School of Academic and Skill Development
Fall, 2016

COURSE OUTLINE

SCI 030

INTERMEDIATE SCIENCE

45 HOURS
3 **CREDITS**

PREPARED BY: Stephen Biggin-Pound DATE:

APPROVED BY: DATE:

APPROVED BY ACADEMIC COUNCIL: (date)

RENEWED BY ACADEMIC COUNCIL: (date)

School of Academic and Skill Development
SCI 030
3 Credit Course
Fall, 2016

Science 030

INSTRUCTOR:	**TBA**	**OFFICE HOURS:**	TBA
OFFICE LOCATION:	**TBA**	**CLASSROOM:**	TBA
E-MAIL:		**TIME:**	
TELEPHONE:		**DATES:**	

COURSE DESCRIPTION

Intermediate Science provides a foundation of science concepts to introduce students to the major disciplines of science. Both western and indigenous perspectives and ways of knowing will be explored, using Northern and culturally-relevant examples. The course will prepare students for further studies in science at the College Preparation level while exploring interests in science-based programs at the college and university level.

PREREQUISITES

NONE

EQUIVALENCY OR TRANSFERABILITY

NONE

The course is not transferable.

LEARNING OUTCOMES

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

- Meet the competencies as stated for ABE General and Applied Science: Intermediate Level located in the ABE in BC Articulation Handbook http://www.aved.gov.bc.ca/abe/docs/2015-16_abe_guide.pdf .
- Explain the scientific method, traditional knowledge, and their interrelations.
- Communicate effectively using the language of the major science disciplines.
- Plan and perform safe laboratory practices, and follow standard methods.
- Appreciate and apply the sciences in the contexts of academic studies and everyday life within a Northern context.

COURSE FORMAT:

This course will be a total of 45 class hours, including lectures and a minimum of 9 hours of labs.

ASSESSMENTS

Assignments

There are 9 assignments to be completed. Each assignment will consist of questions and practical applications based on the material presented in class. It is the responsibility of the student to attend and participate in class in order to be able to complete the assignments.

Labs

There are 9 labs in the course. Each of the labs include an assignment consisting of a short written lab report or worksheet. The lab assignments may be completed outside of class time, however the observations and collection of data required to complete the assignments must be done during the lab or class time. Therefore, it is necessary to attend the lab session in order to be able to complete the assignment.

Tests

There will be 6 quizzes, based on the lecture material from each of the 6 units. There is no mid-term or final exam for this course.

EVALUATION

Assignments	30%
Labs	30%
Quizzes	40%
Total	100%

REQUIRED TEXTBOOKS AND MATERIALS

Course binder.

ACADEMIC AND STUDENT CONDUCT

Information on academic standing and student rights and responsibilities can be found in the Academic Regulations:
http://www.yukoncollege.yk.ca//downloads/Yukon_College_Academic_Regulations_and_Procedures_-_August_2013_final_v1.pdf

Attendance is critical to student success in this course. Evaluation and grades will be based on the material presented in class and labs. Students absent from class are responsible for finding out what was missed and to complete any work assigned.

PLAGIARISM

Plagiarism is a serious academic offence. Plagiarism occurs when students present the words of someone else as their own. Plagiarism can be the deliberate use of a whole piece of another person's writing, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material. Whenever the words, research or ideas of others are directly quoted or paraphrased, they must be documented according to an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Resubmitting a paper which has previously received credit is also considered plagiarism. Students who plagiarize material for assignments will receive a mark of zero (F) on the assignment and may fail the course. Plagiarism may also result in dismissal from a program of study or the College.

YUKON FIRST NATIONS CORE COMPETENCY
Yukon College recognizes that a greater understanding and awareness of Yukon

First Nations history, culture and journey towards self-determination will help to build positive relationships among all Yukon citizens. As a result, to graduate from ANY Yukon College program, you will be required to achieve core competency in knowledge of Yukon First Nations. For details, please see www.yukoncollege.yk.ca/yfnccr.

ACADEMIC ACCOMMODATION

Reasonable accommodations are available for students requiring an academic accommodation to fully participate in this class. These accommodations are available for students with a documented disability, chronic condition or any other grounds specified in section 8.0 of the Yukon College Academic Regulations (available on the Yukon College website). It is the student's responsibility to seek these accommodations. If a student requires an academic accommodation, he/she should contact the Learning Assistance Centre (LAC) at (867) 668-8785 or lassist@yukoncollege.yk.ca.

TOPIC OUTLINE

Unit 1: Introduction to Science

Lecture topics:

- Define science and explore its benefits and limitations
- Explain and use the Scientific Method
- Indigenous ways of knowing and Traditional Knowledge
- SI units and conversions
- Measurement techniques, accuracy and precision
- Experimental design

Lab:

- General lab safety orientation and lab tour
- Measurements and units

Unit 2: Biology

Lecture topics:

- Evolution and the diversity of life: Taxonomic classification
- Human biological systems: skeletal, muscular, circulatory, respiratory, nervous, digestive, and reproductive – focus on 2
- The Cell: theory, structure and function
- Basic genetics: DNA, genes, chromosomes, and sexual reproduction

Labs:

- Microscopy: using microscopes and describing specimens
- Mendelian genetics

Unit 3: Chemistry

Lecture topics:

- Matter: structure and properties
- Atomic theories
- Periodic table of the elements
- Elements, compounds, mixtures, and solutions
- Chemical bonding
- Compound formulas
- Chemical reaction types

Labs:

- Properties of matter

- Chemical reactions

Unit 4: Physics

Lecture topics:
- Force, Energy, and Work
- Simple machines
- Motion and conservation of momentum
- Electricity and magnetism
- Simple circuits

Labs:
- Force and simple machines
- Electricity, magnetism, and simple circuits

Unit 5: Earth Science

Lecture topics:
- Plate Tectonics
- Geological process and rock formation
- Igneous, Sedimentary, and Metamorphic rocks: definitions, formations, and compositions
- Major landforms and weathering/deposition processes
- Mineral resources

Lab:
- Rock and mineral identification and properties

Unit 6: Environmental Science

Lecture topics:
- Global biomes and diversity; Ecoregions of the Yukon
- Ecosystems
- Ecology: water, energy, and nutrient cycles
- Trophic levels and food webs
- Population dynamics
- Climate Change

Lab:
- Snow density and/or hydrology