

Distance Education Course Outline

Physics 30

GENERAL INFORMATION

- i. Physics 30 Asynchronous, based out of Watrous School
- ii. Teacher: Cindy Cantelon
- iii. There are various ways in which I can be accessed.
 - By email cindy.cantelon@horizonsd.ca
 - Moodle send me a message through moodle
 - By phone (best to call right before school, at lunch, or right after school)
 - school: 306 946 3309 cell: 306 540 4448

COURSE DESCRIPTION

- i. In this course, students investigate concepts related to modern physics such as quantum mechanics, relativity, and nuclear physics. Students will analyze motion and the forces that cause motion from the perspective of Newtonian mechanics. Using the conservation laws of momentum and energy, students will analyze and predict the results of interactions between objects. Lastly, students will explore gravitational, electric, and magnetic fields and their interactions. Student inquiry will guide independent investigations of physics - related phenomena. (From *Sask Curriculum*)
- ii. Prerequisites: Physical Science 20

STUDENT LEARNING OUTCOMES:

Student-Directed Study
PH30-SDS1 Create and carry out a plan to explore one or more topics of personal interest relevant to Physics 30.

Modern Physics
PH30-MP1 Analyze the importance of relativistic principles and quantum mechanics in our world.
PH30-MP2 Assess the effects of radioactivity and nuclear technology on society and the environment

Forces and Motion
PH30-FM1 Analyze motion in one- and two-dimensions, including uniform motion, uniformly accelerated motion, circular motion, and projectile motion.
PH30-FM2 Analyze the effects of forces on objects undergoing uniform motion, uniformly accelerated motion, circular motion, and projectile motion.

Conservation Laws
PH30-CO1 Investigate the nature of mechanical energy and efficiency in mechanical systems, including the law of conservation of energy.
PH30-CO2 Analyze the motion of objects and interactions between objects using momentum concepts, including the law of conservation of momentum.

Fields
PH30-FI1 Investigate gravitational fields and their interactions with matter.
PH30-FI2 Investigate electric and magnetic fields and their interactions with matter.

These outcomes will be met in 5 units

Unit 1: Forces and Motion

Unit 2: Conservation Laws

Unit 3 : Modern Physics

Unit 4: Fields

Unit 5: Student-Directed Study

TEACHING STRATEGIES:

- i. There are a variety of teaching strategies including videos, online lessons, simulations and interactive online content. Students will have access to all materials online, but a physics textbook will be an asset. I don't have a preference, any textbook will provide another perspective of the content.
- ii. This is an asynchronous course, so it may be completed at your own timeline, but all course material must be completed by: January 18th for Semester 1 and June 15th for Semester 2 Here's a suggested timeline to complete the course by the end of the semester.

Semester 1

Unit 1 Sept 9-30

Unit 2 Oct 1-31

Unit 3 Nov 1-30

Unit 4 Dec 1-Jan 13

Unit 5 ongoing, due January 18

Semester 2

Unit 1 Feb 2-29

Unit 2 March 1-24

Unit 3 April 4-29

Unit 4 May 2-31

Unit 5 ongoing, due January 15

FINAL EXAM will be arranged during your home school's exam week

COURSE MATERIALS

- i. Textbook: Non necessary – but ask your local science teacher if they have a good physics textbook you could use. It will be valuable to look at radioactivity, motion, forces, conservation of energy, gravitational, electric and magnetic fields. All materials will be provided electronically, but feel free to use texts in your school to supplement and easily find level-appropriate content.

EVALUATION:

Each unit will have you complete activities, simulations or labs and assignments. Some of these will be formative and give you and me immediate feedback. Others will be summative, and contribute to your grade. At the end of Units 1-4 there will be a written exam, supervised at your home school. Each unit is weighted to come up with your overall grade.

Unit 1 20%

Unit 2 20%

Unit3 15%

Unit 4 20%

Unit 5 will be project based and the project will be worth 5% of your final mark.

Each assignment, activity or exams measures the objectives of the unit – clearly outlined at the top of each unit's page.

Your Final Cumulative exam is worth 20% of your grade.