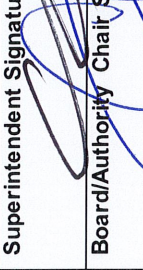
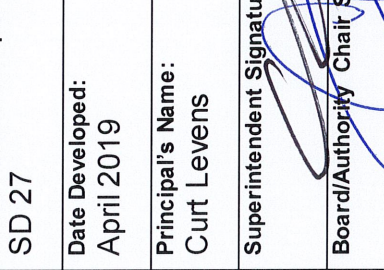


Board/Authority Authorized Course Application

School District/Independent School Authority Name: Cariboo-Chilcotin School District	School District/Independent School Authority Number (e.g. SD43, Authority#432): SD 27
Developed by: Cordell Wiebe	Date Developed: April 2019
School Name: Graduation Routes Other Ways (GROW)	Principal's Name: Curt Levens
Superintendent Approval Date (for School Districts only): June 25, 2019	Superintendent Signature (for School Districts only): 
Board/Authority Approval Date: June 25, 2019	Board/Authority Chair Signature: 
Course Name: BA Physical & Life Science 11A (Veterinary Science) / YPLS 1A	Grade Level of Course: 11
Number of Course Credits: 4	Number of Hours of Instruction: 120

Board/Authority Prerequisite(s):

None

Special Training, Facilities or Equipment Required:

Internet and computer access

Course Synopsis:

As animals play an increasingly important role in our lives, scientists have sought to learn more about their health and well-being. Taking a look at the pets that live in our homes, on our farms, and in zoos and wildlife sanctuaries, this course will examine some of the common diseases and treatments for domestic animals. Toxins, parasites, and infectious diseases impact not only the animals around us, but at times... we humans as well. Through veterinary medicine and science, the prevention and treatment of diseases and health issues is studied and applied.

Goals and Rationale:

The rationale for this course has three components and will address an ongoing need we have in SD 27 Cariboo-Chilcotin Distributed Learning (The GROW Centre), supporting the needs of our high school learners in our district.

- The first piece is to support our students who are not sure about the direction they want to pursue in relation to addressing their graduation requirements while allowing them to develop their skills and explore their passions and interests as outlined in the new curriculum. Providing other options for academic and career exploration electives increases our number of elective offerings and allows students to pursue an areas of focus based on their educational goals and graduation requirements.
- The second piece is that our students are often looking for electives to take particularly in areas they are interested in. This course would fill that gap and address an emerging need we are seeing in our high schools in the district. Through our course selection meetings, we are seeing an increase in number of students who are interested exploring fields that have been historically relegated to post-secondary education. In addition, through our grad transitions interviews we are seeing an increase in number of students who are interested in pursuing careers in a list of ever expanding fields. As an elective course, students would be able to learn about a topic related to those academic and career fields. Further to that, as more and more Distributed Learning schools throughout the province offer a wider variety of courses, our students have increasingly more course options available. Students are able to enroll and take courses at any Distributed Learning course in the province. Our intent at The GROW Centre is to be responsive to and supportive of the learning needs of our students in our district. At this time, this course addresses an emerging need.
- Finally, this course is designed to give students who may be interested in veterinary studies a more in depth study to this area. Currently, the BC Ministry of Education does not offer an in-depth course into the study of animal sciences. Students will have the opportunity to explore the various areas of veterinary science and develop a better understanding of careers and practices in the industry. Students who love animals, who are pursuing a career in this field, or who have had a work experience placement at a vet clinic would be ideal candidates for this course.

Aboriginal Worldviews and Perspectives:

Learning within Physical & Life Science 11A (Veterinary Science) inherently acknowledges and addresses many aspects within **The First Peoples Principles of Learning**. Specifically:

- Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place).
- Learning involves recognizing the consequences of one's actions.
- Learning is embedded in memory, history, and story.
- Learning involves patience and time.
- Learning requires exploration of one's identity.

