

APPLIED ARTS DIVISION  
School of Health, Education & Human Services  
Winter, 2017

University  
of Regina



**COURSE OUTLINE**

**ESCI 310**

**SCIENCE EDUCATION (PRE-K TO 5)**

**39 HOURS**

**3 CREDIT COURSE**

PREPARED BY: Ellen Johnson DATE: November 1, 2016

APPROVED BY: DATE:

APPROVED BY ACADEMIC COUNCIL: (date)

REVIEWED BY ACADEMIC COUNCIL: (date)



ESCI 310 Course Outline by Ellen Johnson is licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License](#)

**APPLIED ARTS DIVISION  
Science Education (Pre-K to 5)  
University of Regina Credit Course  
Winter, 2017**

**SCIENCE EDUCATION (PRE-K TO 5)**

---

**INSTRUCTOR:** Ellen Johnson

**OFFICE HOURS:** TBA

**OFFICE LOCATION:** TBA

**CLASSROOM:** A2101

**E-MAIL:** [ejohnson@yukoncollege.yk.ca](mailto:ejohnson@yukoncollege.yk.ca)

**TIME:** 4 - 7pm Tuesdays  
**Lab:** 9am - 12pm Mondays  
(bi-weekly)

**TELEPHONE:** 668-8845 - HEHS Office

**DATES:** Jan.10 - April 7, 2017

---

**COURSE DESCRIPTION**

Curriculum, instruction and evaluation in elementary school science.

**YUKON CONTEXT**

Applying new B.C. Curriculum - Science K-8, integrating local First Nations perspectives.

**PREREQUISITES**

One approved science elective and acceptance into pre-internship

**LEARNING OUTCOMES**

Students will be invited to consider issues in teaching elementary school science such as the following:

- The role and purpose of science in the (elementary) school curriculum
- The nature of science (and technology) in relation to society and environment
- How children/adolescents construct meaning, develop understanding and make sense of the world
- How children learn science: basic concepts and processes in relation to their everyday lives
- The philosophy, goals, and organization of the K-12 school science curriculum

- Practical understanding of curriculum, instruction and assessment strategies
- Design and implementation of learning environments in the elementary school (learning to teach science)
- Basic science classroom management and safety procedures
- Integrating science concepts in other curricular areas
- Investigating local First Nations relationships to the environment

## COURSE FORMAT

This course will be a total of 39 class-contact hours and 3 hours of lab bi-weekly on Monday mornings.

Classes will include inquiry, hands-on activities, collaborative work, presentations, discussions, outdoor activities, lecture, application of ideas and reflection. The text and curriculum documents will be used extensively.

## ATTENDANCE AND PARTICIPATION

**Students are expected to attend regularly, complete all assignments, come to class ready and prepared to learn, and participate actively in class activities.**  
Each YNTEP student is responsible for:

- Contacting your instructor prior to a class to report your absence. In an urgent situation you can contact the YNTEP reception at 668.8781.
- Catching up on missed material and any incomplete assignments.
- Obtain proper documentation (ex. doctor's note) in the event that a serious health concern affects attendance (3 or more classes).
- Familiarizing oneself with the YNTEP Handbook and the regulations relating to attendance and punctuality.

## ASSESSMENTS AND EVALUATION

Attendance and Participation	10%
Mini Presentations (week of Jan)	10%
Midterm	15%
Unit Plan	20%
Science Activities	20%
Final Exam	25%

### Attendance and Participation

Attendance is expected unless the instructor is notified by phone, email or text. Participation involves contributing to discussions, being prepared by having done readings and assignments, and a willingness to explore new ideas and methods in science investigation.

Science Labs will be at various locations and are practical and experiential learning activities relevant to teaching Science from K-Gr.9.

### **Mini Presentations**

Each student will be required to develop and briefly present 2 science based activities that explore the use of the local environment (e.g. Field trip, nature walk, etc.) and relate them to curriculum. Safety concerns and student management must be identified for each activity.

### **Midterm**

The midterm exam will be based on material covered and will require application of ideas introduced.

### **Unit Plan**

Students will select a grade level and curriculum based learning outcomes and with support, develop a unit plan.

