Science Preparation 010 (SCIE010)
Lecture Section INT
5 credits, 16 weeks, 5 hours lecture

COURSE DESCRIPTION: This course is a grade 10 equivalency general science course designed to prepare students for entry into Biology 025, Chemistry 025, and Physics 025. It is especially recommended for those who have been away from high school science for 3 or more years. The course reviews basic concepts of math and science which are essential for success at the 025 level, including the metric system and the scientific method, while fostering a positive attitude toward the study of science and math.

ALBERTA EDUCATION COURSE EQUIVALENCY: SCIENCE 10

PREREQUISITES/COREQUISITES: Grade 9 program of studies or equiv. or AFL 009 & AFM 009

INSTRUCTOR INFORMATION:

INSTRUCTOR: Gillian Whalen
PHONE or Text: 587-646-4358
OFFICE: https://meetings.keyano.ca/intfall2014gillian/
E-MAIL ADDRESS: Gillian.Whalen@keyano.ca
LECTURE TIMES:

Tuesdays 12:00 PM to 1:50 PM
Wednesdays 1:00 PM to 2:50 PM
Thursdays 3:00 PM to 3:50 PM

OFFICE HOURS:

Monday 10:00 AM to 10:50 AM
Tuesday 11:00 AM to 11:50 AM
2:00 PM to 2:50 PM
Wednesday 9:00 AM to 9:50 AM
Friday 11:00 AM to 11:50 AM

REQUIRED TEXTBOOKS AND SUPPLIES
1. Science 010 Preparation Student Slides (available at Bookstore)
   a. Access to a computer and internet will be required

2. Scientific Calculator – Does not have to be a TI-83 or better
EVALUATION

Daily Work, assignments & quizzes: 20%
Labs & Investigations: 20%
Projects: 40%
Tests (2): 20%

LEARNING OUTCOMES

Upon successful completion of this course, students will be able to:

1. Understand science and the scientific method
2. Distinguish branches of chemistry
3. Describe the basic particles that make up the underlying structure of matter
4. Understand the Dalton’s atomic theory
5. Will describe the three subatomic particles which make up the atom.
6. Will explain the division of elements in the periodic table
7. Identify and characterize of elements in groups and periods
8. Explain the properties of ionic compounds and molecular substances
9. Writing formulas for compounds
10. Recognize the systematic chemical name of binary, ternary and higher compounds
11. Describe acids qualitatively
12. Write balanced chemical equations
13. Write numbers correctly according to sig. dig. Rules
14. Describe what is meant by thermal energy and work
15. Find work through calculation and graphical means
16. Draw graphs correctly in a variety of problems
17. Describe the difference between speed, velocity, distance and displacement
18. Compare two speeds graphically
19. Differentiate between potential and kinetic energy
20. Describe and identify energy conversions and their efficiency
21. Differentiate between animal and plant cells
22. Describe cell theory and identify major contributors to cell theory
23. Identify and describe functions of cell organelles
24. Describe different biomes of the world
25. Identify the different parts of the earth’s structure and atmosphere
26. Explain the difference between climate and weather and how seasons arise
27. Discuss global warming in terms of changing weather patterns
Proposed Topics
Most topics will be covered in class; however, students will be required to learn some of the material through self-study and/or by completing assignments. Please refer to the Science 010 Course Slides for detailed outlines and descriptions of each section.

Unit 1 – Chemistry
- Introduction to chemistry, scientific method and branches of chemistry
- Basic concepts of chemistry: laws, physical states of matter, classification
- Properties of pure substances, elements and compounds
- Changes of pure substances
- Dalton’s atomic theory and structure of the atom
- Electron dot diagrams
- Periodic table and trends in the table
- Writing chemical formulas for molecular and ionic compounds
- Chemical names for molecular and ionic compounds
- Properties of Acids
- Chemical equations: terms, symbols
- Balancing chemical equations
- Classifying and completing reactions

Unit 2– Physics & Math review
- Math review: significant digits, scientific notation, rearranging formulas
- Thermal Energy and work
- Calculating work and graphing examples of work
- Graphing
- Scalars vs. vectors
- Speed, velocity, distance, displacement
- Kinetic and potential energy
- Energy conversions
- Efficiency between energy conversions