BIG IDEAS

Our evolving understanding of animal biology has implications for health, society, and environment

Members of a species have common, yet very unique characteristics

The study of animal parasites and diseases is necessary for insight into long-term health and advancement

Learning Standards

Curricular Competencies	Content
<p><i>Students are expected to be able to do the following:</i></p> <p>Demonstrate, practice, and enhance the curricular competencies throughout the course. These competencies involve the following:</p> <ul style="list-style-type: none"> • Communication -The communication competency encompasses the set of abilities that students use to impart and exchange information, experiences and ideas, to explore the world around them, and to understand and effectively engage in the use of digital media • Thinking - The thinking competency encompasses the knowledge, skills and processes we associate with intellectual development. It is through their competency as thinkers that students take subject-specific concepts and content and transform them into a new understanding. Thinking competence includes specific thinking skills as well as habits of mind, and metacognitive awareness. • Personal and Social - Personal and social competency is the set of abilities that relate to students' identity in the world, both as individuals and as members of their community and society. Personal and social competency encompasses the abilities students need to thrive as individuals, to understand and care about themselves and others, and to find and achieve their purposes in the world. <p>Students are expected to approach these competencies in this course in the following manner:</p>	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> • the areas of veterinary science and medicine include and how these areas differ from each other <ul style="list-style-type: none"> – History of veterinary science – Educational requirements for practice – Methods of research and conducting ethical practice • small animal illnesses and diseases including: <ul style="list-style-type: none"> – skeletal – nervous – endocrine – gastrointestinal systems • preventative measures and treatments scientist have discovered <ul style="list-style-type: none"> – why the health of horses, cattle, and swine is important for public health • large animal illnesses and diseases including the diseases and conditions that affect livestock: <ul style="list-style-type: none"> – equine diseases such as colic and equine influenza

Questioning and predicting

- Use Social Studies inquiry processes and skills to ask questions; gather, interpret, and analyze ideas; communicate findings and decisions, and make predictions
- Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest
- Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world
- Formulate multiple hypotheses and predict multiple outcomes

Planning and conducting

- Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data (qualitative and quantitative)
- Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed methods
- Assess how prevailing conditions and the actions of individuals or groups influence events, locations, decisions, or developments (cause and consequence)

Processing and analyzing data and information

- Assess the credibility of, and the justification for the use of, evidence after investigating the reliability of sources and data, the adequacy of evidence, and the bias of accounts and claims (evidence)
- Compare and contrast continuities and changes for different groups at different times and places (continuity and change)
- Experience and interpret the local environment
- Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information
- Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies
- Construct, analyze, and interpret graphs, models, and/or diagrams

– **mad cow disease** and **foot-and-mouth disease**

– **swine pox** and **pseudorabies**

- some of the diseases that affect birds and what treatments are used for these diseases
- veterinary medicine for exotic animal, including those animals that are kept in zoological parks and sanctuaries.
- **toxicology, poisons**, and other harmful substances.
- how acute toxicosis differs from chronic toxicosis
- **veterinary parasitology**: the study of parasites and their animal hosts
- the different symptoms that animals can experience due to parasites.
- **zoonotic diseases** or diseases that can be transferred from animals to humans:
- zoonoses and why they are a concern to veterinary scientists and public health officials
- **holistic treatments** that are currently being used in veterinary medicine including **acupuncture**, chiropractic treatment, herbal medicine, and **hydrotherapy**

- Use knowledge of scientific concepts to draw conclusions that are consistent with evidence
- Analyze cause-and-effect relationships

Evaluating

- Make reasoned ethical judgments about, and assess varying responses to, actions and events in the past or present (ethical judgment)
- Explain and infer different perspectives on past or present people, locations, issues, or events by considering prevailing norms, values, worldviews, and beliefs (perspective)
- Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions
- Describe specific ways to improve their investigation methods and the quality of their data
- Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled
- Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources
- Consider the changes in knowledge over time as tools and technologies have developed
- Connect scientific explorations to careers in science
- Exercise a healthy, informed skepticism and use scientific knowledge and findings to form their own investigations to evaluate claims in primary and secondary sources
- Consider social, ethical, and environmental implications of the findings from their own and others' investigations
- Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems
- Assess risks in the context of personal safety and social responsibility