- Unit plans should be at least 6 lessons of 30-45 minutes
- lesson plans must include objectives, introduction, method/activities, closing and evaluation.
- Curricular competencies for each lesson must be identified
- At least 2 lessons should include some level of integration with an another curriculum area. The area must be identified.

### **Science Activities**

Each student will plan 2 science exploration or investigation activities - 1 for primary and 1 for intermediate - to demonstrate to the group. The activity can be a demonstration, a hands-on experiment, or an investigation opportunity. For each experiment the science curriculum link must be identified, a list of materials included, and any safety concerns addressed. An assessment tool for each activity is required.

### **Final Exam**

The final exam will be cumulative and will focus on application of strategies explored and curriculum goals.

## **Responsibility for Learning Environment**

A YNTEP student's attitude and behavior must be consistent with their own status as a professional teacher in training. Students are required to know and follow the University of Regina 'Harassment and Respectful University Policies', Saskatchewan Teacher Federation's Code of Ethics, Yukon Teachers Association's 'Code of Ethics' and the Yukon College 'Code of Ethics'. See the YNTEP student handbook for more details.

## **Cell Phone Use / Social Networking**

Cell phones must be turned off during class time. If laptops / tablets are being used for class notes, social networking applications / platforms / sites (facebook, twitter, etc.) should not be accessed. Any recordings and photos must have prior instructor approval.

## **REQUIRED TEXTBOOK AND MATERIALS**

Science K-8: An Integrated Approach, Edward Victor, Richard D. Kellough, Robert

## **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 offense. 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.

## **CHEATING**

Cheating includes, but is not limited to dishonest or attempted dishonest conduct at exams, in which books, notes, diagrams or other aides not authorized by the examiner are used. It includes communication with others to obtain information, copying from the work of others, and purposely exposing or conveying information to other students who are taking exams.

## **ACADEMIC ACCOMMODATION**

Reasonable accommodations are available for students with a documented disability or chronic condition. It is the student's responsibility to seek these accommodations. If a student has a disability or chronic condition and may need accommodation to fully participate in this class, he/she should contact the Learning Assistance Centre (LAC) at (867) 668-8785 or [lassist@yukoncollege.yk.ca](mailto:lassist@yukoncollege.yk.ca). The LAC staff assists the student in communicating accommodations that are needed to support student success.

## **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. The YNTEP meets the requirements of YFN Core Competency.

## **OTHER STUDENT SUPPORTS**

Supports are available to students in the areas of academic assistance, access to computers and technology, personal counseling services and provides further information on childcare, scholarships and many other areas as well. For further information, visit the Student Services website:

[https://www.yukoncollege.yk.ca/student\\_info](https://www.yukoncollege.yk.ca/student_info)

## **SUPPORTING REFERENCES**

Caduto, M.J. and Bruchac, J. (2007). Keepers of Life: Discovering Plants through Native Stories and Earth Activities for Children. Calgary, Fifth House Ltd.

Caduto, M.J. and Bruchac, J. (1988) Keepers of the Earth: Native Stories and Environmental Activities for Children. Calgary, Fifth House LTD

Caduto, M.J. and Bruchac, J. (1997) Keepers of the Animals: Native American Stories and Wildlife Activities for Children. Golden, Colorado, Fulcrum Publishing.

Shared Learnings: Integrating BC Aboriginal Content K-10 (2006) Aboriginal Education Enhancements Branch, British Columbia Ministry of Education.

B.C. Curriculum, <http://curriculum.gov.ba.ca>

## University of Regina & Faculty of Education Summary of Academic Regulations & Reminders (Undergraduate)

As a student at the University of Regina it is your responsibility to be aware of and to follow all academic regulations in the Undergraduate Calendar available at <http://www.uregina.ca/student/registrar/calendars-schedule.html>. Please pay particular attention to “**Responsibilities of Students**” (§5.1), “**Student Behaviour**” (§5.13) and note the policies, expectations and information as outlined below:

1. **Students with Special Needs** - Any student with a disability, injury or illness who feels they may need academic accommodation should discuss this with the course instructor after contacting the **Centre for Student Accessibility**, located in Riddell Centre 251, phone 306-585-4631, or email accessibility@uregina.ca.
2. **Language Competence** - Students are expected to meet recommended standards of language competence as part of graduation requirements in the Faculty of Education.
3. **Attendance & Punctuality (§5.3)** - Regular and punctual attendance at classes provides a foundation for academic success, and is expected of all students. When the persistent lateness or absence of a student jeopardizes the learning or the evaluation of the work of other students in the course, the student may be subject to penalty, including being dropped from the course or being barred from writing the final examination. One written warning will be provided to the student before such action is taken.
4. **Late Assignments** - Action regarding late assignments may vary from instructor to instructor. Expectations or due dates for assignments, as well as the marks that may be deducted for late assignments are noted in the course syllabus. (For example, some instructors deduct one mark for each day late.) Normally, all required elements of the program must be successfully completed by each student.
5. **Professional Conduct** - Teaching is a helping profession. In order for the profession to achieve its goals and values, to enhance the quality of public education in the Province, and protect its members and those whom it serves the Faculty of Education has established sound and reliable criteria and procedures for evaluating the suitability of aspiring teachers. The criteria

specify appropriate conduct for students in teacher education. The procedures specify processes for screening, regulating and monitoring their professional conduct. The Faculty of Education has the right and responsibility to assess students' professional conduct in terms of the criteria outlined above and in terms of criteria outlined in the following documents. It will take appropriate actions in accordance with the following legislation, policies and guidelines:

- The University of Regina Academic Regulations
- The Canadian Teachers' Federation Code of Ethics
- The Saskatchewan Teachers' Federation Code of Ethics
- The Education Act, 1995, Saskatchewan
- The Board of Teacher Education and Certification, Guiding Principles and Beliefs
- Student Review Policy, Faculty of Education.

6. **Progress in the Program** (**§11.5.2**) - Under current faculty regulations, progress in the program is based on academic standing and professional development. Faculty selection and review committees determine students' eligibility to progress into all professional semesters, including internship. It is the responsibility of each student to become familiar with the selection criteria and procedures.
7. **Faculty Action**: At the end of each semester, students with poor academic records and/or unsatisfactory professional development will be subject to faculty action. Students will be required to discontinue or will be placed on faculty probation.
8. **Student Behaviour** (**§5.13**) - Students of the University of Regina are expected to conduct themselves responsibly and with propriety both in their studies and in their general behaviour, and are expected to abide by all policies and regulations of the University. Misconduct, which may be academic (that is, in academic studies) or non-academic (in general behaviour), is subject to disciplinary action.
9. **Academic Misconduct** (**§5.13.2.2**) - Acts of academic dishonesty or misconduct include acts which contravene the general principles described in **§5.13.1**. In this section, some of these acts are described. Others which are not explicitly described here may also be considered academic misconduct. All forms of academic misconduct are considered serious offences within the University community. For the penalties, see **§5.13.5**.

Cheating - *Cheating constitutes academic misconduct. Cheating is dishonest behaviour (or the attempt to behave dishonestly), usually in tests or examinations. It includes:*

- unless explicitly authorized by the course instructor or examiner, using books, notes, diagrams, electronic devices, or any other aids during an examination, either in the examination room itself or when permitted to leave temporarily;
- copying from the work of other students;
- communicating with others during an examination to give or receive information, either in the examination room or outside it;
- consulting others on a take-home examination (unless authorized by the course instructor)
- commissioning or allowing another person to write an examination on one's behalf;
- not following the rules of an examination;
- using for personal advantage, or communicating to other students, advance knowledge of the content of an examination (for example, if permitted to write an examination early);
- altering answers on an assignment or examination that has been returned;
- taking an examination out of the examination room if this has been forbidden.
- Plagiarism** - *Plagiarism is a form of academic dishonesty in which one person submits or presents the work of another person as his or her own, whether from intent to deceive, lack of understanding, or carelessness. Unless the course instructor states otherwise, it is allowable and expected that students will examine and refer to the ideas of others, but these ideas must be incorporated into the student's own analysis and must be clearly acknowledged through footnotes, endnotes, or other practices accepted by the academic community. Students' use of others' expression of ideas, whether quoted verbatim or paraphrased, must also be clearly acknowledged according to acceptable academic practice. It is the responsibility of each student to learn what constitutes acceptable academic practice.*
- Plagiarism includes the following practices:
  - not acknowledging an author or other source for one or more phrases, sentences, thoughts, code, formulae, or arguments incorporated in written work, software, or other assignments (substantial plagiarism);
  - presenting the whole or substantial portions of another person's paper, report, piece of software, etc. as an assignment for credit, even if that paper or other work is cited as a source in the accompanying bibliography or list of references (complete plagiarism). This includes essays found on the Internet. **Students who are uncertain what plagiarism is should discuss their methodology with their instructors.** Note: The Department of English Style Guide is available inexpensively from the University

