APPLIED ARTS DIVISION
SCI 030
Credit Course
Winter, 2019

COURSE OUTLINE

SCI 030

INTERMEDIATE SCIENCE

3 CREDITS

PREPARED BY: Stephen Biggin-Pound, Instructor
DATE: January 3, 2018

APPROVED BY: Erica Bourdon, Chair ASD
DATE:

APPROVED BY ACADEMIC COUNCIL:
RENEWED BY ACADEMIC COUNCIL:

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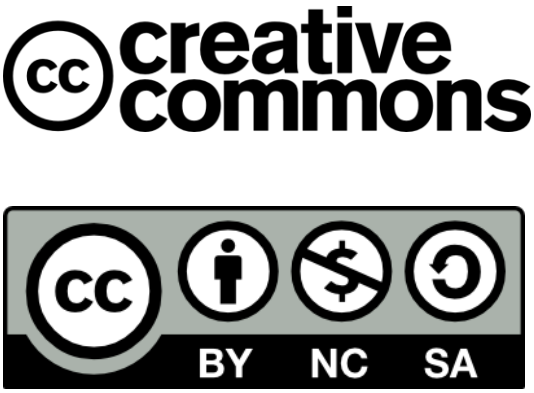

Version 1.1 revised and approved by Academic Council: June 20, 2018
Academic Council, Governance Office
Academic Council MyYC: Policies, Procedures and Forms

INTERMEDIATE SCIENCE

INSTRUCTOR: Stephen Biggin-Pound

OFFICE LOCATION: A2105

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TELEPHONE: 867.668.8796

OFFICE HOURS: after class

CLASSROOM: A2603 and ZOOM

TIME: Tues. & Thurs. 1:00-4:00 pm

DATES: Jan. 22-April 26, 2019

COURSE DESCRIPTION

Intermediate Science introduces 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 specialized studies in science at the 050 level.

PREREQUISITES

None.

LEARNING OUTCOMES

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

- Demonstrate understanding of the scientific method and sources of traditional knowledge, and explain the strengths of each;
- Communicate effectively using the language of the major scientific disciplines;
- Plan and perform safe laboratory operations following standard methods; and
- Appreciate and apply scientific thinking in academic situations and everyday life in the North.

COURSE FORMAT

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

ASSESSMENTS:

Attendance & Participation

Assignments
This course includes six assignments. Each assignment consists of questions and practical applications based on the material presented in class. Students are responsible to attend and participate in class in order to be able to complete the assignments.

Labs
There are six labs in the course. Each of the labs includes 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

This course includes four to six quizzes, based on the lecture material from each of the units. There is no mid-term or final exam for this course.

EVALUATION:

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

REQUIRED TEXTBOOKS AND MATERIAL

No text book is required. All required learning materials will be presented in class. Students will require a binder with 6 dividers for each unit.

ACADEMIC AND STUDENT CONDUCT

Information on academic standing and student rights and responsibilities can be found in the current Academic Regulations that are posted on the Student Services/ Admissions & Registration web page.

PLAGIARISM

Plagiarism is a serious academic offence. Plagiarism occurs when a student submits work for credit that includes the words, ideas, or data of others, without citing the source from which the material is taken. Plagiarism can be the deliberate use of a whole piece of work, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material according to an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Students may use sources which are public domain or licensed under Creative Commons; however, academic documentation standards must still be followed. Except with explicit permission of the instructor, resubmitting work 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): lac@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 and Imperial units and conversions
- Measurement techniques, accuracy and precision
- Experimental design

Lab:

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

Unit 2: Physics

Lecture topics:

- Force, Energy, and Work
- Simple machines
- Electricity

Labs:

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

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

Labs:

- Properties of matter
- Chemical reactions

Unit 4: 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
- Basic genetics: DNA, genes, chromosomes, and sexual reproduction

Labs:

- Taxonomy and Evolution
- Mendelian genetics

Unit 5: Earth Science (optional topic)

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 (optional topic)

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 study and/or hydrology