Applying and innovating

- Contribute to care for self, others, community, and world through individual or collaborative approaches

- Co-operatively design projects with local and/or global connections and applications
- Contribute to finding solutions to problems at a local and/or global level through inquiry
- Implement multiple strategies to solve problems in real-life, applied, and conceptual situations
- Consider the role of scientists in innovation

Communicating

- Use social studies inquiry processes and skills to ask questions; gather, interpret, and analyze legal concepts, issues, and procedures; and communicate findings and decisions
- Formulate physical or mental theoretical models to describe a phenomenon
- Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations
- Express and reflect on a variety of experiences, perspectives, and worldviews through place

Big Ideas – Elaborations

Our evolving understanding of animal biology has implications for health, society, and environment

Sample questions to support inquiry with students:

- How do current and past veterinary care for animals compare?
- How will advancements in large animal care affect human health via consuming of livestock products?

Members of a species have common, yet very unique characteristics

Sample questions to support inquiry with students:

- Are treatments for small animal diseases transferable to larger animals of the same species?
- Are there care practices that are common to all varieties of animals?

The study of animal parasites and diseases is necessary for insight into long-term health and advancement

Sample questions to support inquiry with students:

- How effectively can science eradicate epidemic diseases in livestock?
- What agricultural practices can assist in strengthening current animal health and prevention of future diseases?

Curricular Competencies – Elaborations

Questioning and predicting:

Sample opportunities to support student inquiry:

- Why is veterinary science important to public health and what factors do you think make veterinary science important to public health and safety?
- Is the treatment of zoo animals of any benefit to veterinarians working with other animals?
- Why do you think some zoonotic diseases have been used for bioterrorism throughout history and what future concerns could become prevalent?
- Why do you think more research has not been done on the use of holistic veterinary treatments and how could they become more pervasive in the future?
- Explore a First Peoples narrative based respect and care for animals.

Planning and conducting:

Sample opportunities to support student inquiry:

- Identify how veterinary science and medicine differ from each other
- Record the examples of holistic treatments in the care of animals and assess their effectiveness.

Processing and analyzing data and information:

Sample opportunities to support student inquiry:

- What factors influence the mortality rate of bloat in dogs?
- Research bovine spongiform encephalopathy and explain why there is such a concern about this disease.
- Identify some of the ways that parasites have adapted to transmission between hosts and resisting the host's attempts to get rid of the parasite.

Evaluating:

Sample opportunities to support student inquiry:

- Why are ethics important to veterinary science and medicine?
- Do you think that whole herds should be killed if diseases like mad cow disease are found in some animals in the herd? Why or why not? What considerations would go into this decision to eradicate a herd?
- What costs does poisoning have for animals, individuals, and businesses? What dangers would animal poisoning have for public safety?

Applying and innovating:

Sample opportunities to support student inquiry:

- What are some possible innovations are there for veterinarians in treating small animals versus the large mammals
- What are some possible innovations for the remediation of resource sites?

Communicating:

Sample opportunities to support student inquiry:

- How does a veterinarian deal with the loss of a family pet, and how does that differ from the loss of livestock?
- What can be done to prevent some of the viral infections in birds?
- What factors would a veterinarian want to know when considering a possible poisoned animal? What are some challenges in learning these factors?
- What are some of the hazards that domestic pets like dogs and cats can experience in regard to poisons? How are pets exposed to these poisons? What do you think can be done to reduce the exposure?

