

Physics 1201 – Physics for the Sciences 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.

Labs: 3 in person hours every two weeks.

2. Instructor Information

Instructor

Dr. Shantanu Basu

Professor, Department of Physics and Astronomy

Office Hours: see course OWL site

Email: phys1201@uwo.ca

Lab Instructor

Dr. Shailesh Nene, Department of Physics and Astronomy

Contact using **JIRA ticket** at <https://help.sci.uwo.ca/servicedesk/customer/portal/8>

Course Administrator

Dr. Isabelle Cyr, Department of Physics and Astronomy

Teaching Assistants

In person and online Help Centres will be available, and TAs will be there to assist you with your homework assignments and preparation for exams. Details will be announced on the course OWL site.

Contact Information

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 a **JIRA ticket**: <https://help.sci.uwo.ca/servicedesk/customer/portal/8> .
3. To contact lab instructor, use **JIRA ticket**: <https://help.sci.uwo.ca/servicedesk/customer/portal/8>
4. For any issues **not** covered by the above, please send email to **phys1201@uwo.ca**.
Note: We will **not** respond to emails sent to our Western personal email addresses or emails from addresses other than your UWO email account(**@uwo.ca**).

3. Course Syllabus, Schedule, Delivery Mode

The course description is listed earlier in Section 1 of this Course Outline.

Course learning Objectives

- Develop physics thinking skills and problem-solving approaches that are useful in other fields and in everyday situations. Learn calculus-based techniques in some approaches
- Acquire an intuitive understanding of fundamental physics concepts
- Engage in critical analysis of a problem individually and through team effort, effectively communicating your approach to others, through laboratory projects or other activities

Lecture Schedule

See Section 4 for the textbook name and details.

Dates	Chapter(s)	Content
Sep 6	Introduction/Chapter 0	Math/Calculus review
Sep 9-13	Chapter 1/2	Measurements & Vectors, Kinematics
Sep 16-20	Chapter 3	Kinematics/Dynamics
Sep 23-27	Chapter 4	Newton's Laws and Applications
Sep 30*-Oct 4	Chapter 5	Applications of Newton's Laws
Oct 7-11	Chapter 6	Circular Motion and Gravitation
Oct 14-18	Reading Week	
Oct 21-25	Midterm review	Midterm Test Oct 26
Oct 28-Nov 1	Chapter 7	Work and Energy
Nov 4-8	Chapter 8	Momentum
Nov 11-15	Chapter 9	Rotational Motion
Nov 18-22	Chapter 10	Dynamics of Rotational Motion
Nov 25-29	Chapter 23/24	Light/Optics
Dec 2-6	Chapter 24 and review	Optics

*Sep 30 is National Day for Truth and Reconciliation (no classes)

Assignment Schedule

Due Date	Name	Content
Sep 16	Assignment 1	Chapter 1
Sep 23	Assignment 2	Chapter 2/3
Oct 7	Assignment 3	Chapter 4/5
Oct 21	Assignment 4	Chapter 6
Nov 11	Assignment 5	Chapter 7/8
Nov 25	Assignment 6	Chapter 9/10
Dec 6	Assignment 7	Chapter 23/24

Dynamic Study Modules

Due Date	Name	Content
Sep 11	DSM 1	Chapter 0/1
Sep 18	DSM 2	Chapter 2/3
Oct 2	DSM 3	Chapter 4/5
Oct 16	DSM 4	Chapter 6
Nov 6	DSM 5	Chapter 7/8
Nov 20	DSM 6	Chapter 9/10
Dec 4	DSM 7	Chapter 23/24

Lab Schedule

You have signed up for an in-person lab section. However, for each lab section, there are four subsections labeled A-D. You can find your subsection and the weeks for your in-person lab through the course site on the Online Western learning (OWL) Brightspace site described in Section 4. Lab Manuals, worksheets, and other lab instructions will be hosted on the e-book platform **Perusall**. Instructions on obtaining the lab e-book are in Section 4.

Key Sessional Dates

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

4. Course Materials

Required Text and Resources

- **Sears and Zemansky's College Physics**, 11th edition, H. D. Young. P. W. Adams (Pearson). Available in e-text bundled with access to the Mastering Physics online platform. (A print copy is an optional purchase and can be ordered from the publisher.) The assignments and dynamic study modules will be hosted on **Mastering Physics** from Pearson.
- **Lab Manual for Physics 1201A**.

The above resources in bold can be purchased online through the Western Bookstore. [Here is a link to a Western Bookstore site with all materials for this course.](#) This includes the textbook and the Perusall lab manual.

You should purchase the one-semester access to the College Physics ebook if you are planning to take only P1201 and purchase the two-semester access (to College Physics and University Physics) if you are planning to take both P1201 and P1202 this year.

If you would like a print copy of the textbook, it is an optional purchase and can be ordered from the publisher.

