

# Science Course Descriptions

## **Biology, Chemistry and Physics:**

*It is recommended that you have a C+ or higher in Science 10 to take these courses.*

### **Biology 11**

This introductory course covers information on Cells, Evolution, Viruses and each of the main Phyla in the Animal Kingdom. This is a lecture based course, but you can expect to have worksheets and at least one lab per chapter that you cover. The typical dissections that are done in this course are earthworms, crayfish, squid, starfish and the frog. Students can expect a minimum of 30 minutes of homework per night.

### **Biology 12**

Biology 12 is meant to prepare students for first year university biology. It is a very rigorous course and it is only recommended for students who scored a C+ or higher in Biology 11. This is a lecture based course, with supplementary worksheets for each unit. Topics covered include Biochemistry, DNA and Protein Synthesis, Enzymes and Body Systems. Students should be prepared to spend at least an hour studying for this course each night in order to be successful.

### **Chemistry:**

**Chemistry 11** is a combination of theory, calculations and experiments designed to build on your basic understanding of chemistry from past years. Topics include chemical safety, phases and properties of matter, unit conversions, significant figures, mole conversions and calculations, atomic theory, organic chemistry, and more. It is recommended that you have a C+ or higher in science 10 to take this course.

**Chemistry 11 Honours** covers all the topics in chemistry 11 as well as some more advanced topics - co-ordination complexes, aromatic hydrocarbons, geometries for molecules, and more.

This course is designed to pair with AP Chemistry 12 and together they prepare you for university Chemistry material.

It is recommended that you have complete Science 10 Honours to take this course, or have the recommendation of your science 10 teacher.

**Chemistry 12** is a combination of theory, calculations and experiments designed to continue building your understanding of chemistry around the topics of Reaction Kinetics, Chemical Equilibria, and Electrochemistry. Chemistry 12 is a rigorous, fast paced course.

It is recommended that you have a C+ or higher in Chemistry 11 to take this course.

**AP Chem 12** is an extension of the Chem 12 course and covers additional topics. It will hopefully be run as a linear course as an AP Chem/Chem 12 combo. Chemistry 11 Honours is a pre-requisite for the course. This course is highly recommended for people taking a first year chemistry course in college/university.

### **Physics 11:**

- Physics 11 is an interesting study of the physical world where we look at projectiles, wave motion, force, energy, momentum and even time travel. We discuss Einstein's famous equation  $E = mc^2$
- We look at the lives of famous physicists and learn who these people were.
- We do fun hands-on activities like dropping eggs off the school building, building war machines, and look at many interesting demos.

### **Physics 12:**

- In Physics 12 we introduce electricity and magnetism. We learn how to create circuits, how to balance objects with magnets, and how motors and generators work. The Van de Graff generator is a favourite.
- In addition to going deeper into the topics in Physics 11, we also look at the orbits of celestial objects (centripetal motion), two dimensional momentum, and torque.
- Physics 11 and 12 are sciences that open up many doors and career paths.
- Students must have strong math skills to do well in Physics (ie: students should have achieved minimum C+ in Math 10).
- Students wishing to take Physics 12 should achieve at least a C+ in Physics 11.

### **Earth Science 11**

- Introductory course that explores a variety of fields related to the earth and space.
- We study space, oceans, weather, rocks & minerals, resources, weathering & erosion, volcanoes, earthquakes, and mountains.

- We will look at the various careers and job opportunities in these areas and show you that the Earth is actually quite interesting.
- It is hoped that students entering Earth Science 11 will have a strong interest in their physical environment and the forces in nature that cause it to change.
- This course is a recommended prerequisite for Geology 12 and ties in well with Geography 12.
- Also note that the course calendar is wrong for Earth Science 11 and instead has a description for Chemistry.

**Agriculture 11 (SR11)** is a hands on science course that explores BC resources.

- We spend time in our greenhouse learning hothouse (veggie growing) skills and bedding (flowering) plant skills.
- Many field trips to local farms and greenhouses.
- Opportunities to gain university credits while in highschool.
- Topics include Greenhouse management, fisheries, dairy, poultry, forestry, outdoor recreation.
- We have a lot of fun and all skills can lead to employment in the industry.  
Prerequisite for Ag 12 (SR12).

### **Agriculture 12 (SR 12)**

Agriculture 12 is for students who excelled in Ag 11 and wish to pursue a career in agriculture. Students will have increased responsibilities in the greenhouse and may receive university credit upon successful completion.

### **Science and Technology 11**

S & T is a hands on science course where we explore the application of scientific understanding to society's success. In the course we build and launch rockets, as well as build and race both mouse trap cars and CO2 cars. This is a great way to increase your GPA or learn how to enjoy science.