Content – Elaborations

- **small animal illnesses and diseases including:**
 - **skeletal:** degenerative joint diseases including osteoarthritis, hip or elbow dysplasia

Content – Elaborations

- **nervous:** epilepsy, including symptomatic or secondary epilepsy as a result of a tumor, or idiopathic or primary epilepsy where no cause is found
- **endocrine:** any disease caused but too much or too little secretion of hormones including diabetes mellitus, hyperthyroidism, and hypothyroidism
- **gastrointestinal systems:** including bloat and pancreatitis
- **viruses:** that can affect cats and dogs
- **large animal illnesses and diseases including:**
 - **colic:** any stomach pains experienced by horses including colitis and gastric distension
 - **equine influenza:** a contagious airborne virus that affect the respiratory system of horses
 - **mad cow disease:** (also called bovine spongiform encephalopathy) is a fatal neurodegenerative disease, which causes a spongy type of degeneration in the spinal cord and brain of infected cattle
 - **foot-and-mouth disease:** is a contagious virus that affects cloven-hoofed animals like cattle, swine, and sheep, causing lesions on the animals tongue, lips, hooves, and mouth.
 - **swine pox:** a viral disease, transmitted through lice or mites, that infects pigs and leads to abdominal lesions and hoof deformation
 - **pseudorabies:** a virus that affects swine cause coughing, fever, seizures, and excessive salivation. For piglets under one month of age, the mortality rate is almost one hundred percent, although it decreases to ten percent for pigs over one month of age.
- **toxicology:** involves the study of poisons, toxins, and other chemicals that can harm animals
- **poisons:** can be consumed by livestock foraging or infected through venomous bites
- **veterinary parasitology** including common parasites, heartworms, mites, and fleas
- **zoonotic diseases:** including:
 - Hantavirus: a group of viruses that are found in rodents and can be transmitted to humans; the rodents carry the viruses, but do not become ill from the viruses themselves
 - Plague: Plague has been a feared disease during many times in history, causing many deaths and disrupting human society. Examples of plagues include: Bubonic plague, Septicemic plague, and Pneumonic plague
 - Anthrax: a disease, common to grazing animals, caused by a spore forming bacteria. The illness is acute, coming on suddenly and most forms of anthrax are fatal.
 - Ringworm: a common zoonotic disease that affects humans
- **holistic treatments:**
 - **acupuncture:** , ancient practice of inserting and manipulating needles into the body, it is used in veterinary practices although it still remains somewhat controversial
 - **hydrotherapy:** the treatment of disease or rehabilitation through the use of water

Recommended Instructional Components:

The instructional component of this course is delivered and completed online. The content for the course is included within the online course and students are self-guided through the lessons. Support is provided through The GROW Centre if students have questions about the assessments. Students will be met with on a regular basis to review their progress in the course.

Recommended Assessment Components:

The course will be marked in accordance with the Principles of Quality Assessment Guidelines and the Reporting Policies set out by the Ministry of Education. The distribution of grades for the course is broken down as follows:

Units 1 – 8	10% each
Midterm Exam	10%
Final Exam	10%
Total	100%

The course syllabus indicates “homework” as being part of the student’s marks. The “homework” will be renamed as “Assignment Text Questions” and “Lab Questions” in the online course and will be counted towards the unit grade for the students. Feedback will be provided to the students from the teacher. Each unit carries the following breakdown for marks.

Assignment Text Questions	10 pts
Lab Questions	10 pts
Quiz	15 pts
Discussion Questions	10 pts

The Lab Questions for the course are part of a web journey lab that the students will have to complete for each unit. Each lab relates to a series of questions that are developed as a result of a web based video series or web based exploration that they complete. Within each lab are links to educational material developed by various organizations around the globe. The labs are directly related the unit content and lead the students through a series of inquiries and questions. The labs are very interactive and add an additional element to the online learning environment.

The discussion questions are part of an online forum associated with the course where the students are required to answer questions posted on the forum. The intent behind the discussion questions is to illicit conversation that would normally come in a face-to-face delivery of the course.

There is a full teacher guide provided for the course with detailed responses to the assessments in the course. This resource is available to the teacher who marks the course. The online quizzes that have selected response components to them are auto corrected and immediate feedback is provided to the students upon completion of the assessment.

Learning Resources:

The course content and assessments are provided through eDynamic Learning. SD27 Distributed Learning has a contract with eDynamic to provide course content for some of our online courses. Through eDynamic Learning we have the opportunity to offer many courses using this format.

Additional Information: