



Physics (PHYS) 201

Introductory Physics II (Revision 5)

Status:	Replaced with new revision, see the course listing  for the current revision 
Delivery mode:	Individualized study online  with a Home Lab  . You can order the Laboratory Kit  online. PHYS 201 has a lab exemption  This course is charged a lab fee 
Credits:	3
Area of study:	Science
Prerequisites:	PHYS 200 or PHYS 204 or equivalent.
Precluded:	PHYS 274
Challenge:	PHYS 201 is not available for challenge.
Faculty:	Faculty of Science and Technology 
Notes:	Detailed Syllabus and Assessment 

Overview

PHYS 201 is a junior algebra-based physics course, which provides introduction to simple harmonic motion, thermodynamics, and electricity. The course includes a laboratory component that involves quality hands-on experiments. PHYS 201 combined with either PHYS 200 or PHYS 202 delivers the equivalent of one year of introductory algebra-based physics.

Outline

PHYS 201 comprises the following five units:


- Unit 1: Simple Harmonic Motion
- Unit 2: Heat and Kinetic Theory
- Unit 3: Thermodynamics
- Unit 4: Electrostatics
- Unit 5: Circuit Theory

Lab Component

PHYS 201 includes a compulsory lab component that comprises six hands-on experiments performed in a place of the student's choice. Essential tools and equipment can be borrowed from the Athabasca University Science Lab, packaged in the Home Lab Kit. The student is expected to provide additional common household materials. Assessment is based on written lab reports. The following lab experiments are explained in the PHYS 201 course materials:

- Lab 1: The Simple Pendulum
- Lab 2: Thermal Expansion of Water
- Lab 3: Charles's Law
- Lab 4: Specific Heat and Heat of Fusion
- Lab 5: Ohm's Law
- Lab 6: Charging and Discharging of a Capacitor

Request the lab kit online [↗](#)



Students may qualify for partial or full **transfer of lab credit**  obtained for equivalent lab work at another institution.

Learning outcomes


Upon successful completion of this course, a student should be able to


- explain thermal expansion and solve problems of linear and volume change, for solids and liquids, resulting from change in temperature.
- describe the ideal gas law and solve problems involving changes in mass, volume, pressure, and temperature of gases.
- define latent heat and specific heat capacity and apply them to solving problems in calorimetry.
- outline and interpret the first and second laws of thermodynamics and use them to solve problems involving heat engines.
- define the electric charge and use Coulomb's law to compute the electric forces between static point charges.
- describe the electric field and the electric potential due to a set of static point charges, and use algebra to solve related problems.
- define voltage, current, and resistance and solve problems involving Ohm's law and Kirchhoff's rules to analyze direct current circuits.
- define capacitance and solve problems involving the charging and discharging of capacitors.
- demonstrate skills related to performing simple experiments in thermodynamics and electricity, including experimental setup, data acquisition, data analysis, and communication of scientific results.

Evaluation

The final grade is based on the marks achieved in two assignments, six lab reports, and two examinations. To **receive credit** , the student must achieve a minimum of fifty percent (50%) on the final examination and on the lab component, and an overall course grade of at least **D (50 percent)** . The following table describes the credit weight associated with each course requirement:

Activity	Weight
Assignment 1	10%
Assignment 2	10%
Lab Reports	20%
Midterm Online Exam	20%
Final Online Exam	40%
Total	100%

The **midterm and final examinations** for this course must be requested in advance and written under the supervision of an AU-approved exam invigilator. Invigilators include either ProctorU or an approved in-person invigilation centre that can accommodate online exams. Students are responsible for payment of any invigilation fees. Information on exam request deadlines, invigilators, and other exam-related questions, can be found at the [Exams and grades](#)  section of the Calendar.

To learn more about assignments and examinations, please refer to Athabasca University's [online Calendar](#) .

Note that the Home Lab Kit must be received by the University before a transcript can be issued.

Materials

Digital course materials





Links to the following course materials will be made available in the course:

Giancoli, D. C. (2014). *Physics: Principles with applications* (7th ed.). Boston, MA: Pearson.

Other Resources

All other learning resources will be available online.

Important links

- › [Academic advising](#) 
- › [Program planning](#) 
- › [Request assistance](#) 
- › [Support services at AU](#) 

Athabasca University reserves the right to amend course outlines occasionally and without notice. Courses offered by other delivery methods may vary from their individualized study counterparts.

Opened in Revision 5, November 9, 2020

Updated June 6, 2025

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