Unit 3– Biology & Ecology
- Introduction to biology and ecology
- Cell theory & founding theorists
- Cells and functions of organelles
- Plant vs. animal cells
- Biomes of the world
- Construction of climatographs
- Climate vs. weather
- Global warming
- Societal impacts of changing weather

Please Note: The schedule of proposed topics may be modified at the instructor’s discretion to facilitate unforeseen time constraints
Performance requirements for students:
SCIE 010 is designed so students are required to attend via Adobe Connect [https://meetings.keyano.ca/intfall2014gillian/](https://meetings.keyano.ca/intfall2014gillian/) for each class, so success is improved by regular attendance. Extended or frequent absences cannot easily be accommodated and could impact your overall mark. Some suggestions for handling occasional absences include:

a. Checking the Calendar of Events and PowerPoint slides covered in each chapter by logging into ilearn Keyano [http://ilearn.keyano.ca](http://ilearn.keyano.ca)**.

b. Finding a “classroom buddy” who you can contact for details regarding what you have missed, because exact slides and daily homework will not be recorded on ilearn. Classes that have been recorded will be available on the course calendar to view.

c. Keeping in touch with me via email (gillian.whalen@keyano.ca) or txt (587-646-4358). Office hours via Adobe Connect are for you to seek extra help and to see me with concerns about the course.

2. To ensure that everyone is evaluated fairly, and that you receive your marks and feedback in a timely fashion, assigned work will receive:
   a. Full marks when received on the due date. You will need to scan and email assignments by the end of the scheduled class to be considered on time.
   b. A mark of zero, if received after I have returned them ...

3. To ensure that it is your learning, your thoughts, and your work that is being evaluated,
   a. Work submitted by non-attending students may not be marked, so please keep in touch!
   b. Any work showing evidence of copying or plagiarism will receive a mark of zero (see “Student Rights and Responsibilities” in the Credit Calendar).
   c. In-class quizzes cannot usually be rewritten, as these are meant to give you immediate feedback on your progress.
   d. A missed exam may be written at an alternate time only under certain exceptional circumstances, at the instructor’s discretion. The instructor must be contacted within 24 hours of the scheduled exam, and documentation (e.g. a doctor’s note) provided.
   e. The final exam will be written on the date scheduled by the College; otherwise, the procedure for “Deferred Final Examination” in the Credit Calendar is to be followed.

**Should you have trouble logging into ilearn Keyano, please contact any member of the library staff, or email Keyano Information and Technology Services (ITShelpdesk@keyano.ca) during business hours.

Please be on time for class and respect the length of scheduled breaks. Should you miss a substantial part of a class, you may be marked absent.

Whenever possible, make appointments (dental, medical, etc.) outside of class time.
If you need extra help with your courses, use the free tutoring services available at the SKILL Centre (Room 119).
Fall 2014

Regular class schedule:  
Tuesdays  12:00 - 1:50 pm  
Wednesdays  1:00 – 2:50 pm  
Thursdays  3:00 pm – 3:50 pm

Shaded areas on the calendar below indicate no Science 010 classes.  ***All dates are tentative.

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Total number of classes: 43

IMPORTANT DATES

Orientation Day          September 2  
First Day of Class          September 3  
Last day to ADD Courses September 9  
Tuition is due ($100 late fee charged after this date) September 9  
Last day to DROP Courses with full refund ($100 deposit is non-refundable) September 16  
Last day to WAIVE SAKC health and dental plan or add family September 16  
Last day to submit Keyano College Fall Awards Applications September 30  
Last day to WITHDRAW with a refund (50%) October 10  
Last day to WITHDRAW (Grade of W) November 26

Policies Relevant to Students: You are responsible for reading the Credit Calendar to understand your rights and responsibilities as a student, and for contacting the Office of the Registrar to complete any forms for Withdrawal, Change of Registration, or any other required forms.
Contact Information for Office of the Registrar:
Office of the Registrar
8115 Franklin Avenue
T9H 2H7
Tel: (780) 791-4801
Fax: (780) 791-4952
Keyano College Main Switchboard Toll Free: 1-800-251-1408
Email: registrar@keyano.ca
www.keyano.ca

Please Note: It is your responsibility to contact the Office of the Registrar to complete the forms for Withdrawal or Change of Registration, and any other required forms. Please refer to the List of Important Dates noted in your course outline.

Gillian Whalen, Instructor

Lisa Turner, Chair

Guy Harmer, Dean

Effective Date