*Bookstore. Students may also consult online resources.*

- - 10. **Withdrawal from a Course** - Students who are not attending but haven't formally withdrawn are still registered, are liable for fees, and will be assigned a grade of "NP" for failing to complete the course. Students may drop classes in UR Self- Service up to the deadline for withdrawing from a course without a failing grade. Changes after the deadline, must be made in their Faculty or College office, or students may mail, fax or email registration requests (students should check with their Faculty or College office). Please consult §1.2 of the Undergraduate Calendar for refund deadlines and §3.3.5 for making changes to course registration.
  - 11. **Deferrals** - If you become unable to complete your term work or final exams (i.e. due to illness, accident, or a death in the family), you may be eligible to apply for a deferral of final examinations and/or term work. Please consult section §5.7 of the Undergraduate Calendar and contact the Faculty of Education's Student Program Centre (ED 354, phone 306-585-4537 or email [Education.Counselling@uregina.ca](mailto:Education.Counselling@uregina.ca)) or your faculty student services office as soon as possible for advice regarding deferrals.
  - 12. **Invigilators' Rights** - An invigilator who suspects a student of cheating has the authority to ask the student to do such things as empty pockets, pencil cases, etc., and roll up their sleeves. The invigilator should ensure they have a witness when asking the student to perform the request. The invigilator should not badger the student or unduly disrupt that student's (or other students') ability to complete the examination. If the student refuses to cooperate, the invigilator can not do more except to make written note of the students' refusal when reporting on the matter under the disciplinary regulations.
  - 13. **Harassment & Discrimination Prevention Policy (§8.4.5)** - All members of the University community are entitled to a professional working and learning environment free of harassment and discrimination. This entitlement, however, carries with it the expectation that all members of the University community will conduct themselves in an appropriate and responsible manner, with due respect and regard for the rights of others. No member of the university community shall cause or participate in discrimination against or harassment of another person. Anyone with inquiries, seeking advice or information, looking to resolve conflict arising from harassment and discrimination or wishing to discuss alternate resolution options or file a complaint can visit HDPCRS in RC 251.14 or call 306- 585-5400 or email at [respect@uregina.ca](mailto:respect@uregina.ca).
  - 14. **U of R Email (<https://webmail.uregina.ca/>)** -The Registrar's Office uses EMAIL SENT TO YOUR UNIVERSITY OF REGINA EMAIL ACCOUNT as an OFFICIAL MEANS OF COMMUNICATION. For many purposes, the office will make no other form of contact. Please ensure that you monitor your university email account

regularly. All students are provided email, Novell and Unix accounts. Students have a 2GB quota for email and can obtain information about their email address and password at [www.uregina.ca/is/student/](http://www.uregina.ca/is/student/). If you are not receiving email, check to see if you are over quota or if you have enabled email forwarding. Email delivery cannot be guaranteed if it is being forwarded.

**15. UR Self-Service and Contact Information** - Please update your contact information at the beginning of each semester (address, email, phone numbers, etc.) at UR Self-Service: [https://banner.uregina.ca/prod/sct/twbkwbis.P\\_WWWLogin](https://banner.uregina.ca/prod/sct/twbkwbis.P_WWWLogin). Using UR Self-Service, you can also change your PIN (strongly recommended); register for or drop classes; check class schedules; check grades and transfer credits; search up-to-date credit and non-credit course timetables; consult course descriptions; order & pay for textbooks; settle accounts by credit card; view and print T2202A Education Deduction Certificate; and view and print a confirmation of enrolment or unofficial transcript.

## **5.9 GRADING SYSTEM AND DESCRIPTIONS (University of Regina 2015-2016 UG Calendar - p. 39)**

The University of Regina employs a percentage grading system. A grade of less than 50% is a failing grade for undergraduate programs.

