

# Physics 30

2011-2012

Choose an item.

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**Pre-requisites:** Physics 20

**Credits:** 5

**Hours:** 125

## Textbook/Resources

- Pearson Physics, Pearson Education Canada - You will be using Pearson Physics as your textbook for this course. It will help you add depth to your understanding of the topics you study. You will find additional support at the textbook's online website, <http://www.physicssource.ca>. Here, you can use unit pre-quizzes, web links, chapter highlights, study tips, research tools, and other opportunities for further learning.

Students are responsible for attaining book(s) and paying the textbook rental caution fee at the CBe-learn reception desk. Reception is located in Ernest Manning High School (20 Springborough Blvd SW) and is open 9:00 am – 4:00 pm school days.

## Instructor

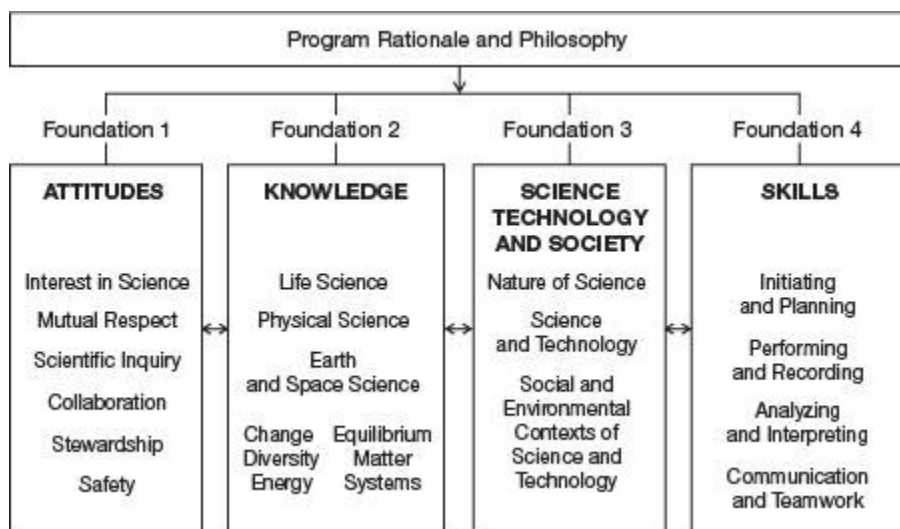
All CBe-learn courses will have a news item on the course homepage that will include an introduction to the teacher. Some courses may have more than one instructor. We believe this team teaching approach is advantageous to students in terms of receiving timely feedback and completing course materials. Since CBe-learn teachers are not on-site at school five days a week, and they do not have local phone extensions, all of the communication will be online within D2L using private discussions. Other communication tools including Elluminate and/or email may also be used on occasion. Each of these tools are explored in the e-learn introductory to online learning course.

## Course Overview

In Physics 30 you will learn more than facts. You will be encouraged to develop positive attitudes and to acquire and use knowledge and skills in responsible ways. Your studies in the four units of physics 30 (listed below) will lead you to achievements in each of the following four areas prescribed by the Alberta Program of Studies.

Learn how Newton's second law of motion is linked to the concepts of momentum and impulse.

- Investigate electric and magnetic forces and fields and their applications in technological devices.
- Study the nature and characteristics of electromagnetic radiation (EMR), using the wave and photon models of light
- Study the development and modification of models of the structure of matter.



## Course Structure and Organization

This course builds upon the scientific concepts from:

Science 8, Unit C: Light and Optical Systems

Science 9, Unit D: Electrical Principles and Technologies; Unit E: Space Exploration

Physics 20, Unit A: Kinematics; Unit B: Dynamics; and Unit C: Circular Motion, Work and Energy, Unit D: Oscillatory Motion and Mechanical Waves

Physics 30 is composed of four units (2 modules per unit) that prepare students for further study in Newton's second law of motion and its link to the concepts of momentum and impulse; electric and magnetic forces and fields and their applications in technological devices; the nature and characteristics of electromagnetic radiation (EMR), through the wave and photon models of light; the development and modification of models of the structure of matter. These units are:

Unit A: Momentum and Impulse

Unit B: Forces and Fields

Unit C: Electromagnetic Radiation

Unit D: Atomic Physics

## Assessment/Evaluation

There are 30 lessons in the course. Each lesson has a lesson assessment in the form of an online quiz or a written assignment that is to be submitted to the appropriate dropbox (only 1 lesson has this). Most of the quizzes are marked automatically and feedback instantly available, however, some may have questions that need to be marked by your instructor. Throughout each lesson, there are self-checks that occur regularly whereby questions are posed and students may check their answers through the 'check your work' link.

Each of the 4 units also has written unit assessment assignments that are submitted to the appropriate dropbox and are marked by your instructor.

There will also be four in person, face to face unit exams that are to be written at the Cbe-learn testing centre. There is also an optional final face to face exam that covers all units and the mark will only be used to replace a lower unit exam mark. It will not be used to replace a zero mark on a unit exam.

Lastly, there is a science citizenship discussion assignment component that will require the student to post a thoughtful, original post and also to respond to other classmate's posts. There is also a short survey to complete after the discussion is complete.

### **Accommodations**

Since CBe-learn is an online school with a diverse population of students, it is not always evident which students need accommodations and/or for what course subject. We need you, the student, to bring your exam accommodation needs to our attention!

- Are you an ESL student?
- Did you arrive to Canada from another country?
- Do you have an IPP?
- Do you have a chronic medical condition(s) or learning disability?
- Do you have an acute medical condition or illness?

If you answered yes to any of the questions above, then you may qualify to receive accommodations. Please notify and explain to your teacher within the first week of accessing your online course that you may require accommodations. It is important that you start this dialogue with your teacher.

### **Roles and Responsibilities of Teachers and Students**

Teachers are responsible to respond to your communication within 24 hours Monday to Friday and provide feedback on submitted work in a timely manner. They will also post course updates and news in discussions and/or the course homepage.

Students are responsible for checking their course homepage and discussion area every two days (minimum) as well as meeting the weekly recommended deadlines. Students are also expected to respond to teacher communication. Lastly, students should always check over their quizzes and if there are concerns, send a message to their instructor. Most of these quizzes are computer marked and it is the student's responsibility to go over their quizzes and check for marking errors.

### **Learning Outcomes**

Students will...

1. explain how momentum is conserved when objects interact in an isolated system.
2. explain the behavior of electric charges, using the laws that govern electrical interactions
3. describe electrical phenomena, using the electric field theory
4. explain how the properties of electric and magnetic fields are applied in numerous devices.
5. explain the nature and behavior of EMR, using the wave model
6. explain the photoelectric effect, using the quantum model.
7. describe the electrical nature of the atom

8. describe the quantization of energy in atoms and nuclei
9. describe nuclear fission and fusion as powerful energy sources in nature
10. describe the ongoing development of models of the structure of matter.



## Academic Honesty/Plagiarism Guidelines

**Academic honesty is expected of all students.** Work submitted for a grade that is not your own, is an act of academic dishonesty. Any materials taken from other sources must clearly be identified and properly referenced. Intentional deception, plagiarism, copying from another student, obtaining information about exams, and other violations of academic honesty are not acceptable.

**Plagiarism is the most common violation.** It is the practice of taking the writings or ideas of another person and presenting them as your own. Students should be aware of the forms that plagiarism can take. Any of the following, without reference or acknowledgement of the original source, can be considered as plagiarism:

- Direct duplication of another person's work, from a book, article, web site, another student's assignment etc.
- Paraphrasing of another person's work, making only minor changes to the wording but with the essential meaning, form or progression of ideas maintained
- Piecing together sections of another person's work into a new whole
- Submitting your own work which has already been submitted for assessment in another subject or

**The typical consequences for first time academic honesty offenders are:**

- Contact with parent or guardian
- Contact with guidance counsellor and or/assistant principal if the student attends another CBE high school
- Failure on the assignment, paper or exam (an academic dishonesty grade is assigned ("AD" with a zero percentage)

**If a violation of academic honesty occurs a second time, the typical consequence is withdrawal from the course or a final grade of "AD", indicating the nature of the grade as academic dishonesty.**

The circumstances and evidence in each case are reviewed by the instructor, student, parents and CBe-learn administrators. Consequences in each case are at the discretion of the school staff.

## Inactive Student Guidelines

CBe-learn students must demonstrate an active commitment to their online courses, which involves regular communication with their online teachers, and successful completion of course assessment requirements within a reasonable time frame. If a student is unable to remain academically active in their online course during any 15 school day period, and fails to communicate with their teachers, they risk losing access to their course. As a result, their user role in the associated course will be changed by their instructor from "Student - CBe-learn" to "Inactive - CBe-learn". Once a student has been designated as inactive, they are no longer eligible to continue in the course; however they are invited to re-register for the next term if they feel they can succeed at a later date. Transfers will not be considered.

**The following criteria will be used to identify a student as being inactive within any 15 school day period:**

- Has not logged in or accessed the content of the course beyond the introductory material.
- Has not submitted course work for assessments within a reasonable time frame.
- Has not responded to the teachers request for contact via email, private discussions and/or phone on at least 3 occasions.
- Has not participated in a mandatory introductory online or face-2-face session.

This criterion is applied at the teacher and administrators discretion at CBe-learn.