You can also access your personal textbook list for all your courses by logging into your Student Services account.

All course material will be posted to OWL: <https://westernu.brightspace.com/>. This includes lecture slides plus supplementary material.

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.

5. Methods of Evaluation

Grading Scheme and Assessment Dates

The overall course grade will be calculated as listed below:

Assignments (5 out of 7)	20%
Dynamic Study Modules	5%
Laboratories	10%
Midterm Test	30%
Final Exam	35%

General information about missed coursework

If you will miss a course-related component (e.g., laboratory/tutorial, performance, presentation) or a course-related assessment (e.g., term test, quiz, examination) due to extenuating circumstances, you may be eligible to request an Academic Consideration. Academic Consideration may take the form of completing the missed component at a later date or reweighting of the assessment, for example. See further below for specific cases pertaining to this course.

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,

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/

All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

All Academic Consideration requests 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:

- Midterm Test (Designated by the instructor as the one assessment that always requires documentation when requesting Academic Consideration)
- Final Exam scheduled during the official examination period (Defined by policy)

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

If you are unable to meet a course requirement due to illness or other unusual circumstances, please note the instructions below.

Midterm

With academic counseling approval, you may take the makeup midterm on Oct 31 if you missed the midterm on Oct 26. If you missed both the midterm and the makeup with academic counseling approval, then your midterm grade weight will be shifted to the final exam.

Final Exam

If you miss the Final Exam and the Academic Counselling office of your Faculty of Registration has ruled you are eligible, you may take the Special Exam (the name given by the University for 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 a 24-hour period or more than 3 exams in a 47-hour period).

Labs

Please refer to the “lab information” document. Deadlines for each component are listed in that document. There is no flexibility in the deadlines. If you miss a lab with academic counseling approval,

Coursework with Assessment Flexibility

The following two categories have some built in flexibility.

Assignments. The course has 7 assignments and the 5 assignments with the highest marks are counted toward your final grade. Students are expected to submit each of the 7 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 72 hours past the deadline without a late penalty. Assignments will not be accepted beyond 72 hours past the deadline. Academic Consideration requests may be granted only for extenuating circumstances that started before the deadline and lasted longer than the No-Late-Penalty Period (72 hours). Should extenuating circumstances arise that last beyond the No-Late-Penalty-Period, students do not need to request Academic Consideration for the first 2 missed assignments. Academic Consideration requests will be denied for the first 2 missed assignments. Academic Consideration requests may be granted when students miss more than 2 assignments, and these additional (3rd, 4th...) missed assignments will be reweighted to the final exam.

Dynamic Study Modules. Students are expected to complete each of the modules by the deadline listed. This will allow you to keep pace with learning goals for the course and properly prepare for upcoming weeks of lecture as well as the midterm test and final exams. In the textbook, each chapter assumes knowledge of material in previous chapters, so it is important to keep learning as we move along in the course. However, the modules can be completed anytime till the final day of classes (Dec 6). Due to the built-in flexibility, no Academic Consideration will be granted for the Dynamic Study Modules.

6. Additional Statements

Calculator

For the midterm test and final exam, a non-programmable scientific calculator such as the Sharp EL-510Rtb, available at the bookstore, is permitted. Programmable scientific calculators are not permitted.

Department Policy

Course marks may, in some cases, be adjusted to conform to the meaning of course marks described in the Western Academic Calendar, and to conform to Department policy. Final grades will be rounded to the nearest integer, and you cannot expect that grades ending in 9 (e.g., 69) will be increased by 1 mark.

Equity, Diversity, and Inclusion

The principles of EDI are very meaningful to me, and I will try to foster an atmosphere of respect and inclusion, where all voices can be heard. All class members should treat others with professional respect and equal consideration in both written and spoken communication. We should work to provide an environment that encourages the free expression and exchange of ideas.

Western has historically had EDI challenges, and it requires ongoing efforts by all for improvement. I encourage you to read the report of the President's Anti-racism Working Group, available at <https://president.uwo.ca/pdf/arwg-final-report-to-president-shepard-fnl.pdf>, and seek out resources available at <https://www.edi.uwo.ca/resources/>.

The Canadian Association of Physicists (CAP) has published a special magazine issue on inclusion available at <https://pic-pac.cap.ca/> and the Canadian Astronomical Society (CASCA) has compiled a list of EDI resources at https://casca.ca/?page_id=17441.

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 strive to include unique content as much as I can, and I seek your feedback. I encourage you to read the following articles and share your ideas on this topic with me and with your colleagues.

<https://news.westernu.ca/2021/06/moving-toward-decolonizing-the-curriculum/>
<https://indigenous.uwo.ca/initiatives/learning/12-ways.html>

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.

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,

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:

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.

In the event of a health lock-down, we will switch from in-person tests and exams to an online format. Tests and examinations in this course 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>.

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.

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 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.

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.