### **5.9.1 GRADING DESCRIPTIONS 5.9.1.1 Percentage grades**

**90-100**

An outstanding performance with very strong evidence of:

- an insightful and comprehensive grasp of the subject matter;
- a clear ability to make sound and original critical evaluation of the material given;
- outstanding capacity for original creative and/or logical thought;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts both in speech and in writing.
- 
- 80-89
- Very good performance with strong evidence of:
  - a comprehensive grasp of the subject matter;
  - an ability to make sound critical evaluation of the material given;
  - a good capacity for original, creative, and/or logical thinking;
  - a very good ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts both in speech and in writing.

**70-79**

Above average performance with evidence of:

- relevant literature and techniques;
- some capacity for original, creative, and/or logical thinking;
- an above-average ability to organize, to analyze and to examine the subject material in a critical and constructive manner, and
- to express thoughts both in speech and in writing.
- 
- 60-69
- A generally satisfactory and intellectually adequate performance with evidence of:
  - an acceptable basic grasp of the subject material;
    - a fair understanding of the relevant issues;
    - a general familiarity with the relevant literature and techniques;
    - an ability to develop solutions to moderately difficult problems related to the subject material;
    - a moderate ability to examine the material in a critical and analytical manner, and to express thoughts in writing.
-

- 50-59
- A barely acceptable performance with evidence of:
  - a familiarity with the subject material;
  - average performance with evidence of:
  - a substantial knowledge of the subject matter;
  - a good understanding of the relevant issues and a good familiarity with the
  - some evidence that analytical skills have been developed;
  - some understanding of relevant issues;
  - some familiarity with the relevant literature and techniques;
  - partially successful attempts to solve moderately difficult problems related to the subject material and to examine the material in a critical and analytical manner;
  - basic competence in writing.
- 
- 0-49 Unacceptable performance.
- **5.9.1.2 Alphabetical grades** With the exception of the grades of NP and XF (see “Calculation of Grade Point Averages,” below), none of the following grades has a numeric value. Grades of AG, C, and P are passing grades. Grades of F, N, NP, and XF are failing grades. The remaining grades are neutral.

## SYLLABUS - TOPIC OUTLINE ( HRS CONTACT TIME)

\*Science Labs begin January 16<sup>th</sup>, 2016 from 9:00 a.m. to 12:00 p.m. are bi-weekly. The instructor will inform students of the location and focus of each practical and experiential activity.

	Date	Topics:	Description/Details	Assignments Due:
01	01/1 0/17	Science as a Subject	Philosophy & Objectives; everyday science, Core competencies in Science	
02	01/1 7/17	Curriculum & Assessment	Format : Big ideas/curricular competencies/content; local curriculum, planning a science lesson, methods of assessment	Read Science curriculum
03	01/2 4/17	Taking Science Outside	Planning and managing field trips & outdoor activities, safety, possible field trips	
04	Jan 31	Mini Presentations, Experiments	Planning and managing experimental activities in the classroom, kinds of experiments, experimental method	Mini Presentations
05	02/0 7/17	Exploration Centres, Science Nights and Science Fairs. Planning a Science Unit	Science Learning outside science class, unit planning strategies	
06	02/1 4/17	Midterm Exam Individual unit planning assistance	Time for supporting unit planning	
07	02/2 1 /17	Reading Week	Assignment: Utilizing a First Nation legend as a basis for a science lesson	
08	02/2 8/17	Integration	Investigating opportunities for integrating Science learning in other curricular areas	
09	03/0 7/17	Closer Look at Life Science	Resources, scaffolding through grades, experiments/activities/integration ideas	

	<b>Date</b>	<b>Topics:</b>	<b>Description/Details</b>	<b>Assignments Due:</b>
10	03/1 4/17	Closer Look at Physical Science	Resources, scaffolding through grades, experiments/activities/integration ideas	
11	03/2 1/17	Closer Look at Earth and Space Science	Resources, scaffolding through grades, experiments/activities/integration ideas	Unit plan
12	03/2 8/17	Sharing Science Activities	<b>Students will share 2 Science Activities</b>	
13	04/0 4/17	Long Range Planning, Split Grade adaptations, Assessment	Practice planning for split grade situations, various assessment methods to use	
	TBD	FINAL EXAM		