the assignment without receiving grades because it will affect your preparation for the midterm and final exams. If you missed three or more assignments, which spans over half of the course, you should consider reviewing the bigger picture.

Quizzes: There are 2 timed online quizzes available over 3 days. We do not have makeup quizzes. With a valid reason, we can accommodate the student by shifting the weight of the quiz grade to the midterm or the final exam.

Group Assignments: There are two group assignments (online) with your lab partners. There is no makeup possible for the group assignment. You will receive a grade of zero for the assignment if you do not communicate with your lab partners within 72 hours of the launch of the group assignment. If you a) demonstrated that you have communicated to your lab partners that you will not be able to participate within the 72 hour timeline, and b) have a valid reason for missing the group assignment, the weight of your assignment grade will be shifted to your other group assignment.

Labs: Please refer to “lab information” document.

Assessments worth 10% or more of the overall course grade:

For work totalling 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.

Midterm: With the above academic counselling approval, you may take the makeup midterm on [*] if you missed the midterm on [*]. If you missed both the midterm and the makeup and with academic counselling approval, then your midterm grade weight will be shifted to the final exam.

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).

Note: missed work can *only* be excused through one of the mechanisms above. Being asked not to attend an in-person course requirement due to potential COVID-19 symptoms is **not** sufficient on its own.

6. 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.

7. 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.

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.

Calculator: For midterm and final exams, a non-programmable scientific calculator such as Sharp EL-510Rtb from the bookstore is permitted.

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.

Classroom response system (iClicker) will be used during the lectures. Your Western user ID and your responses are collected by the system. This is for tracking the number of sessions you have participated for grading purposes. You may not use some other Western user ID for this purpose.

In the event of health lock-down, we will switch from in-person exams to online exams. Tests and examinations will then be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical

requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at:

<https://remoteproctoring.uwo.ca>.

8. 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 course email phys1201@uwo.ca 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.

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 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.