



COURSE OUTLINE<sup>[SEP]</sup>

ESCI 310

Science Education (Pre-K to Grade 5)

PREPARED BY: Jesse Jewell

DATE: December 23, 2019

APPROVED BY: Name, Title

DATE: Click or tap to enter a date

APPROVED BY ACADEMIC COUNCIL: Click or tap to enter a date

RENEWED BY ACADEMIC COUNCIL: Click or tap to enter a date



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Version 1.2 revised and approved by Academic Council: April 17, 2019  
Academic Council, Governance Office  
Academic Council MyYC: Policies, Procedures and Forms

## Elementary Science (Pre K-5)

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INSTRUCTOR: Jesse Jewell	OFFICE HOURS: By appointment
OFFICE LOCATION: N/A	CLASSROOM: TBA
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### PREAMBLE

"The main thing the southern culture wants from school is 'head knowledge'. I see it as having some value, but maybe this value is only to make someone seem better than another. Our community would say that that it is only a small part of what schools should be about - it is about making a human being' that can contribute to our society. I think about what school would be like if we had worked together from the beginning. It would not just be about knowledge, but how to behave and be wise, not just knowing. That is happening now, but we have a long way to go"  
(Percy Henry, Tr'ondëk Hwëch'in, 2007).

"There is a need for awareness that science as a body of knowledge reflects a particular way of understanding the world that is considered right by the majority. Rarely is there representation of the thoughtful and purposeful scientific knowing of minority cultural groups"  
(McKinley, 2000).

"Decolonizing school science begins at the stage of 'acceptance' and succeeds at the stage of 'integration' "  
(Aikenhead, 2006)

[http://www.usask.ca/education/ccstu/guiding\\_documents/guidelines\\_for\\_representing\\_kn.html](http://www.usask.ca/education/ccstu/guiding_documents/guidelines_for_representing_kn.html)

### COURSE DESCRIPTION

This course is designed and will be delivered primarily in an experiential manner. Course participants will be engaged as active learners and given weekly opportunities to immerse themselves in content. Facilitating science education with attention to Yukon First Nations Ways of Knowing and Doing results in a holistic experience for all. A variety of learning environments may be accessed in the delivery of this course including the science lab, the boreal forest, and the classroom. When fortunate we will hear from guest speakers to deepen our knowledge and understanding of the subject matter. The

goal of this manner of course facilitation is to model best practice for pre-service teachers.

As a course participant you will be given opportunities to develop and demonstrate your understanding of the content and processes of science and how to teach these effectively. You will demonstrate this competence through professional engagement opportunities provided during this course.

### **PREREQUISITES**

ESCI 310 is usually completed after or concurrently with ECS 311.

### **EQUIVALENCY OR TRANSFERABILITY**

ESCI 310 is a University of Regina course.

### **LEARNING OUTCOMES**

By the completion of this course, pre-service teachers will be able to:

- demonstrate domain specific knowledge of selected science curriculum areas;
- develop, implement, and evaluate lessons and a series of lessons and lesson delivery that are responsive to the BC science curriculum and the aspired experience of YFN students;
- demonstrate scholarly informed understanding of pedagogical practices and apply these to science teaching practice - including teaching, assessment and behaviour management approaches;
- use a range of science curriculum specific assessment practices to support students in their learning and to inform science teaching practice;
- critically consider science curriculum experiences provided for students and evaluate the appropriateness of these experiences based upon YNTEP's mandate and the current BC curriculum;
- engage effectively with colleagues and community members in working constructively for positive science education outcomes for all learners, and
- contribute to the professional learning of colleagues through course engagement and the provision of professional learning opportunities.

### **COURSE FORMAT**

This course will be a total of 39 class-contact hours. The 39 hours will be spread out over 13 sessions. Each session will run from 1:30 - 4:25 on either Wednesday or Friday. Please pay close attention to the date of each session. Due to the Easter holiday and the end of semester, sessions # 12 & 13 will fall on Tuesday, April 14<sup>th</sup> and Wednesday April 15<sup>th</sup>.

Participants are expected to be prepared to learn outside in winter weather during all sessions. Special announcements will be made for outings the following week upon course commencement. Routinely, learning experiences will take us off-site and away

from Yukon College. During these times we will do our best to car-pool and accommodate everyone.

**ASSESSMENT & EVALUATION:**

Project #1	10%
Project #2	10%
Project #3	25%
Project #4	15%
Project #5	40%
Total	100%

What is a Project?

In the context of this course a project is defined as temporary endeavor undertaken to create a unique product, service or result.

**Project #1** - Due Wednesday, January 15<sup>th</sup>, 2020

Tell Your Story

Story is one of the main methods of traditional Indigenous learning and teaching. Combining story and experience is a powerful strategy that has been used by First Peoples and its power can also be brought to the science classroom.

Stories enable holistic learning. They meld values, concepts, protocol, practices and facts into narrative. They also develop important skills of listening and thinking.

Output:

- Create your story using the provided story board template. If desired, you may choose to create your story in a different way.
- Your story should focus on experiences in your life that will influence how you approach teaching science.
- Share your story in class with a 5 minute overview

**Project #2** - Due Friday, January 31<sup>st</sup>, 2020

Traditional Ecological Knowledge & Science Education

Traditional ecological knowledge passed on by First Nations represents an accumulation of knowledge from thousands of years of existence. There is much to learn from TEK and it is important to understand that not all of this knowledge is meant to be shared outside of local communities and families.

Output:

Based on classroom discussions, material provided and your own experiences discuss how TEK and modern science education differ and also what they share. Provide tangible examples for each that are relevant to the Science K-8 Big Ideas.

Present this information as an infographic. An infographic is a collection of images, texts, graphic organizers, stats etc. that conveys ideas and concepts. This can be created digitally and printed or hand-crafted. Please use 11"x17" paper.

**Project #3 - Due Wednesday, February 26<sup>th</sup>, 2020**

**Activity Reconstruction**

There is a significant amount of supporting material available to teachers in an increasingly textbook free era. These supporting materials often take the form of resource guides (i.e. Below Zero) or online sources, many of which offer excellent ideas for student engagement. Most of these resources were developed without the values, voice and teachings of First Nations.

Choose an activity from one of the resources provided that you feel needs to be reconstructed to better reflect First Nations Ways of Knowing and Doing.

Output:

- Reconstruct this activity using the lesson plan template provided.
- Provide a written (250 word max) rationale explaining:
  - Why you chose this particular activity? Which could include how this activity omitted First Nations perspectives.
  - What did you change and how?
- Everyone will be given time (10 min max) to explain their reconstructed lesson plan to the class on February 26<sup>th</sup>.

**Project #4 - Due Wednesday, March 25<sup>th</sup>, 2020**

**Dynamic Reflective Formative Assessment**

This project will be developed based on the needs of the students. Every cohort of students has unique needs to move their learning forward and these needs are emergent. Based on student learning up to mid-term (March 6<sup>th</sup>) an appropriate project will be assigned worth 15%. This project will reflect an area of science education that I feel needs attention.

**Project #5 - Due Tuesday, April 14<sup>th</sup> or Wednesday, April 15<sup>th</sup>, 2020**

**Experiential Off-Site Trip Lesson**

Off-Site field trips are essential to student learning providing rich context to otherwise abstract concepts. These trips provide excellent opportunities for greater student engagement, help students self-regulate, and accelerate relationship building.

Working with a partner you are tasked to develop a field trip in the boreal forest that connects to:

- Yukon First Nations Ways of Knowing and Doing
- A K-8 science big idea, curricular competencies, content and core competencies.

Output:

- Complete a lesson plan using the lesson plan template
- Complete a Simple Field Trip Plan
- Facilitate an outdoor experiential activity involving the class that connects to your lesson plan (30 min max)

#### REQUIRED TEXTBOOKS AND MATERIAL

There is no required text to purchase for this course. A mosaic of resources will be accessed to complement weekly instruction. These resources will be provided by the instructor when necessary.

#### 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](http://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](mailto:lac@yukoncollege.yk.ca).